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Editorial

Journal of Econmics and Behavioral Studies (JEBS) provides distinct avenue for quality research in the ever-changing fields of economics & behavioral studies and related disciplines. Research work submitted for publication consideration should not merely limited to conceptualisation of economics and behavioral devlopments but comprise interdisciplinary and multi-facet approaches to economics and behavioral theories and practices as well as general transformations in the fileds. Scope of the JEBS includes: subjects of managerial economics, financial economics, development economics, finance, economics, financial psychology, strategic management, organizational behavior, human behavior, marketing, human resource management and behavioral finance. Author(s) should declare that work submitted to the journal is original, not under consideration for publication by another journal, and that all listed authors approve its submission to JEBS. Author (s) can submit: Research Paper, Conceptual Paper, Case Studies and Book Review. Journal received research submission related to all aspects of major themes and tracks. All submitted papers were first assessed by the editorial team for relevance and originality of the work and blindly peer reviewed by the external reviewers depending on the subject matter of the paper. After the rigorous peer-review process, the submitted papers were selected based on originality, significance, and clarity of the purpose. The current issue of JEBS comprises of papers of scholars from Austria, Switzerlad, Tanzania, South Africa, Nigeria, Turkey, Uganda, USA, Bangladesh and Zimbabwe. Facebook: the holy grail of relationship marketing, different crime types: analysis through principal component analysis, structural determinants of job satisfaction, the determinants of non-performing loans, investigating chaos on the Johannesburg Stock Exchange, evidence-based practices of promoting entrepreneurship education, responsiveness to knowledge & organisational performance, African stock markets and return predictability, modeling South African accounting academic staff teaching rationalism factors, factors affecting consumer resistance to innovation diffusion, age diversity and financial performance of manufacturing firms, sustainable tourism development, factors that influence employee attitude and service delivery behavior, ICT and entrepreneurial development, buying decisions of customers, foreign direct investment in Russia, factors affecting demand planning, a cautionary analysis of South Sfrica's BRICS membership, proposed statistics attitudes-outcomes model and co-integration & causality analysis between inflation & its determinants were some of the major practices and concepts examined in these studies. Current issue will therefore be a unique offer, where scholars will be able to appreciate the latest results in their field of expertise, and to acquire additional knowledge in other relevant fields.

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PAPERS

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Facebook: The Holy Grail of Relationship Marketing?

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Abstract: Relationship marketing has been a focus of online studies for a number of years. These studies have indicated that relationships in these environments are driven by commitment, trust, privacy concerns and stickiness. However, research on the use of Facebook as a relationship marketing building platform has received little attention. Therefore, this paper focuses on the constructs of relationship marketing and how they impact on relationships in the Facebook context. Questionnaires were distributed to a convenience sample of 300 students. The study confirmed that the factors influencing relationships on Facebook were similar to the factors influencing relationships in other online environments. The implications of the results of the study are discussed.

Keywords: *Facebook, Relationship Marketing, Stickiness, Trust, Commitment*

1. Introduction

In an era where technology dominates marketing as a field and is becoming increasingly important to companies in order to remain competitive, Facebook may represent a vehicle for building strong customer relationships. This is particularly the case because Facebook is a highly interactive platform, consisting of a network of users, where users converse with one another, allowing the other parties to reply and make comments to their posts, share information, and develop friendships (Boyd & Ellison, 2008). A point often overlooked, however, in the marketing field as Hsu (2012) recalls is that online technologies like Facebook are able to provide companies with one-on-one interactions with customers. Such interactive dialogues are generally thought to play a role in maintaining valued customer relationships (Jayachandran, Sharma, Kaufman & Raman, 2005; Grönroos, 2000) and as Bendapudi and Berry (1997) remarked, interactions with customers are viewed as being of significance, as organisations who constantly interact with their customers build relationships with those customers. Based on this background, Facebook can be a valuable tool for those marketers who have a high desire to interact and engage with their customers, with the intention of developing and maintaining relationships. Therefore, the recognition of the importance of Facebook in relationship marketing represents a step towards Hennig-Thurau and Hansen's (2000) call for marketing scholars to discuss the role of new technologies in relationship marketing. This call has been supported by Zineldin (2000), who noted that technology encourages companies to create long-term relationships with customers.

Therefore, in this paper, Hennig-Thurau and Hansen's (2000) call is taken up and that gap is addressed by developing and empirically testing a conceptual model that examines Facebook as a possible platform that may play a significant role in the understanding and building relationships with customers. The proposed Facebook model integrates commitment, trust, privacy and stickiness and examines relationships between the constructs of the model. Also, this paper demonstrates the way in which interactions between privacy and commitment, a connection not apparent in previous research, might influence our understanding of the phenomena of relationship marketing on Facebook. Finally, the paper tests a relationship between privacy and stickiness, which is also not apparent in previous research. The paper begins with a definition of relationship marketing, where the subsequent sections review relationship marketing literature with regard to the variables of trust, commitment, privacy and stickiness incorporated in the conceptual model developed for this paper. Furthermore, an interrelationship of the variables of the conceptual model and research hypotheses will be discussed. Finally, the paper presents findings and discusses implications for researchers and practitioners, limitations to the study, and suggestions for future research.

2. Literature Review and Conceptual framework

This section provides a definition of relationship marketing followed by a brief overview of the key concepts of relationship marketing.

Definition of relationship marketing: Relationship marketing is described as "all marketing activities directed toward establishing, developing, and maintaining successful relational exchanges" (Morgan & Hunt, 1994:22), requiring constant communication with customers to meet future customer needs (Evans & Laskin, 1994). Another conceptualisation of relationship marketing identifies understanding, explanation and management of collaborative relationships between organisations and customers (Sheth & Parvatiyar, 1995) including the formation of networks (Gummesson, 1994) as key elements to relationship marketing. These authors espoused three main elements in the definition of relationship marketing, namely, interactions, collaborations and networking, which they maintain to be crucial in building long-term, trusting and mutually beneficial relationships with customers (Kim & Cha, 2002).

Trust: The fundamental principle underpinning any form of relationship is trust (Morgan & Hunt, 1994). Trust begins when parties believe that one party will act in the best interest of the other (Wilson, 1995; Yousafzai, Pallister & Foxall, 2009), and there is a general belief that the other party can be trusted consistently (Gefen, 2002) and relied upon (Kim, Kim & Hwang, 2009), where belief in ability, integrity and benevolence serve as antecedents to trust (Gefen, 2002). Such trust usually reduces customers' sense of risk and doubt (Sharma, Tzokas, Saren, & Kyziridis, 1999) and is often based on past behaviour (Cater & Zabkar, 2009). Trust develops only when parties believe that the risk inherent in a particular situation is offset by the degree to which trust is maintained by the other party (Kim & Kim, 2005). Therefore, Moorman, Deshpande and Zaltman (1993:315) define trust as the "willingness to rely on an exchange partner in whom one has confidence".

Commitment: Commitment has been widely recognised as the basis for forming long-term relationships (Cater & Zabkar, 2009). Rusbult, Martz and Agnew (1998:359) defined commitment as the "intent to persist in a relationship, including long-term orientation toward the involvement as well as feelings of psychological attachment". In the context of an organisation, individuals often show their commitment to an organisation by repeatedly engaging in a relationship with such organisation (Sheth & Parvatiyar, 1995). The engagements, as Anderson and Weitz (1992) noted, resemble what has been observed in committed relationships where both parties are expected to make short-term sacrifices to realise long-term relationship benefits, while at the same time maintaining relationships (Wilson, 1995; Moorman et al., 1993; Morgan and Hunt, 1994). In such instances, parties are more concerned with the value they receive in a relationship (Harridge-March & Quinton, 2009). Essentially, creating such value enhances the feeling of association (Mukherjee & Nath, 2003) among parties. From the discussions so far, one can draw the conclusion that commitment is "an enduring desire to maintain a valued relationship" (Moorman et al., 1993), and being persistent in such relationships (Li, Browne & Wetherbe, 2006).

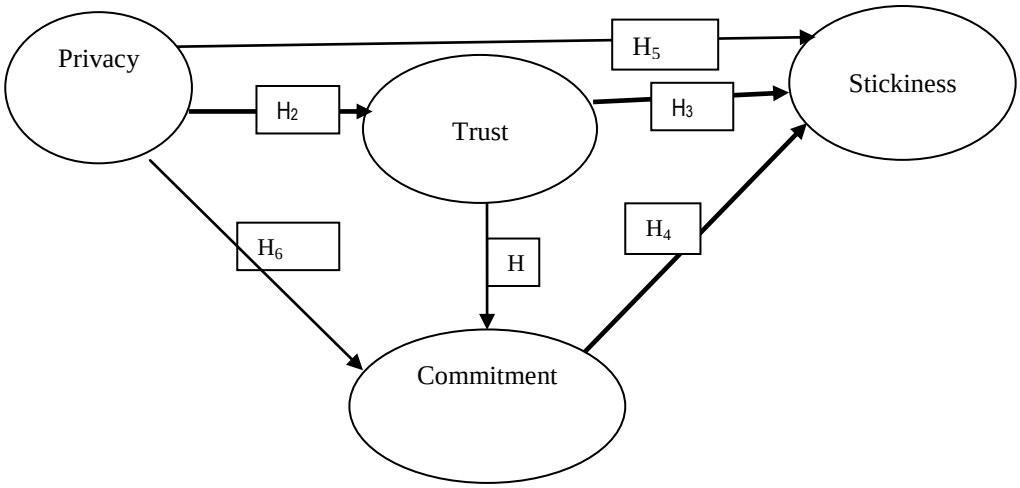
Considering numerous definitions of the concept of commitment, however, it is not surprising that some researchers (Meyer, Allen & Smith, 1993; De Ruyter & Semeijn, 2002; Colquitt, Scott & LePine, 2007) have attached multiple understandings to the concept. These researchers have suggested that a definition of commitment ought to incorporate dimensions such as affective, calculative and normative components. Affective commitment, for instance, is more closely related to a strong desire to maintain and continue a relationship (Geyskens, Steenkamp, Scheer & Kumar, 1996). Thus, the decision to stay in a relationship is based on affective commitment (De Ruyter, Moorman & Lemmink, 2001). With affective commitment, parties stay in a relationship because they like each other, and because they enjoy the partnership (Cater & Zabkar, 2009). As for calculative commitment, De Ruyter and Semeijn (2002) maintain that parties stay in a relationship when lacking alternatives. Yet another component of commitment is normative commitment. In normative commitment, parties stay in a relationship because they believe they have an obligation to stay (Cater & Zabkar, 2009). From these definitions, affective commitment emerges as the most widely used in measuring employee commitment to an organisation (Shore & Wayne, 1993).

Privacy concerns: Smith, Milberg and Burke (1996:169) defined privacy concerns as "individuals' concerns about organisational information privacy practices". Privacy concerns have been the main reason why consumers are reluctant to submit their personal information online (Malhotra, Kim & Agarwal, 2004). Culnan and Armstrong (1999) describe personal information as that information individuals recognise as pertaining to themselves. Such information includes names, addresses, lifestyle characteristics and purchasing habits (Lwin & Williams, 2003). Research indicates that individuals have always been concerned about information provided to organisations. Ordinarily, individuals feel vulnerable and worry that the organisation might use their information unfairly (Culnan & Armstrong, 1999). Such concerns regard the unauthorised secondary use of data, invasion of privacy and errors in personal information (Brown & Muchira, 2004). Unauthorised secondary use is based on concerns that individual's personal data collected for one purpose might be used for another purpose without such individuals authorising its use (Smith et al., 1996). Errors in personal data represent an individual's perceptions that organisations are not doing enough to reduce problems when capturing their personal data (Brown, Gottlieba & Muchira, 2005). Invasion means that individuals who have not requested contacts from the organisation are nonetheless contacted (Brown & Muchira, 2004). More often than not, such unsolicited communication is unwanted (Brown et al., 2005).Therefore, the improper sharing of personal information may result in an unwillingness to provide information that reveals ones self-identity and self-expression (Goldie, 2006).

Stickiness: Stickiness has long been used in the marketing field as an important aspect in understanding customer retention. From a marketer's perspective, stickiness may be driven by a strong sense of cooperation between the organisation and its customers and may prove beneficial and useful in attracting and retaining customers (Zott, Amit & Donlevy, 2000; Xu & Liu, 2010). Normally, the concept is used in the context of online environments, and refers to users' repeated visits to a site, while spending more time on such a site compared to an ordinary user (Hsu & Liao, 2014). The purpose of creating stickiness is to convert visitors of a site to customers (Nemzow, 1999), encouraging the number of repeated visits (Wu, Chen & Chung, 2010) and retaining prior customers with repeat business (Zott et al., 2000). Nemzow (1999) points out that a site has stickiness when it serves an important role in the buying of goods and services, and when consumers re-visit the site, but not necessarily with the intention to purchase from such a site. As is the case with Facebook, more often than not, individuals visit the site so as to browse for non-commerce activities, such as sharing information, passing time or for entertainment. Therefore, in the context of Facebook, stickiness could refer to the amount of time spent on a company's Facebook site.

Conceptual model for Facebook relationship marketing and hypotheses formulation: Inspired by literature on Relationship Marketing, this paper develops and tests a model that should lead to an understanding of how Facebook might be used as a vehicle for relationship building. Although the literature identifies a myriad of factors influencing relationship marketing, including trust, commitment, and relationship quality, customer satisfaction, cooperation, shared values, communication and keeping promises, proponents of relationship marketing believe that understanding relationship marketing is contingent upon the Morgan and Hunt (1994) Commitment-Trust theory. The key determinants of relationship building and relationship maintenance in the Morgan and Hunt (1994) theory are commitment and trust. Apart from commitment and trust identified by Morgan and Hunt (1994), other authors like Li, Browne and Wetherbe (2006) found stickiness to have explaining powers on relationships in the online environments. Therefore, this paper proposes and tests a model of relationships between trust and commitment; trust and privacy; trust and stickiness; commitment and stickiness; privacy and stickiness; and privacy and commitment. The model is presented in Figure 1.

Figure 1: The proposed Facebook relationship marketing model



Hypotheses formulation: In this section, the hypotheses of the study are formulated.

Trust and commitment: Trust is important in the context of online environments, which are often characterised by mistrust, suggesting that in order for online users to share information and to prolong their interactions with each other, trust must prevail. This rationale is consistent with the assertion shared by Morgan and Hunt (1994), who opined that trust complements commitment in exchange relationships. Therefore, trust determines the level of commitment in a relationship (Gundlach, Achrol & Mentzer, 1995), and increases commitment (Selnes, 1998). Eastlick, Lotz and Warrington (2006) studied online business to customer relationships. The subjects in their study believed that trust and commitment are important relationship variables, especially in the online environment. This finding is further supported by a number of researchers (Moorman et al., 1993; Morgan & Hunt, 1994 and Wu et al., 2010), who suggested that the underlying manner in which an individual may trust others might depend on whether the parties involved demonstrate the required level of commitment. Therefore, this paper hypothesises the following:
H1: *As trust to Facebook site increases, commitment to the site increases*

Privacy and Trust: It is believed that trust would not be needed if parties in a relationship respected each other and protected each other's personal information. There is a view that customers' relational behaviour tends to be influenced by their lower levels of willingness to provide personal information, especially when they believe such information might be misused by the organisation (Hoffman, Novak & Peralta, 1999). This is a notion, and in the context of social media, it is further exacerbated by Facebook's announcement that it will monitor and record users' browsing history for targeting purposes (eMarketer, 2014) and sell this information to marketers. While this is commendable for many organisations, it also begs the question of how these organisations will protect consumers' information, which, Wu Chen and Chung (2010) rightly pointed out, is a necessary condition in the online environment. Therefore, this paper hypothesises the following:
H2: *Willingness to provide personal information on Facebook is associated with trust*

Trust and stickiness: In consumer contexts, consumers are more likely to re-visit the organisation's site when they believe that the organisation will act in their best interest (Yousafzai et al., 2009) and protect their personal information. This will be true even in the context of Facebook, where consumers share huge amounts of information. According to Wu et al. (2010), trust reflects the depth of a relationship, and may lead to repeat site visits, herein referred to as stickiness. Similarly, Li et al. (2006) agree that stickiness is an important factor in relationship marketing; as such, they attribute stickiness to trust. Thus, the degree to which consumers visit the organisation's Facebook site is likely to be influenced by the degree of trust for the site. The following hypothesis is proposed:
H3: *As trust to the Facebook site increases, stickiness increases.*

Commitment and Stickiness: The broader literature hypothesises a relationship between commitment and stickiness. Mukherjee and Nath (2003), for example, asserts that prolonged interactions with customers

increases the level of commitment. Concurrent with these views, Hsu and Liao (2014) maintain that in the contexts of online environments, a customer who is likely to spend more time on a site, and who visit the site repeatedly, portray their commitment to the site (Yan, 2013).Evidently, the duration of the time users spend online suggest their commitment to the site (Yan, 2013). Hence, Li et al. (2006) noted that in online contexts, stickiness is an outcome of commitment. Based on the foregoing arguments, the following is hypothesised:
H4: *Commitment to a relationship with a Facebook site is positively associated with stickiness.*

Privacy and stickiness: There is a consensus on the influence of consumers' privacy concerns and stickiness on online relationships. Also, stickiness is generally believed to influence online behaviours. Since these variables are both drivers of online relationships, it is important to understand how privacy influences stickiness, although literature revealed no apparent research on the effects of privacy on stickiness. The rationale for including this relationship is that users of a site may choose to re-visit and prolong their stay (Hsu & Liao, 2014) in the site when they believe the organisation will not share their personal information improperly (Culnan & Armstrong, 1999).That is, user's perceptions of security may increase the hours spent on Facebook. Therefore, the following hypothesis is proposed:
H5: *Willingness to provide personal information on Facebook is positively associated with the user's willingness to return to and prolong the duration of stay on the site.*

Privacy and Commitment: In a typical online environment, individuals always feel vulnerable and have opinions that the organisation might use their information unfairly (Malhotra et al., 2004). As such, an individual's decision to engage in online environments might be linked to their willingness to make short term sacrifices, engaging online with the view of maintaining such relationships, while building long-term relationships. From this reasoning, this paper hypothesises that privacy will influence commitment. Given the importance of privacy in online behaviours, this paper holds that examining a relationship between privacy and commitment is worthwhile. This relationship is not apparent in previous studies, but is crucial to understand, especially when one considers the amount of time users spend on Facebook. Based on the above arguments, the following hypothesis is proposed:
H6: *Willingness to provide personal information on Facebook increases commitment to the site.*

3. Methodology

Data was collected from undergraduate students. Lecturers were contacted and asked if they would allow the questionnaires to be distributed to students during class time. The lecturers granted permission. Questionnaires were collected from lecturers' offices after the class period. The students were informed of keeping their responses confidential and were asked not to provide their names or reveal their identity in any way. Furthermore, students were informed that they could withdraw from the study at any point should they wish to do so. No incentives were offered for participation.

Sample: Subjects of this study were solicited from undergraduate students at two higher education institutions in the Gauteng Province of South Africa. The student sample was deemed appropriate for two reasons: (i) since Facebook was developed as a communication tool among students (Boyd & Ellison, 2008), it has long been identified that students are primary users of Facebook (Roblyer, McDaniel, Webb, Herman & Witty, 2010; Nicholas, Rowlands, Clark & Williams, 2010; Park, Song & Lee, 2014). (ii) The purpose of this paper was to examine and empirically test whether factors identified in relationship marketing theories could be used in understanding the Facebook relationship marketing phenomenon, rather than to generalise findings about Facebook relationship marketing. According to Calder, Phillips and Tybout (1981), in instances like these, where theory testing is the aim, student sample may be used. Questionnaires were distributed to a convenience sample of 300 students. Of these, 258 were usable. Only those students18 and above were allowed to participate in the study.

Measurement instrument: The questionnaire consisted of items taken from trust-commitment literature and had two parts. Part A asked respondents about their demographic information. In part B, there were four constructs, namely, trust, commitment, privacy and stickiness. The trust construct consisted of four items, adapted from McKnight and Chervany (2002) scale. Commitment was measured by four items adapted from Kang, Lee, Lee, and Choi (2007) scale. The scale to measure privacy was adapted from Liu, Marchewka, Lu and

Yu's (2004) scale. It consisted of three items. The stickiness construct consisted of four items adapted from Liu et al. (2004) scale. The participants were asked to respond on a six-point Likert scale, ranging from strongly disagree (1) to strongly agree (6) as end points.

4. Data Analysis and Results

The data in this study was analysed using SPSS and Amos 24. To test the hypothesised relationships, a two-step analytic process was followed by assessing the measurement and the structural model (McDonald & Ho, 2002). Descriptive statistics were performed using SPSS. Furthermore, tests on confirmatory factor analysis, model fit, reliability and validity were performed.

Response rate: The sample consisted of 258 students, of which 54 percent were female and 41 percent male. The sample of this study consisted of participants ranging in age from 18 years old (7%), 19 years old (11%), 20 years old (21%), 21 years old (25%), 22 years old (17%), 23 years old (8%), to 24 years old (11%). Of these respondents, 58 percent accessed Facebook daily, 18 percent accessed it a few times a week, four percent once a week, nine percent a few times per month, and 11 percent once a month. Over 55 percent spend less than an hour on Facebook, 19 percent spend up to two hours per day on Facebook, 11 percent spend two to four hours on Facebook per day, eight percent spend more than eight hours, three percent spend four to six hours, and three percent spend six to eight hours on Facebook per day.

Measurement model: The measurement model was estimated using a maximum likelihood method. Confirmatory factor analysis was carried out to test the measurement model. The results indicated that the items had factor loadings exceeding the 0.50 threshold. The model fit was evaluated using the global fit indices. Table 1 presents fit indices for the measurement model.

Table 1: Fit indices

Fit Indices	Value	Recommended value
CMIN/DF	1.936	<5,preferably <3
NFI	0.942	>0.90
CFI	0.971	>0.93
GFI	0.929	>0.90
RMSEA	0.060	>0.05
PCLOSE	0.126	>0.05

As shown in Table 1, the measurement model displayed good fit with the data collected. All the fit indices demonstrated the acceptable values. The measurement model was further tested for reliability and validity.

Reliability and validity: Table 2 presents factor loadings, Cronbach's alpha, composite reliability and variance extracted, all used to test for reliability and validity.

Table 2: Standardised factor loadings, Cronbach alpha, CR and AVE

Construct	Item	Factor loadings	Cronbach's alpha	CR	AVE
Privacy	P1	0.73			
	P2	0.77			
	P3	0.85	0.82	0.97	0.92
Trust	T1	0.65			
	T2	0.83			
	T3	0.84			
	T4	0.84	0.87	0.98	0.93
Commitment	C1	0.71			
	C2	0.81			
	C3	0.80			
	C4	0.83	0.87	0.98	0.93

Stickiness	S1	0.75			
	S2	0.83			
	S3	0.80			
	S4	0.84	0.88	0.99	0.94

P=Privacy; T=Trust; C=Commitment; S=Stickiness

One of the measures of reliability used in this paper was Cronbach's alpha. The values of Cronbach alpha in the current study ranged from 0.826 to 0.882, thereby demonstrating internal consistency. The values are above 0.70, as recommended by Nunnally (1978). Confirmatory factor analysis (CFA) was performed to examine composite reliability (CR), convergent validity and discriminate validity. Convergent validity was examined using average variance extracted (AVE). Bagozzi and Yi (1988) indicate that a popular rule of thumb for accepting CR and AVE occurs when the values are greater than 0.60 and 0.50, respectively. The values of composite reliability and average variance extracted were greater than the values recommended by Bagozzi and Yi (1988). Factor loadings exceeded Bagozzi and Yi (1988) recommended threshold of 0.50, ranging from 0.662 to 0.852, thereby indicating the existence of convergent validity. To establish discriminant validity, correlation analysis was performed and the values were assessed. Table 3 presents the correlation matrix of the constructs.

Table 3: Construct correlation matrix and discriminant validity

	Privacy	Trust	Commitment	Stickiness
Privacy	**0.95**			
Trust	0.56	**0.96**		
Commitment	0.46	0.54	**0.96**	
Stickiness	0.49	0.58	0.85	**0.97**

**p<0.01 (two-tailed)

Correlations are all positive and significant at p<0.01. The coefficients range from 0.46 to 0.85. Although commitment and stickiness are highly correlated (r=0.85) and may raise multicollinearity concerns, the constructs demonstrated different results when correlated with other constructs. For example, when commitment was correlated with privacy and trust, the results delivered lower values of 0.46 and 0.54, respectively. Also, when stickiness was correlated with privacy and trust, values of 0.49 and 0.58 were obtained. According to Ryff (1989), this suggests that such constructs are distinct from one another. Again, Ryff (1989) suggested that distinctiveness could be achieved when items of a scale are correlated with each other. In fact, Ryff (1989) noted that when the items of a scale correlate highly with one another, then "the item pools of the separate scales are empirically differentiated" (p.1074). Therefore, the items of commitment were correlated. When the items of the commitment scales were correlated, the results delivered high coefficients ranging from 0.575 to 0.671. Also, the items of the stickiness scale were correlated with one another. The stickiness scale also delivered high inter-item correlation values ranging from 0.555 to 0.727. These results indicate that commitment and stickiness are two distinct constructs, thereby demonstrating the presence of discriminant validity. Discriminant validity was further assessed using a method suggested by Malhotra (2010), which involves calculating the square root of AVE and comparing it to the values of the correlations of the related constructs. This approach suggests that the square root of AVE ought to exceed the values of correlation of the related construct. As shown in Table 3, the square root of average variance extracted as depicted in diagonal exceeds the values of the construct correlations, thus confirming discriminant validity. In conclusion, the model of this study demonstrated both reliability and validity.

Structural model: The hypothesised research model in Figure 1 was tested using a maximum likelihood method. Fit indices were computed with CMIN/DF=1.921, NFI=0.948, CFI=0.974, GFI=0.936, RMSEA=0.060 and PCLOSE=0.158. Path coefficients of a structural model were examined by assessing standardised coefficients. Table 4 shows the results of regression coefficients obtained when testing the structural equation model.

Table 4: SEM Regression coefficients

Hypothesised relationship			Regression coefficient	P-values	Decision
H_1: Trust	→	Commitment	0.398	0.000*	Supported
H_2: Privacy concern	→	Trust	0.619	0.000*	Supported
H_3: Trust	→	Stickiness	0.040	0.444	Rejected
H_4: Commitment	→	Stickiness	0.920	0.000*	Supported
H_5: Privacy concern	→	Stickiness	0.039	0.354	Rejected
H_6: Privacy concern	→	Commitment	0.235	0.000*	Supported

Significant at (*p<0.05); **p<0.01

As indicated in Table 4, paths between trust and commitment (β=0.398, p=0.000<0.05), privacy and trust (β=0.619, p=0.000<0.05); privacy and commitment (β=0.235, p=0.000<0.05) and commitment and stickiness (β=0.920, p=0.000<0.05) were all positive and significant. Therefore, hypotheses 1, 2, 4 and 6 were supported. Path between trust and stickiness (β=0.04, p=0.444>0.05) and path between privacy and commitment (β=0.039, p=0.354>0.05) were not supported by the data gathered in this study. Thus, there was no significant relationship between trust and stickiness. Again, no significant relationship was found between privacy and stickiness. Therefore, hypotheses 3 and 5 were rejected.

5. Conclusion

The current study sought to examine Facebook as a possible vehicle that may assist in the understanding and building customer relationships. There were several findings in this study that supported the use of Facebook in the relationship marketing context. Consistent to other studies that found support to the effects of trust to commitment (Moorman, et al., 1993; Morgan & Hunt, 1994; Wu, et al., 2010), privacy to trust (Malhotra et al., 2004) and commitment to stickiness (Li et al, 2006), this study found the same effect on these variables. As was the case in Morgan and Hunt (1994) commitment-trust theory, where they found that trust leads to a higher level of commitment in relationships, and in other studies (Li, et al., 2006; Wu, et al., 2010; Wang, Gu, An & Zhou, 2014), this study also supports such findings. Thus, as trust in Facebook site increases, the users will be more attached (Rusbult et al., 1998) to the site, and this will help in maintaining valued relationships with those users (Moorman et al., 1993). As in the study by Mukherjee and Nath (2007) who maintained privacy to have a more significant impact on trust, the relationship between privacy and trust is confirmed in the current study. This indicates that the respondents of this study feel more trusting of the organisation's Facebook site, especially when the site promises to provide well-developed data security mechanism. In contrast to studies that did not test the influence of privacy on commitment, this paper examined such influence. It emerged that there is a significant relationship between privacy and commitment. This may be explained by the fact that, generally speaking, users of online sites react differently when they believe their privacy is threatened. One such response might be the withdrawal from the site, which jeopardises the relationship a user has with the site. Therefore, the findings suggest that to build long term relationships with customers, organisations should focus more on building secured sites.

The findings that commitment influences stickiness support Li et al. (2006) findings of a significant relationship between commitment and stickiness. This suggests that those organisations that spend more time interacting with customers on Facebook will see more customers spending more time on the organisation's sites compared to an ordinary user of such site. Contrary to the expectations of this study, however, and similar to the findings of Xu and Liu (2010), who mention no observed relationship between trust and stickiness, the current study also found no support for this relationship. It appears that on Facebook, breach of trust may not necessarily mean that Facebook users will reduce time spent on the site. In retrospect, this finding is logical in view of the fact that initially, Facebook was established as a social interaction platform, where users spend more hours interacting with friends, and where trust does not matter much, as long as users believe their friends are trustworthy (Dwyer, Hiltz & Passerini, 2007). Finally, the results of hypothesis testing show that there is no relationship between privacy and stickiness. Unlike in other online environments where privacy concerns are a major issue, the respondents of this study do not seem too concerned with improper use of their personal information. One reason for this finding might be

that, Facebook was designed as a social networking site where users generally share information freely, at times disclosing personal information, thoughts and feelings to their "friends" and "followers", and are rarely concerned about their privacy.

Contributions, implications and limitations: This paper is among the small amount of research that examined Facebook as a possible platform that may assist in the understanding and building of relationships with customers and thus opening up discussions on the importance of Facebook medium in relationship marketing. A significant contribution of this paper lies in the use of relationship marketing theories to empirically test a Facebook relationship marketing model. Also, the paper contributed by testing interactions between privacy and commitment, a connection not apparent in previous research. Lastly, this paper contributed to the relationship marketing literature by testing a relationship between privacy and stickiness, which is not apparent in previous research. The results of this study validated that even in the context of Facebook, in order to build relationships, trust, commitment, stickiness remain important. Having identified the influence of relationship marketing factors on Facebook, it is believed that Facebook may prove to be the best and perhaps most preferred channel to build marketing relationships. The findings of this study have implications for marketers. Literature indicates that interactions between companies and consumers have become essential especially when companies want to successfully implement their marketing strategies. These interactions develop and encourage growth of relationships (Grönroos, 2000; Gummesson, 2002; Reinartz & Kumar, 2003). Since new technologies like Facebook are effective for encouraging interactions and allow people to speak their minds without fear of retribution, therefore, marketers must take cognisance of these technologies. Through interactions, conversations take place. Generally, on Facebook, conversations between customers and companies are public and are accessible to a larger group of people. Therefore, this study encourages companies to have a Facebook strategy, which monitors the communication among followers or fans on company's Facebook page. Through monitoring communication among these users, the company can categorise and analyse all reviews and comments to determine which of those warrant immediate response. When all comments have been received, the company could provide personalised feedback to those individuals with problems and complaints. Results from the analysis may help companies foresee and handle future problems and complaints. This may help to build strong relationships. From the findings of this study, it appears, therefore and perhaps even likely that Facebook could prove to be a big part of the relationship marketing solution marketers have been eagerly waiting for ever since the term was coined in the early 1980s, making this highly interactive medium characterised by frequent exchange of volume of data an ideal and sought after vehicle to build strong customer relationships.

However, this study is not without limitations. As a recommendation, future research needs to investigate other variables likely to impact on the company's ability to build successful relationships on Facebook. Such variables might include the effect of reputation and how it is likely to impact Facebook conversations, Word-of-Mouth and satisfaction with company's Facebook page. Another limitation is that the model of the current study was tested using the student sample. Generally, student sample is regarded as unrepresentative possessing unique characteristics than the rest of the population (Wells, 1993). As such it is difficult to generalise the findings of such a sample (Peterson, 2001; Wang, Zhang, Zang & Ouyang, 2005). Therefore, future research should aim at non-student population. Despite these limitations, the findings suggest that the Facebook model developed in this paper could be used as a guide to understand Facebook relationship marketing and perhaps this study can offer a step toward finding the Holy Grail of relationship marketing. But the race is still on.

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Different Crime Types in Western Cape Province: Principal Component Analysis

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Abstract: South Africa has a very high crime rate compared to most countries. Crime affects the society, business and psychology of the people. It compels people to move out or come into a particular area. It is most prevalent in the urban areas where poverty gap is conspicuous. Western Cape and Gauteng Provinces are the best developed provinces in the country and therefore have higher crime levels. But the question is: what types of crime are prevalent in the Western Cape Province? And what are the major causes of these crimes? The purpose of this paper is to identify the different types of crimes committed in the Western Cape Province which are prominent. Principal Component analysis (PCA) has been use in this study to gauge the patterns of crime and the distinct important factors affecting the level of crime. Secondary data from a website have been used in the analysis. The results show that violence and vehicle thefts are the most committed crimes in the province. The areas where crime occurs most frequently are Bellville, Cape Town Central, Gugulethu, Harare, Khayelisha, Mitchells Plain, Nyanga and Parow. Firearms have been identified as major means for committing crime. The paper recommends that attempts be made by the provincial government to clamp down unlicensed fire arm holders/dealers. Amnesty should be granted to encourage holders of unlicensed fire arms to surrender without punishment and the public should report to the police all those dealing in unlicensed firearms in order to root out crime in the province.

Keywords: *Crime, violence, vehicle hijacking, fire arms*

1. Introduction

South Africa has a high level of crime with, for example, burglary at residence put at 300; malicious injury to property at 165 and drug-related crime at 518 (Statistics South Africa, 2013). Crime has become a natural phenomenon in all societies, high, middle and working class societies. It cuts across all racial groups and the effects of crime are felt by all in the society. All societies want to reduce or even get rid of social crimes that are committed in the society because crime saps the moral energy of the people. It is a global crisis affecting everybody and at all places with different intensity, though (Clarke, 1997). Crime has major effects on businesses. Businesses that are robbed suffer loss directly. The aftermath, of robbery leads to court cases, loss of working-time, disruptions and disturbances. Premiums of insurance go up increasing cost and that affects businesses indirectly (Clarke and Homel, 1997; Demombynes and Özler, 2005). According to Demombynes and Özler (2005), crime compels resources to be diverted and be used as protective mechanisms. They further allege that crime raises the cost of health matters through increased stress. Brown (2001) on the other hand, advanced that majority of South African professionals who left the country to go and live in other countries, especially to live in Australia, New Zealand, etc., cited crime as the main cause of their emigration. A study of the level, composition and distribution of crime in order to devise strategies to combat or reduce crime is hence called for.

2. Literature Review

Crime slows economic growth and negatively affects job creation and employment (Brown, 2001; Fajnzlyber et al., 2002). The lack of economic growth leads to increases in retrenchment, poverty and worse crime committed (CSVR, 2009; O'Donovan, 2011). It affects economic productivity because victims of crime miss work by taking leave to seek medical, psychological or even financial help. When crime has been committed against people, victims and witnesses also have to take some leave during working hours in order to testify in the courts of law. Crime equally affects the communities through loss of tourism and retail sales. It affects people differently and severally. In areas where crime has happened, fear steadily increases resulting in economic and social down-turn which can spread out to the surroundings (Demombynes and Özler, 2005; O'Donovan, 2011). Crime makes residents to withdraw and become more defensive and less committed to the community creating a "porous" and suspicious society (CSVR, 2008; Demombynes and Özler, 2005; Factsheet,

2013). It can be prevented locally when neighbours form organized watch-dog programs. Such programs seek to improve a neighborhood's cohesion and image through social prevention (Schlossman et al., 1984). Crime can also be prevented through situational and environmental approach where measures taken make it extremely difficult for criminal to access the premises. Access control and surveillance measures are put in place in such situations to deter criminals (Clarke, 1997; Homel, 2005).

3. Methodology

The data used in this study was obtained from the website of Statistics South Africa on crimes reported in the Western Cape Province in 2012. Factor Analysis (FA) or precisely, Principal Component Analysis (PCA) has been used in this analysis. Factor analysis defines the underlying structure in a data matrix by analyzing the structure of interrelationships among a large number of variables by reducing the variables into factors (Carey, 1998; Morrison, 2005; Johnson and Wichern, 2014).

Principal Component Analysis: Principal Component Analysis is used to identify factors which explain most variation in the data; and to determine the variations using a smaller number of new variables (principal components), (Hair et al., 1995; Grimm & Yarnold, 1995). The main goal of PCA is to find principal components which are the linear combination of the observations, i. e.,

$$\boldsymbol{Y_i = a_{1i}X_1 + a_{2i}X_2 + \ \dots \ + a_{qi}X_q = a_i^T X}$$

Which have the greatest sample variance compared to other combinations (Hair et al., 1995)?

Before using any statistical procedure, there is always a need to test the relevance of such procedure for the data. Table 2 tests its suitability. The number of principal components is less than or equal to the number of the original variables. The first principal component explains the most variation and each succeeding component explains most of the remaining variation (Hair, Jr., et al., 1995; Morrison, 2005). All the variables are first standardized in PCA to make a fair comparison among them (Carey, 1998; Johnson and Wichern, 2007).

4. Results

From Table 1, the variables are very dispersed in terms of the variance. Some have low intensities; for example, murder, public violence, kidnapping and ill-treatment of children, while others are significantly high, e.g. common assault, burglaries and drug-related crimes. The level of assault with bodily harm is put at 166; common assault at 232; burglary at residential premises at 300; malicious injury to property at 164; theft out of motor car at 259; drug-related crime at 518 and shop-lifting at 114; all these have high intensities and give concern (Williams & Gedeon, 2004; Bello et al., 2014).

Table 1: Descriptive Analysis

Crimes	Mean	Std deviation
Contact crimes		
Murder	15.21622	30.5949
Total Sexual Crimes	61.27703	72.60524
Attempted murder	15.63514	28.95743
Assault with the intent to inflict grievous bodily harm	165.9932	177.9845
Common assault	232.4932	296.0682
Common robbery	75.02027	133.2971
Robbery with aggravating circumstances	92.56757	155.8748
Malicious injury to property	164.3041	186.798
Property related crimes		
Burglary at non-residential premises	79.22973	90.73495

Burglary at residential premises	299.8986	309.241
Theft of motor vehicle and motorcycle	58.35811	95.45837
Theft out of or from motor vehicle	259.0743	426.5519
Crimes heavily dependent of police action for detection		
Unlawful possession of firearms and ammunition	15.95946	30.68135
Drug-related crime	517.5811	729.5582
Driving under the influence of alcohol or drugs	116.777	120.6653
Other serious crimes		
All theft not mentioned elsewhere	624.3986	829.6439
Commercial crime	81.08784	137.1666
Shoplifting	114.2973	214.4381
Crimeninjuria	55.24324	123.6795
Subcategories forming part of aggravated robbery above		
Carjacking	3.662162	10.02755
Truck hijacking	0.209459	0.801812
Robbery at residential premises	9.027027	15.4162
Robbery at non-residential premises	10.4527	19.90499

Correlation Matrix: From the table in the appendix (Table A1) it can be see that a lot of the variables are correlated with the correlation coefficient between murder and robbery at non-residential premises, for example, being 0.930. Similarly, the coefficient between arson and total sexual crimes also is 0.913; therefore we can perform principal component analysis on the data set.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.916
Bartlett's Test of Sphericity	Approx. Chi-Square	7623.884
	Df	406
	Sig.	.000

Kaiser-Meyer-Olkin (KMO) statistic varies between 0 and 1; and values greater than 0.7 are considered appropriate for Principal Component Analysis (Hardle & Simar, 2007). Table 2 shows that KMO is 0.916; and this KMO value of 0.916 signifies a good measure and supports the use of PCA (Johnson and Wichern, 2007).

Communalities: Table 3 presents communalities. High values of Extraction confirm that the proportion of each variable's variance can be explained by the principal components (Steven, 2002; Johnson and Wichern, 2007, 2014).

Table 3: Communalities

	Initial	Extraction
Contact crimes		
Murder	1.000	.967
Total Sexual Crimes	1.000	.943
Attempted murder	1.000	.893
Assault with the intent to inflict grievous bodily harm	1.000	.879
Common assault	1.000	.950
Common robbery	1.000	.904
Robbery with aggravating circumstances	1.000	.942
Malicious injury to property	1.000	.935
Property related crimes		
Burglary at non-residential premises	1.000	.792

Burglary at residential premises	1.000	.794
Theft of motor vehicle and motorcycle	1.000	.884
Theft out of or from motor vehicle	1.000	.889
Crimes heavily dependent of police action for detection		
Unlawful possession of firearms and ammunition	1.000	.882
Drug-related crime	1.000	.809
Driving under the influence of alcohol or drugs	1.000	.687
Other serious crimes		
All theft not mentioned elsewhere	1.000	.954
Commercial crime	1.000	.919
Shoplifting	1.000	.839
Subcategories forming part of aggravated robbery above		
Carjacking	1.000	.850
Truck hijacking	1.000	.644
Robbery at residential premises	1.000	.851
Robbery at non-residential premises	1.000	.915
Crimenijuria	1.000	.860
Kidnapping	1.000	.853

Extraction Method: Principal Component Analysis.

Table 4 shows the extraction of communalities from the Principal Component Analysis. The values are low so it can be concluded that the variables fit well, and should be used in the analysis.

Table 4: Extraction of communalities -Component Matrix

	Component			
	1	**2**	**3**	**4**
Murder	.755	-.606	-.166	.048
Total Sexual Crimes	.935	-.211	.140	.071
Attempted murder	.840	-.416	.036	-.113
Assault with the intent to inflict grievous bodily harm	.834	-.331	.219	.161
Common robbery	.868	.376	.044	-.083
Robbery with aggravating circumstances	.958	-.102	-.108	-.059
Malicious injury to property	.925	.209	.183	-.049
Burglary at non-residential premises	.690	.493	-.064	.259
Burglary at residential premises	.773	.402	-.069	.170
Theft of motor vehicle and motorcycle	.639	.533	-.435	.049
Theft out of or from motor vehicle	.618	.681	-.208	-.003
Stock-theft	-.156	-.051	.420	.788
Unlawful possession of firearms and ammunition	.849	-.362	.042	-.168
Drug-related crime	.796	.125	.315	-.245
Driving under the influence of alcohol or drugs	.748	.021	-.349	.072
All theft not mentioned elsewhere	.768	.600	-.002	-.057
Commercial crime	.575	.644	-.402	.107
Shoplifting	.704	.585	-.021	-.041
Carjacking	.779	-.434	-.226	-.058
Truck hijacking	.487	-.557	-.309	-.039
Robbery at residential premises	.766	-.313	-.395	.100
Robbery at non-residential premises	.808	-.472	-.193	.049
Crimeninjuria	.663	.274	.572	-.135
Kidnapping	.909	-.124	.021	-.100

Extraction Method: Principal Component Analysis.

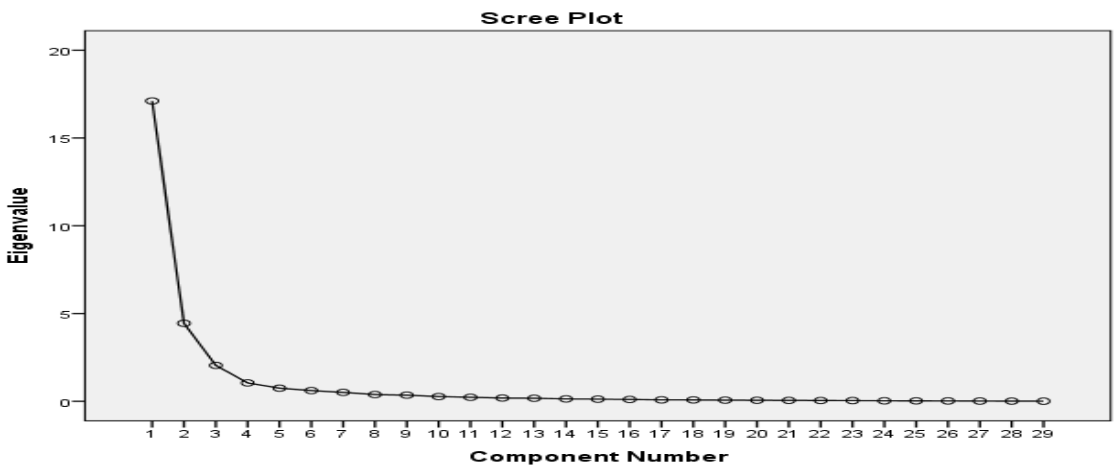
Table 5 : Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	17.110	59.002	59.002	17.110	59.002	59.002
2	4.444	15.324	74.326	4.444	15.324	74.326
3	2.046	7.056	81.382	2.046	7.056	81.382
4	1.048	3.615	84.997	1.048	3.615	84.997
5	.748	2.579	87.576			

Extraction Method: Principal Component Analysis.

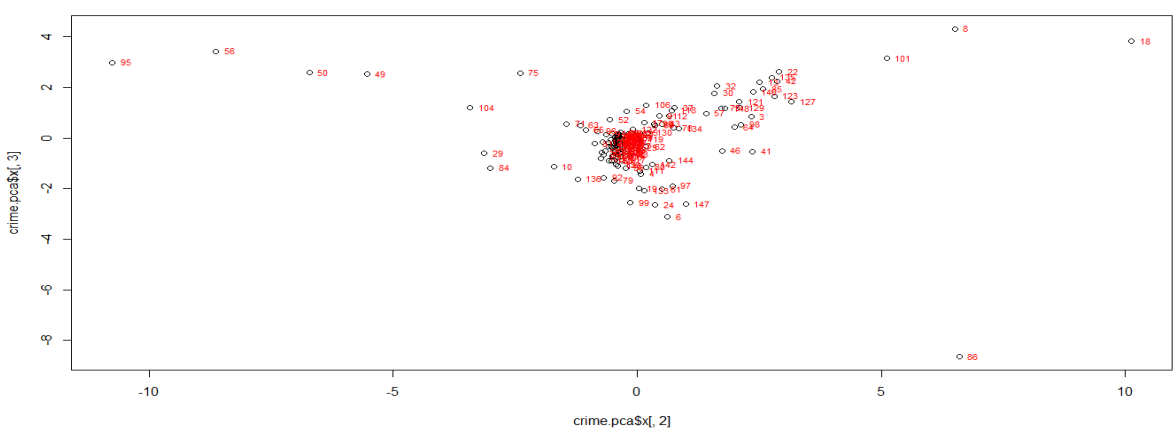
Table 5 shows that only four Principal Components have eigenvalues greater than 1 and have thus been retained. The first principal component explains 59.002% of the variance; the second explains 15.324%; the third 7.056% and the fourth 3.615%. These four principal components explain 84.997% of the total variation in the original data and are adequate to explain the overall variation in the original variables.

Figure 1: Screen plot



The screen plot also shows that only four factors are to be retained because the 'elbow' is at 5. Thus the scree plot agrees with Kaiser's criterion that four principal components have to be retained (Anderson, 2013; Warne, 2014).

Figure 2: Biplot of Concentration of crimes



The plot in Figure 2 is a biplot for identifying which precincts have a high score in each of the principal components. The precincts with high values on the any of the components indicate that it has high crime

occurrences. From the biplot, the outliers are Bellville, Cape Town Central, Gugulethu, Harare, Khayelisha, Mitchells Plain, Nyanga and Parow and these "towns" have the highest crime occurrences of all types.

Discussion: The use of PCA revealed the precincts that recorded the highest crime rates for the period that the data was collected. From Table 4, the first Principal Component (PC) is strongly related to violence. The second PC has high coefficients which are all related to vehicle theft. The scree plot (Figure 2) showing the first PC plotted against the second PC, identified police precincts with high crime rates to include Bellville, Cape Town Central, Gugulethu, Harare, Khayelisha , Mitchells Plain, Nyanga and Parow. Nyanga, Khayelisha and Harare. These have high loadings on the first PC, and suggest that those precincts have very high rates of violent crimes. Mitchells Plain, Bellville, Cape Town Central, Gugulethu and Harare also had very high loadings on the second PC which suggests that there is a lot of vehicle crime theft activity and violence happening there. It is only Mitchells Plain that has a high loading of violence and a low loading of vehicle theft, which suggests that the measures taken there against vehicle theft are effective but have resulted in an increase in violence related crimes. These observations suggest that an increase in violence and theft related crime leads to an increase in other crime types as well; but violence related crimes are inversely proportional to vehicle theft-related crimes.

5. Conclusion

Principal Component Analysis reduced the dimensionality of the data from 29 to only 4 which accounted for 84.997% of the total variation in the original data set. The study shows that violence and vehicle thefts are the most committed crimes in the province. Bellville, Cape Town Central, Gugulethu, Harare, Khayelisha , Mitchells Plain, Nyanga and Parow are the "hotspot" of occurrence of crime. In areas where there is high violence, hijackings tend to have low figures, and where there are high occurrences of hijacks, violence is lowly recorded. Firearms are easily accessible in the Western Cape, especially in the locations and that gives criminals a sense of power and scares the public. The proliferation of the firearms makes combating crime a very difficult task in the province.

Recommendations: The study recommends that attempts be made by the provincial government to clamp down unlicensed fire arm holders/dealers. Initiatives must be put in place, especially in the areas where crime is very high; so that citizens are encouraged to report owners of firearms to the police. And that the Western Cape government grants amnesty to people who are in possession of illegal firearms so as encourage them to come and surrender their firearms without having to face prosecutions.

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Appendix

Table A1: Correlation Matrix

	Murder	Total Sexual Crimes	Attempted murder	Assault with the intent to inflict grievous bodily harm	Common assault	Common robbery	Robbery with aggravating circumstances	Arson	Malicious injury to property	Burglary at non-residential premises	Burglary at residential premises
Murder	1	.824**	.880**	.812**	.502**	.432**	.805**	.729**	.525**	.232**	.341**
Total Sexual Crimes	.824**	1	.845**	.920**	.840**	.732**	.884**	.913**	.830**	.549**	.654**
Attempted murder	.880**	.845**	1	.808**	.674**	.595**	.854**	.806**	.711**	.357**	.456**
Assault with the intent to inflict grievous bodily harm	.812**	.920**	.808**	1	.767**	.603**	.773**	.883**	.748**	.470**	.543**
Common assault	.502**	.840**	.674**	.767**	1	.834**	.794**	.823**	.925**	.657**	.732**
Common robbery	.432**	.732**	.595**	.603**	.834**	1	.829**	.671**	.866**	.715**	.725**
Robbery with aggravating circumstances	.805**	.884**	.854**	.773**	.794**	.829**	1	.790**	.833**	.569**	.660**
Arson	.729**	.913**	.806**	.883**	.823**	.671**	.790**	1	.815**	.521**	.618**
Malicious injury to property	.525**	.830**	.711**	.748**	.925**	.866**	.833**	.815**	1	.741**	.823**
Burglary at non-residential premises	.232**	.549**	.357**	.470**	.657**	.715**	.569**	.521**	.741**	1	.795**
Burglary at residential premises	.341**	.654**	.456**	.543**	.732**	.725**	.660**	.618**	.823**	.795**	1
Theft of motor vehicle and motorcycle	.229**	.424**	.308**	.246**	.475**	.714**	.605**	.353**	.632**	.741**	.769**
Theft out of or from motor vehicle	.103	.395**	.239**	.256**	.565**	.840**	.566**	.343**	.654**	.726**	.716**
Stock-theft	-.115	-.056	-.132	.042	-.003	-.150	-.200*	-.037	-.130	-.046	-.119
Unlawful possession of firearms and ammunition	.849**	.839**	.945**	.783**	.685**	.624**	.837**	.815**	.741**	.379**	.471**
Drug-related crime	.466**	.743**	.694**	.628**	.819**	.774**	.703**	.759**	.842**	.530**	.595**
Driving under the influence of alcohol or drugs	.586**	.674**	.590**	.566**	.523**	.586**	.686**	.605**	.645**	.553**	.688**

All theft not mentioned elsewhere	.215**	.568**	.420**	.436**	.772**	.914**	.680**	.551**	.850**	.792**	.810**
Commercial crime	.129	.358**	.186*	.201*	.457**	.734**	.524**	.265**	.558**	.743**	.681**
Shoplifting	.186*	.530**	.339**	.355**	.716**	.841**	.633**	.466**	.739**	.724**	.695**
Carjacking	.887**	.767**	.805**	.694**	.525**	.532**	.841**	.707**	.575**	.300**	.370**
Truck hijacking	.725**	.488**	.654**	.512**	.237**	.195*	.557**	.441**	.286**	.104	.120
Robbery at residential premises	.843**	.745**	.724**	.655**	.488**	.502**	.820**	.623**	.574**	.376**	.561**
Robbery at non-residential premises	.930**	.831**	.853**	.786**	.580**	.500**	.872**	.732**	.604**	.343**	.449**
Culpable homicide	.742**	.774**	.675**	.710**	.616**	.522**	.738**	.686**	.606**	.518**	.523**
Public violence	.710**	.693**	.646**	.722**	.521**	.498**	.652**	.610**	.558**	.337**	.428**
Crimeninjuria	.231**	.613**	.444**	.527**	.874**	.699**	.587**	.646**	.766**	.502**	.540**
Neglect and ill-treatment of children	.505**	.806**	.659**	.741**	.820**	.648**	.684**	.823**	.779**	.464**	.570**
Kidnapping	.754**	.861**	.816**	.727**	.808**	.771**	.934**	.796**	.790**	.495**	.588**

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Structural Determinants of Job Satisfaction: The Mutual Influences of Compensation Management and Employees' Motivation

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Abstract: The importance of job satisfaction as an antecedent to employees' productivity and firm outcomes cannot be overrated in the world of business, especially in the service industry. This paper adds to the understanding of job satisfaction in insurance business by investigating the structural causes of task fulfilment. The mutual influences of compensation administration and employees' motivation on job satisfaction was assessed using multivariate analysis. This research embraced a quantitative method and 212 employees were drawn using a convenience sampling technique. Three propositions were tested employing inferential statistical analyses run through SPSS statistics version 23 and SPSS Analysis of Moment Structures (AMOS) version 23. AMOS was used to structurally determine job satisfaction through structural equation modelling (SEM). SPSS statistics version 23 was instrumental in assessing the psychometric properties via exploratory factor analysis and Cronbach's alpha coefficients. The results indicate a substantial affiliation between reward administration and motivation. Statistically, this study found that compensation management exerts more direct influence on employees' job satisfaction than the indirect tie through motivation. There may be a need to redesign human resource practices in the industry to improve the degree of employees' gratification and duty fulfilment.

Keywords: *Compensation management, Employees' motivation, Job satisfaction, Structural equation modelling*

1. Introduction

Human resources could be referred to as one of the most valued assets in service organisations across the globe. Satisfaction of employees in any service organisation is necessary for their service delivery, customers' satisfaction and retention, organisational performance and sustainable competitive advantage. Hence, considerable attention must be given to the satisfaction of such a vital asset by the management in service organisations. Factors inducing job satisfaction have been mentioned by different authors, and they have been compartmentalized into twofold, job related factors and personality involved factors (Aydogdu & Asikgil, 2011). According to authors, features related to work contentment include remuneration, the vocation, regulation, advancement, contemporaries and operating circumstances. Factors related to individual, on the other hand, are loyalty of individuals, experience, age, gender, and education. Similarly, Haque, Karim, Muqtadir and Anam (2012) argue that there are two factors affecting job satisfaction level of employees, namely are personal and organisational factors. To them, personal factors are age, gender, race and religious affiliation, and the organisational factors are leadership, organisational change and technological innovation, continuous professional development, recruitment, rotation and retention, work environment, communication and commitment, salary and stress. Lee and Way (2010) identified work itself, supervision and compensation as the overall factors influencing employees' job satisfaction in the service industry. However, employees' satisfaction in service organisations has not been fully investigated in Nigeria, specifically in the insurance industry (Adeoye & Fields, 2014).

Balachandan, Panchanathan and Subramanian (2010) looked at the task fulfilment factors that stimulate workers of insurance companies (in private sector and government insurance companies). The study found that they were not influenced by motivational factors to the same degree as those in other institutions. Arshadi's (2010) established that self-sufficiency anticipates the fulfilment of three emotional requirements predicted by job inspiration and task execution in an industrial company in Iran. Ayeni and Popoola (2007) proved a correlation rapport amongst felt stimulus, work fulfilment and allegiance. Ayeni and Popoola's study on work motivation, job satisfaction and organisational commitment of library personnel in Nigeria, indicates a negative correlation concerning enthusiasm and steadfastness of the library workforce. Whether one can generalise this outcome as the true opinion of workers in all service industries in Nigeria suggests the

rationale for the current study. To fill this gap, this paper strives to structurally analyse; examine and operationalise a model to measure job satisfaction in the insurance industry, exploring the mutual influences of compensation management and employees' motivation. A conceptual framework advanced by Adeoye (2014) is subsequently discussed drawing insights from the expectancy theory of motivation by Victor Vroom. Sections on methods used in testing and operationalising the proposed model, results, discussion of findings, conclusion and managerial relevance are provided.

2. Literature Review

This section offers a conceptual clarification on compensation management and employees' motivation in relation to job satisfaction. The mutual influences of pay and other forms of employees' motivation on job satisfaction in various sectors are explored, in order to develop a conceptual framework for further empirical analysis.

Compensation Management: Innumerable explanations have been bequeathed on compensation (Adeoye, 2014). Ordinarily, compensation is a form of remuneration awarded for a responsibility carried out or strength exerted to accomplish a target which assists as a motivational factor that emboldens an individual to put more vitality or commitment into his or her job (Armache, 2012; Ederer & Manso, 2013; Qureshi, 2013). Generally, businesses major reason for reward is to spur the conducts of the worker in a specific manner. Consequently, a firm does not aim only to persuade staffs to stay in the organisation, but fortifies employees' effort via ample and inspiring benefit. The fundamentals of inspiration were stated as that which is imperative to an individual, advancing it as a replacement, and the preferred comportment (Milkovich & Newman, 1999; Riddell, 2011; Shaw, 2014). Hills, Bergmann and Scarpello (1994, p. 11) express reward as "the total sum of wage or salary, employee benefits, non-recurring financial rewards and non-pecuniary rewards", Milkovich, Newman and Gerhart (2011, p. 10) describe remuneration as "all forms of financial returns on tangible services and benefits employees receive as part of an employment relationship". There is a resemblance among recompense administration, enthusiasm and job satisfaction which are the concepts of this inquiry and are greatly interrelated. Stringer, Didham and Theivananthampillai (2011) found that inspiration is definitely linked to remuneration contentment which in turn boosts the firms result in Australasia. They reiterated that the qualitative acumens show a mark of wage impartiality across contrasts by the participants. The participants believed that their reward do not complement efforts put in.

Motivation: The term 'motivation' connotes different ideas to diverse individuals, it was derived from the Latin word ''m*overe''* meaning to shift or alter (Adeoye, 2001). Mathauer and Imohoff (2006, p. 3) describe it as ''the willingness to exert and maintain an effort towards organisational goals''. Adeoye (2001, p. 46) reasons ''it is an enticement to stimulate concentration of a worker to realise a definite organisational goal''. Ahlstrom and Bruton (2010, p. 200) referred to it as ''thrust for individual's exploits that rejuvenates and guides goal-oriented behaviour''. Similarly, motivation is described as a propeller that strengthens behaviour, offers attitudinal path and inspires consistency as worker meets serious encounters (Grobler, Wärnich, Carrell, Elbert & Hatfield, 2011; Mathis & Jackson, 2011; Adeoye & Elegunde, 2014; Brevis & Vrba, 2014). Ramlall (2004, p. 53) coined it as ''keenness to utilise extraordinary effort towards organisation's goals, conditioned by the efforts ability to satisfy some individual need''. He also asserts that motivation represents ''those psychological processes that cause the arousal, direction, and persistence of deliberate actions that are goal oriented''. Mitchell, (1982, p. 81), Lin (2007, p. 137) and Seiler, Lent, Pinkowska and Pinazza (2011) saw it as ''an internal driver that triggers and guide attitude''. These authors stress it invigorates and channels behaviour in getting a particular goal and is deliberate and directional. Motivating employees is a factor to ensure cutting edge benefit in the global environment (Govender & Parumasur, 2010).

Kulkarni (2011) debates' inspiring a worker is a big task for employers of labour. It is said that allegiance and devotion of a staff to the firm, department or crew, is a function of involvement of individual. Conversely, the link between spur, work or firm accomplishment and work contentment cannot be underrated. Kulkarni (2011) states inducement is a bid to activate firm's specifications that stimulates the worker's feeling toward the fulfilment of firms goals. However, intent of motivation is working out conditions upon which people have the willingness and persuasion to work with zeal, creativity, interest and preparedness to work without being monitored or supervised (Hewitt, 2009; Wininger & Norman, 2010). In this regard, motivation is set to attain

group morale, contentment with a sense of accountability, reliability, self-control, and dignity with total confidence in such a consistent manner that the aspirations of the organisation or firm are attainable in a proficient and valuable way (Bob, 2011). For the sake of this paper, intrinsic and extrinsic motivation will be considered.

Intrinsic enthusiasm means carrying out an activity for the sake of doing that activity, which implies that the pursuit is exciting, appealing and generates fulfilment. For example, the tolerability of an internet-based learning mode by students is anchored on comprehended amusement in using the new erudition method (Lee, Cheung & Chen, 2005). Nigerian insurance industry could employ this to boost the functioning staffs by sending them on training. Also, innate inspiration stems up through knowledge sharing. Staffs find accomplishment in enriching their know-how, self-efficacy or self-confidence in providing expedient expertise to the firm to enhance the firm outcomes and their own outcomes (Lin, 2007; Cruz, Pérez & Cantero, 2009). On the other hand, extrinsic enthusiasm is to satiate unintended desires or recognition for a well done task; for example, pay increases, praise and promotion. This is motivation that is based on the achievement of a desired goal or some other kind of peripheral reimbursement such as cash or prices (Walker, Greene & Mansell, 2006). Lin (2007) suggested that extrinsic stimulus focuses on goal-oriented reasons like recompense or remuneration gotten when performing a responsibility. He claims combination of both inherent and extrinsic enthusiasm alters personal intents regarding an activity as well as their real manner. This is corroborated by Kim, Shim and Ahn (2011) who found that extrinsic stimulus deals with behaviours that are engaged in response to pursuits that are different from their own, e.g. disbursements or acknowledgement or the influences of other people. The finding is germane to this paper because without team work the expected outcome might not be feasible.

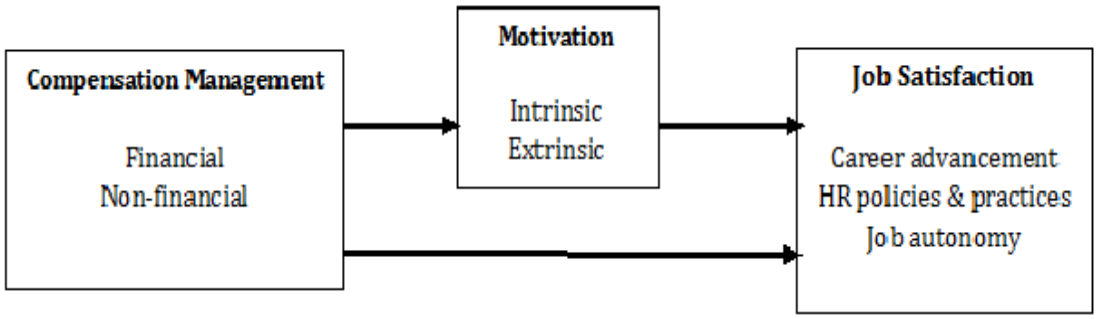
A linkage has been established among spur and outcome. Obviously, result is attained as workers are appropriately inspired, and in its real sense, inspiration cannot be disconnected from outcome since spur is an enticement resulting to a better outcome. Elisenberger and Aselage (2009) established a progressive connection amidst drive and outcome. This finding shows result of a study on remuneration for extraordinary act on experienced aftermath burden, inherent curiosity and inventiveness. Morrell (2011) established an association among non-monetary incentive as a form of motivation and output of the individual, thereby enhancing efficiency. Non-monetary spurs is not only encouraging workers engagement, it reduces firm's overhead or cost. Similarly, Manolopoulos (2008) discovered significant linkage within motivation and efficiency in the public sector of Greece. Larson, Latham, Appleby and Harshman (2012) reported a strong relationship between motivation and achieving performance excellence among CEO attitudes and motivation. Taking insights from the literature on compensation management and motivation, hypothesis one (H1) was formulated and subjected to statistical analysis.
H1 Compensation administration positively impact workers' motivation in the insurance business.

Job Satisfaction: is an essential tool to accomplish the expected workers' performance as well as organisational outcomes in the realm of work. Hence, it is a motivational aspect that arouses the interest of workers in their tasks to achieve firm's aims (Feinstein & Vondrasek, 2000; Ahmed et al., 2010; Çelik et al., 2011; Amila-Prasanga & Gamage, 2012). In addition, work fulfilment is a features exhibited by individuals in relation to duties which could be referred to as a consequential result of different opinions vis-à-vis the work they do. It is a sensitive matter or evaluative element that establishes positive, neutral or negative feelings in an individual identified as attitudinal thing, or opinion emphasis (Ivancevich & Matteson, 1990; Greenberg & Baron, 2000; Aydogdu & Asikgil, 2011). Similarly, Eren (1993) and Çelik et al. (2011) accentuate career fulfilment as exhibited manner of staffs as regards duties and as such it is a general manifestation of workers' attitudes. These attitudes are developed in respect of jobs and are based on different characteristics of the job in question, and they are in tandem with the status attained or earned relating to their jobs and the know-how learnt through the job environment (Çelik et al., 2011). Rashid, Wani and Kumar (2013) argue that job satisfaction and motivation are inseparable tangible principles when it comes to the issue of success of any firm and its workers. Thus, if workers are encouraged towards their job, they feel more satisfied in their jobs. Consequently, they offer their best effort and contribute their quotas towards the achievement of common goals and objectives. The following hypotheses were subjected to empirical analysis in this study.
H2: Motivation positively influenced workers' job contentment in the insurance industry.
H3: Compensation management has a positive bearing on workers' satisfaction in insurance business.

Theoretical Foundation: According to Adeoye (2014), several theories have been put forward in relation to compensation, motivation, and how these affect employee's job satisfaction. Some of the compensation theories are Jensen's (1994) agency theory, Adams's (1965) equity theory, Davidson's (1898) bargaining theory, the behavioural wage theory based on the work of Mayo (1930), and Vroom's (1964) expectancy theory of wage. Many motivational theories, such as Maslow's (1943) hierarchy of needs, Alderfer's (1972) existence, relatedness and growth (ERG) theory and Herzberg's (1966) two-factor theory, all under the content theory of motivation, have also been propounded. Adams's (1965) equity theory and Vroom's (1964) expectancy theory were extended by Porter and Lawler III (1968) in his Porter and Lawler's (1968) expectancy model. According to Kreitner and Kinicki (1998), the model identifies the source of people's valences and expectancies and link effort with feat and job fulfilment. The Porter and Lawler model considered effort as a function of the perceived value of a bonus and the perceived effort-reward probability. Ramlall (2004, p. 56) cites Porter and Lawler (1968) who argued "employees should exhibit more effort when they believe they will receive valued reward for task accomplishment. It is concluded that employees are more satisfied when they feel equitably rewarded. In addition, employees' future effort-reward probabilities are swayed by past experience with performance and rewards." The theoretical foundation for this paper was Porter and Lawler's (1968) expectancy model which is anchored on Vroom's (1964) expectancy theory of motivation that provides understandings on how compensation and motivation influence employees' job satisfaction. Putting this proposition to empirical test in the insurance industry in Nigeria, this paper seeks to structurally determine the mutual influences of compensation management and employees' motivation on workers satisfaction.

The Conceptual Framework: Adeoye (2014) created a conceptual framework to measure the association of compensation management with job satisfaction concentrating on the mediating influence of employees' motivation in the insurance industry in Nigeria. Figure 1 illustrates the conceptual framework.

Figure 1: Conceptual framework



Source: Adapted from Adeoye (2014)

As illustrated in Figure 1, compensation management and motivation are specified as exogenous latent variables (also see Figures 2 and 3). Job satisfaction is the endogenous latent variable in the measurement and structural models presented in Figures 2 and 3 respectively. Also, motivation could be referred to as a mediator in the link between compensation management and workers' satisfaction in the insurance industry. The corresponding exogenous and endogenous manifest variables are denoted with boxes in the measurement and structural models.

3. Methodology

The main purpose of this paper was to structurally explore the influences of compensation management and employees' motivation on job satisfaction in insurance industry. To meet this objective, a quantitative approach was adopted, drawing insights from the principles of non-experimental and observational approaches. These approaches were combined because the researchers gave no priority for manipulation of the exogenous variables. The observational approach allowed the researchers to subject the variables to Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM).

Sample Procedure: Two hundred and fifty (250) structured questionnaires were administered to the staff of an insurance company operating in the south-western part of Nigeria. The respondents were selected based on the principle of convenience sampling. The self-administered questionnaires were distributed among all branches in the south–west, including the headquarters of the company situated in Lagos, Nigeria. After three months' extensive field work, 213 questionnaires were retrieved by the researchers. One of the survey instrument was not properly done by a respondent, thus it was later discarded at the preliminary data analysis stage. The remaining 212 questionnaires represented a response rate of 84.8%.

Measures: The Compensation Management Questionnaire (CMQ) was developed on a 7-point Likert-type rating scale ranging from strongly disagree (1), disagree (2), slightly disagree (3), neutral (4), agree slightly (5), agree (6) to strongly agree (7), with six items. To measure motivation, the Motivation Questionnaire Scale (MQS) was adapted based on the motivation work of Mottaz (1985), Brislin et al. (2005), Altindis (2011), and Mahaney and Lederer (2006). The six items measuring motivation in the insurance industry were designed on a 7-point Likert-type rating scale ranging from strongly disagree (1) to strongly agree (7). Measuring job satisfaction in this study, the Minnesota Job Satisfaction Questionnaire (MSQ) was adapted. The short form of the MSQ consists of 20 items and three-dimensional scales: intrinsic satisfaction, extrinsic satisfaction, and general satisfaction, and is made up of a 5-point scale ranging from very dissatisfied (1) to very satisfied (5) (Weiss et al. 1967). Scores on the Intrinsic Satisfaction scale range from 0.84 to 0.91, scores on the Extrinsic Satisfaction scale range from 0.77 to 0.82, while scores on the General Satisfaction scale range from 0.87 to 0.92. The reliability coefficients were 0.86, 0.80 and 0.90 for intrinsic satisfaction, extrinsic satisfaction and general satisfaction respectively (Weiss et al., 1967). The MSQ has been used in various Nigerian samples and it reported reliable alpha coefficient of 0.82 (Tella, Ayeni & Popoola, 2007) and the internal consistency was between 0.82 and 0.93 (Gummi, 2011). In the current paper job satisfaction was measure using six items drafted on a 7-point Likert-type rating scale ranging from strongly disagree (1) to strongly agree (7). The Cronbach's alpha coefficients of the major constructs investigated in this study are presented after Exploratory Factor Analysis (EFA).

4. Data Analysis and Results

Two software packages were employed for data analysis. Statistical Package for the Social Sciences (SPSS) version 23 was used for the preliminary data analysis and the reliability of the research instrument. Statistical validity of the research instrument was assessed using EFA. A maximum likelihood was employed to extract the initial set of factors with an Oblique Promax Rotation using SPSS version 23. Items loading greater than 0.45 were considered significant based on the rule of thumb guiding significant factor loading and samples (MacCallum, Widaman, Zhang & Hong, 1999). The cross-loaded items were deleted. These were items 4 on the scale measured compensation management, items 1 and 4 on the scale measured motivation, and items 1, 5 and 6 on the scale measured job satisfaction in the insurance industry. The psychometric property of the research instrument is presented in Table 1.

Three (3) factors were extracted judging from the pattern matrix and the total variance that has been explained. Factor 1, *compensation management in the insurance industry* emerged as one of the most crucial factor with a considerable variance of 40.6%. This factor relates to salaries offered to employees by the management of the insurance companies in Nigeria. Factor 2, *motivation,* emerged as the second most important factor with a variance of 7.9%. This factor assessed motivation using promotion, company policy, developmental programmes and equity in terms of employees' pay with their counterparts in similar industries. Factor 3, *job satisfaction* emerged as the third most important factor with a variance of 7.5%. This factor points to opportunities for career advancement, work flexibility, and satisfaction with human resource policies and practices in the insurance industry. The Cronbach's alpha coefficients for compensation management, motivation and job satisfaction were 0.887, 0.795 and 0.735 respectively. It can be concluded that the research instrument used in measuring the major constructs are reliable based on the rule of thumb (Pallant, 2011). The correlation coefficients of the major variables are presented in Table 2.

Table 1: Psychometric properties of the research instrument

Items Compensation management	Mean	SD	Factor loading	Item total correlation
My salary is commensurate to the work I do.	3.97	2.006	.900	.656
My salary is above those paid by similar company in the industry.	3.12	1.673	.753	.686
My salary is enough to compensate me for my job in the company.	3.50	1.793	.940	.668
My salary is competitive, reasonable and is reviewed in a fair manner.	3.28	1.762	.651	.713
My company pays salary and emolument that are sufficient to motivate employees to perform effectively based on a lay down procedure.	3.18	1.753	.462	.665
Items Motivation	**Mean**	**SD**	**Factor loading**	**Item total correlation**
My promotion is enhanced through what I do on the job or have achieved.	4.40	1.759	.688	.471
The company policy is friendly and flexible in allowing contribution of new ideas by an employee.	3.76	1.684	.668	.636
Developmental programmes have been used by the organisation to boost employees' morale.	3.53	1.638	.771	.519
I received the same compensation as my counterparts in similar industry.	2.80	1.753	.687	.540
Items Job satisfaction	**Mean**	**SD**	**Factor loading**	**Item total correlation**
The opportunities for advancement on this job	4.52	1.552	.800	.414
The chances to be responsible to determine and plan my work	4.38	1.535	.544	.463
The policies and practices toward employees of this company	3.82	1.485	.767	.553

Notes: KMO = 0.869; X2 = 1 164.86; Df= 66; P < 0.001; percentage of variance explained = 55.917%
Source: Emerged from the statistical analysis

Table 2: Descriptive analysis and correlation coefficients among the variables

	Variables	Mean	Std. Deviation	1	2
1	Compensation management	17.0550	7.46189		
2	Motivation	14.4875	5.37702	.593**	
3	Job satisfaction	12.7173	3.69502	.491**	.378**

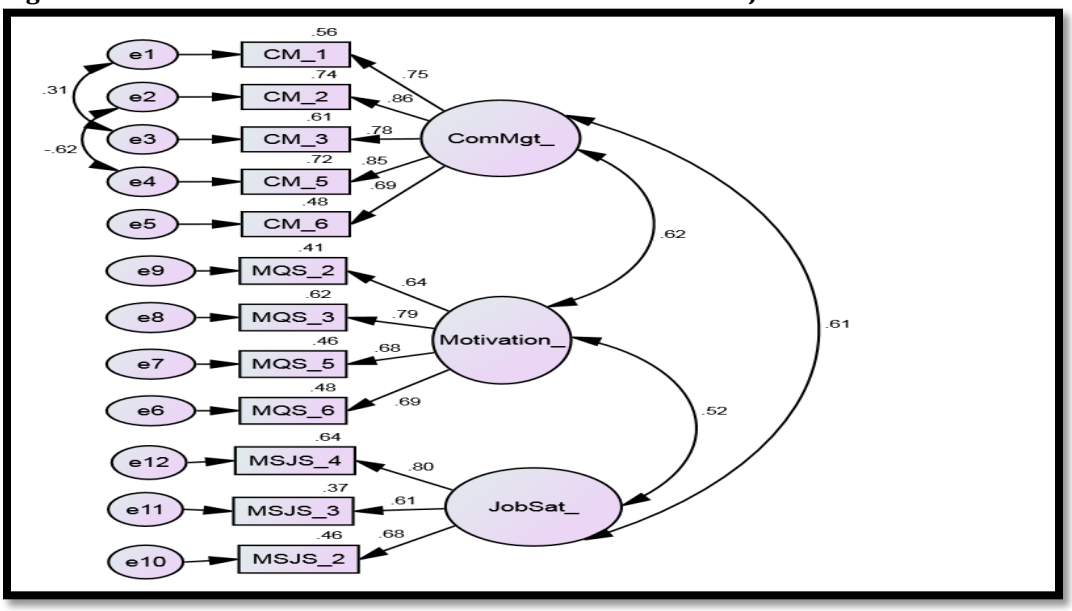
**. Correlation is significant at p < 0.001 level (2-tailed).
Source: Emerged from the statistical analysis

As evident in Table 2, all correlation coefficients among the variables were positive and significantly correlated (p < 0.001). There was a moderate positive relationship between motivation and job satisfaction in the insurance industry (r = 0.378, n = 212 and p < 0.001). The relationship between compensation management and motivation was strong and positively correlated (r = 0.539, n = 212 and p < 0.001). This implies that a higher level of pay offered to employees by the management will boost the morale of employees in the insurance industry. There was a strong positive relationship between compensation management and employees' job satisfaction in the insurance industry (r = 0.491, n = 212 and p < 0.001). This means that an increase in the compensation package will also result in an increase in the opportunities for career advancement, satisfaction with HR policies and practices in the insurance industry.

Having conducted the EFA, statistical reliability and validity of the research instrument, as well as the bivariate correlation coefficients between the variables investigated. The latent variables (compensation management, motivation and job satisfaction) were subjected to further analysis using SPSS Analysis of Moment Structures (AMOS) version 23. This statistical package was instrumental in running the

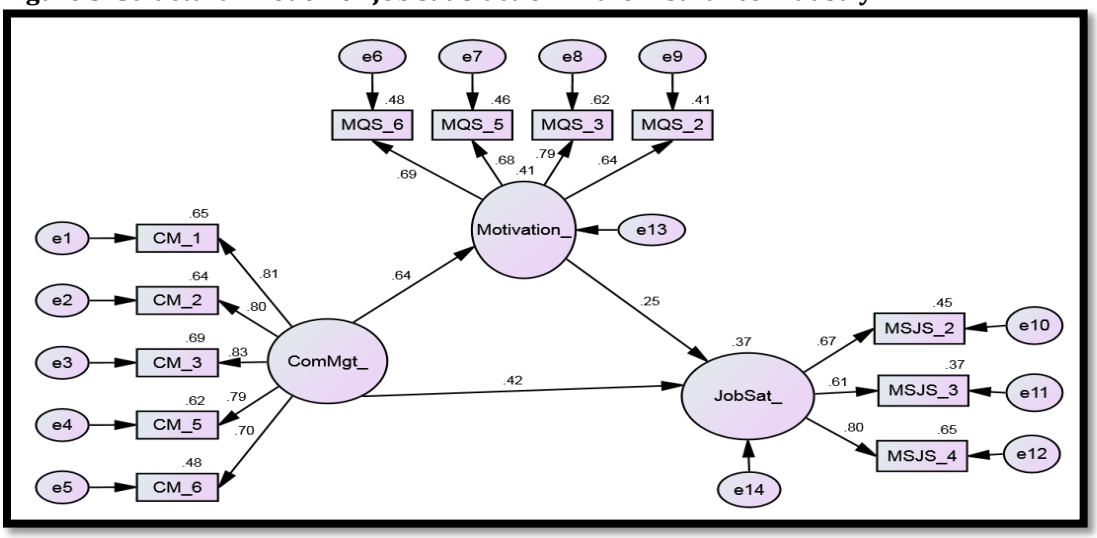
measurement model presented in Figure 3 and the structural model presented in Figure 4. The following model fit indices were used. The chi-square value, degree of freedom and P values of all factors or beta loadings were used to determine the model fit. In cases of large chi-square values and degree of freedoms, the normed chi-square test values were used, which is the chi-square value – degree of freedom ratio. Three incremental model fit indices were used to assess the model fit; the Tucker-Lewis Index (TLI), the Incremental Fit Index (IFI) and the Comparative Fit Index (CFI). The values for Gross Fit Index (GFI) and Root Mean Square Error of Approximation (RMSEA) were also reported in this paper to determine the fitness of the proposed model. The measurement model and the model fit indices are presented in Figure 3.

Figure 2: Measurement model for structural determinants of job satisfaction



Chi-square = 95.276; DF = 49; p-value = 0.000 (< 0.001);
CMIN/DF = 1.944 (<5); GFI = 0.937 (> 0.90);
NFI = 0.920 (> 0.90); IFI = 0.960 (> 0.90); TLI = 0.945 (> 0.90); CFI = 0.959 (> 0.90); RMSEA = 0.067 (below 0.08)

Figure 3: Structural model for job satisfaction in the insurance industry



Chi-square = 124.181; DF = 51; p-value = 0.000 (< 0.001);

CMIN/DF = 2.435 (< 5); GFI = 0.916 (> 0.90);
NFI = 0.912 (> 0.90); IFI = 0.936 (> 0.90); TLI = 0.916 (> 0.90); CFI = 0.935 (> 0.90); RMSEA = 0.072 (below 0.08).

The model fit indices presented in Figure 2 are acceptable as all factor loadings ranged from 0.64 to 0.85, significant at $p < 0.001$, which signified a statistical validity of the proposed model. Approximately 94% (GFI = 0.937) of the variances and covariances of the proposed model could be explained by the collected data. The fit indices conform to the theoretical foundation of the three latent variables and their corresponding manifest variables included in the measurement model. This empirical model validates the theoretical assumptions with respect to influences of compensation administration and other motivating factors such as; promotion, company policy and developmental programme on workers satisfaction in the insurance industry. The structural model explaining the mutual influences of compensation management and motivation on employees' job satisfaction in the insurance industry is presented in Figure 4.

As is evident in the AMOS output presented in Figure 3, compensation management has strong, direct and different positive influences on motivation (0.64) and job satisfaction (0.42) in the insurance industry. Motivation has a direct positive influence on job satisfaction (0.25). All regression weights were significant at $p < 0.001$. Drawing emphasis from the standardised regression weights, one can conclude that compensation management has a prominent but significant influence on employees' level of motivation in the insurance industry. Therefore, hypothesis one (H1) was empirically supported in this paper. Statistically, the result showed that motivation has a significant positive influence on job satisfaction in the insurance industry. Hypothesis two (H2) was also supported based on the findings of this paper. Evidently, the direct link from compensation management to job satisfaction explained a more significant influence on employees' job satisfaction than the indirect link through motivation. This supports hypothesis three (H3), meaning that compensation management has more direct positive impacts on employees' job satisfaction in the insurance industry. Therefore, financial rewards offered in the industry explained most of the variations in job satisfaction. Factors such as promotion, company policy, developmental programmes and equity in employees' pay explained fewer of the variations in job satisfaction within the industry. Employees derived more satisfaction from the financial rewards than the non-financial rewards offered by management. This result is not surprising; it corroborated the outcomes of a recent study conducted in a service industry (Bustamam, Teng, & Abdullah, 2014) and also affirmed that financial reward has a stronger influence on job satisfaction when compared to a non-financial reward.

5. Managerial Relevance and Conclusion

Managerial Relevance: Apart from the empirical and theoretical relevance of the current study, this paper also offers practical recommendations for the management in the insurance industry. Employees' job satisfaction was established as a fundamental antecedent to employees' performance as well as organisational outcomes in the insurance industry. This suggests that management should be concerned with issues hindering employees' job satisfaction. Pay offered by management (compensation management) explained most of the variations in employees' job satisfaction in the insurance industry, while other non-financial rewards put in place by management explained fewer of the variations in job satisfaction. This implies that employees derived less satisfaction with the company policies and developmental programmes, as well as the policy used in administering their promotions. Appropriate consideration should be given to issues of mutual interest at the developmental stage of the policies affecting employees' promotion. Other stakeholders' involvement at the developmental stage could improve the level of employees' job satisfaction in the insurance industry. Non-financial rewards as motivational tools could be used to improve employees' job satisfaction resulting in employees' productivity and business sustainability in the long run.

This paper aims to structurally determine employees' job satisfaction by investigating the mutual influences of compensation administration and motivation in the insurance industry. The multivariate data analysis (SEM) employed was to test the theoretical positions with respect to joint influence of reward administration and motivation on job satisfaction in the specified service industry. The results showed that compensation management and motivation significantly influenced employees' job satisfaction in the insurance industry. This result was confirmed using the model fit indices demonstrated below the measurement and structural

models presented in Figure 2 and 3 respectively. The empirical result demonstrates that the models are closely fitted to the sample data. The hypotheses tested in this paper received empirical support, which could be used to maintain a balance between theory and practice (praxeology) in the insurance industry. The direct link from compensation management significantly contributed more to motivation, compared to the direct link from compensation management to job satisfaction in the industry. This means that compensation management had more prominent influence on employees' motivation than employees' job satisfaction. Statistically, this study found that compensation management exerts more direct influence on employees' job satisfaction than the indirect link through motivation. It could be said that motivation partially mediates the relationship between compensation management and employees' job satisfaction in the insurance industry. This paper concludes that financial rewards made greater contributions to the variations in employees' job satisfaction in the industry. Factors such as promotion, company policy and developmental programmes used to boost employees' morale contributed less to the levels of employees' job satisfaction in the insurance industry. Evidently, employees derived more satisfactions from pay received on the job, when compared to satisfactions from job empowerment and fulfilment. There may be a need to redesign human resource practices in order to improve the level of employees' satisfaction with job fulfilment in the industry.

Study Limitation: The thrust of this paper was limited to the structural determinants of work fulfilment in insurance industry, demonstrating mutual effect of compensation management plus motivation. A lack of multiple influences of compensation management, motivation and employees' job satisfaction on human resource/organisational outcomes was the greatest limitation of this paper. Future studies may be conducted on the gap identified in other sectors of the economy. As far as methodology is concerned, a combination of explanatory sequential mixed methods and a longitudinal approach may be more appropriate to investigate the cause and effect of compensation management and motivation on workers' employment contentment in insurance industry. Specifically, outcome of this paper is limited to relationships among remuneration administration, inspiration and job satisfaction in the insurance company in Nigeria. Therefore, caution should be taken before making generalisations based on the findings of this paper. The researchers has successfully tested theoretical propositions on the associations among compensation management, motivation and employees' job satisfaction with the practice in insurance industry utilising structural equation modelling.

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The Determinants of Non-Performing Loans in the 'MINT' Economies

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Abstract: This paper investigates the major determinants of non-performing loans in the MINT (Mexico, Indonesia, Nigeria and Turkey) economies. Identifying major determinants of non-performing loans, which are observed to be growing in these countries in recent time, will also guide policy and forecasting future levels that will be useful for pre-emptive policies and actions. It uses static panel data and dynamic panel model analyses. Evidence suggests that in the four economies, capital adequacy ratio, liquidity ratio, total bank credit andreturn on assets are significant bank-specific determinants of non-performing loans. Also, while the return on assets, liquidity ratio and capital adequacy ratioshow a negative and significant relationship with non-performing loans, nominal exchange rate, money supply growth rate, total bank credit and lending rate show positive and very significant relationships with non-performing loans. Finally, corruption, an institutional variable, shows a very strong positive relationship with non-performing loans.

Keywords: *MINT, non-performing loans, determinants, panel, corruption*

1. Introduction

Background: The acronym 'MINT', which was first coined by British economist Jim O'Neill, former chairman of Goldman Sachs Asset Management, represents Mexico, Indonesia, Nigeria and Turkey. O'Neill had come up in 2001 with the now-popular BRIC acronym (hitherto unknown), which later in 2010 got extended with the letter 'S' to make it BRICS (Brazil, Russia, India, China and South Africa). BRICS countries later organised themselves into a political and economic alliance. O'Neill (2014), after the11 September 2001 terror attacks, had the conviction that Europe and the United States (US) were confronted with economic decline. In his opinion, developing countries could benefit enormously from globalisation and fire-up the global economy. Common and major drivers of the prospects for the MINT economies include young and expanding populations. In theory, this is expected to lead to a persistent boost to domestic consumption, contrary to the demography of countries such as China with an ageing population. For instance, in 2013, Turkey's economy grew 10.3% faster than China's, and was the third fastest growing world economy (World Bank, 2014). Economic growth came mainly from construction (6%) rather than exports, such as in China and Russia. In addition, the MINT countries are at an advantage due to their respective geographic positions. Mexico benefits from increasing demand for exports from the US in recent years, Indonesia in Asia is in contiguity with the likes of China and Australia, Nigeria even though in West Africa can easily be a pivot of Africa's economy, while Turkey in the European Union, is positioned as an access point into Asia and Africa (Akpan, Isihak & Asongu,2014).

Non-performing loans (NPLs) have been identified as a factor that limits the effectiveness of the banking sector in promoting the economic growth (see Boudriga, Taktak & Jellouli, 2010). In the global financial stability report of International Monetary Funds (IMF), NPLs' level was seen as an old risk presenting new challenges and countries with high NPLs incidents have been advised to examine some factors that might be responsible for the upsurge in the cases of NPLs while those with relatively low incidents are encouraged to press harder in order to get better (IMF, 2013). The burden of NPLs reduces liquidity and causes low profitability in banks, limits credit expansion to viable economic entities, and confines economies to low growth as the real sector slows down with the attendant rise in unemployment. Unfortunately, credit, which sometimes births NPLs, is the oil that greases economies and is unavoidable (Klein, 2013). Even though the definition of NPLs is not uniform across countries, the IMF (2004) provided a definition that represents a general convergence of the term. A loan is deemed to be non-performing if payments (principal and/or interest) due have not been paid for at least 90 days. The Bank for International Settlements (BIS) 5-tier system classifies loans into five categories: pass, special mention, sub-standard, doubtful and virtually lost. Of these, the last three classes of loans are the non-performing loans. While the first category refers to a healthy loan, special mention loans may currently have no outstanding payments but collections problems may be

foreseen. However, the term 'impairment' is used in place of the term 'non-performing' by international accounting and banking standards. Sound Practices 7 and 11 of the Basel Committee on Banking Supervision and the International Accounting Standard (IAS) 39 refer to such loans as being impaired.

Just like Mexico, Indonesia, Nigeria and Turkey (MINTs or MINT countries), BRICS were a set of newly industrialised and developing countries, which were identified for their fast growing economic potentials. In the Goldman Sach's projections in 2006, by 2050, Mexico, Indonesia, Nigeria and Turkey are expected to rank 5th, 7th, 11th and 14th respectively by 2050. The MINT countries have some attributes in common. They are all emerging economies that lie between 15th and 21st place in the world in terms of Gross Domestic Product (GDP) and all have population and geographical location advantages. All the MINT countries have youthful and expanding populations. Even though the largest four emerging market-developing economies are BRIC, and the next four are South Korea, Mexico, Indonesia and Turkey, Nigeria is justifiably included with the other three countries in this batch of countries. The reason is that Nigeria is within the ten Big Emerging Market (BEM) with the largest economy in Africa and regarded both a regional power in Africa and middle power in international affairs. Also, Nigeria could grow at an average minimum of 5% over the next 35years up to 2050 while established emerging economies such as China is expected to moderate to between 3% and 4% over the same period (PWC, 2015). Their model predicts Nigeria having the highest GDP growth rate over the same period of 5.4% in domestic currency. Although, other problems confronting the MINT economies include mammoth bribery and corruption, poor infrastructure development, weak institutions, governance issues, high levels of debt, and inadequate education systems, it is believed that if the problem of non-performing loans can be fixed, banks will be in a more pole position to provide the needed catalyst for boosting the growth of these economies, and consequently push these economies to a higher level of growth (International Monetary Fund (IMF), 2013).

Myriads of studies preceded the first official meeting of BRIC in 2009 in Russia. For instance, in projecting the pathway for economies till 2050, Wilson & Purushothaman (2003) suggested that the G6 could have a smaller economy than BRIC in US Dollar terms by as early as 2039. This study and some others before it seek to be a part of pioneers on MINTs. For instance, Akpan et al. (2014) studied the determinants of FDI in Fast-Growing Economies, comparing the BRICS and the MINTs. Durotoye (2014) analysed the MINTs as a possible emerging economic power bloc, putting into focus the crisis of youth unemployment. Öztürk & Yildirim (2015) obtained ambiguous results in their test of the evidence of long-run panel causality test in the study of environmental Kuznets curve hypothesis in the MINT Countries. Asongu & Kodila-Tedika (2015) compared the drivers of growth between the BRICS and the MINT countries. Finally, Kokotović & Kurečić (2016) analysed the basic economic trends in the MINT countries and obtained results that seem to suggest a significant role in international relations as regional powers for the MINT countries. NPLs have been identified as the main cause of banking system crises in these countries (See Desmet, 2000; De Luna-Martinez, 2000, for Mexico; Fofack, 2005; Carney, 2009, for Indonesia; Aminu, Dogarawa & Sabari, 2014; Adeyemi, 2011; Somoye, 2010, for Nigeria; Karabulut, Bilgin & Danisoglu, 2010; Özatay, Sak, Garber & Ghosh, 2002, for Turkey).

Furthermore, of concern is the fact that despite efforts by these countries, NPLs have been rising again. In spite of this realization by administrators of these economies, policies have failed to rein-in this problem as NPLs persist, rising over the last 4 years (after 2010 to 2014) by about 159%, 191%, 206% and 106% (but 153% in the last 3 years) in Mexico, Indonesia, Turkey and Nigeria respectively in absolute terms. This portends a real lurking danger to MINTs' financial stability and economic growth when juxtaposed to international benchmark of a maximum of 5% annual growth of NPLs (Anderson, 2011). Facing this situation by economies identified for their potentials and future role in global economy puts this perspective in probable jeopardy and requires attention. The projection set by the IMF and others thus appears to be severely threatened with this trend for the MINT countries as only an efficient banking sector can provide enough credit flow to drive investment and economic growth. Therefore, it is believed that if the factors that determine non-performing loans can be thoroughly examined, it will provide insight into ways in which the rising trend of non-performing loans in the MINT countries can be pegged back (Hu, Li & Chiu, 2004 and Fofack, 2005), ultimately paving the way for pre-emptive policies and actions. Consequently, the major objective of this study is to identify those important factors that determine non-performing loans and their individual relative impacts in MINTs, whose realisation of potentials, hinges on a healthy banking system. This study contributes to the existing literature by providing evidence on the determinants of NPLs in MINT

countries, using the institutional variable (corruption) which had never been used in similar studies on these countries in the past. Moreover, MINTs is a relatively new economic bloc conception that so far has not enjoyed much attention from researchers. As far as we know, this is the first study of non-performing loans in the MINT economies as a 'bloc'.

2. Literature Review

The importance of credit to an economy cannot be over-emphasized. Friedman (1994) argues that a measure of credit is associated with nominal GDP, while Stiglitz (1989) maintains that money is important because of its relationship with credit. The institutional link between money and credit is enabled by the development of fractional reserve banking which combines loans with deposits (Cochran & Call, 2000). Moinescu (2012) argues that strong increases and decreases in credit are the transmission channel of the dynamics of non-performing loans. This corroborates the work of Jakubik & Moinescu (2015) who link contracting credit to the growth of NPLs, likening it to inefficient resource allocation by banks. He further linked the dynamics of NPLs to the difference in banks' credit to the private sector, which is measured as a percentage of GDP. He argues that some macroeconomic variables as well as market variables determine the size of NPLs. In his opinion, macroeconomic variables such as economic growth enhance the capacity to repay. Conversely, financial market variables such as the exchange rate and interest rates lower capacity for repayment. In modelling credit, Zeng (2012) views loans to the economy as boosting total consumption and hence yielding a positive social utility, while NPLs are viewed as a source of financial pollution, which negates social utility. He identifies two economic implications of NPLs. Firstly, economic growth could decline if NPLs grow, causing resource allocation inefficiency. Secondly, capital requirements will increase as a result of the growth of NPLs as erosion of capital occurs due to funds being trapped in entities, making it impossible for the banks to fund new, economically viable ventures.

In terms of empirical studies, Studies on NPLs can be divided into five categories. The relevant tranche of literature to this study views NPLs at macroeconomic level across countries using the aggregate level of NPLs. Under this tranche, disaggregation of loan types across sectors within a group of countries is sometimes done in order to view NPLs irrespective of the category of determinants. The proposed study falls partially into this category. For instance, Beck, Jakubik & Piloiu (2013) investigated the macroeconomic determinants of NPLs in a group of 75 countries using 10-year data. Using panel data analysis as the estimating technique, they first selected possible factors based on theory and *a priori* expectation. Their results, which are robustly validated using the Random effect model framework, suggest that significant determinants of NPLs are the lending rate, the exchange rate, the real GDP growth rate and share prices. In terms of share prices, greater impact was found in countries with a larger stock market relative to GDP ratio. For the exchange rate, countries with managed or pegged exchange rate systems seem to have unhedged borrowers of foreign exchange and this determines the direction of the effect on NPLs. Makri, Tsagkanos & Bella (2014) studied the determinants of NPLs in the banking system of 14 countries in the Euro zone covering a period of nine years focusing on both bank-specific and macroeconomic variables. The study used the aggregate level of NPLs and employed the difference Generalized Method of Moments (GMM) as the estimating technique. The results suggest that there is a significant relationship between NPLs and macroeconomic variables such as unemployment, public debt, and the GDP growth rate. The study also found that bank-specific variables such as capital adequacy ratio, return on equity and NPLs of the previous year contributed significantly to the level of NPLs.

Financial Crisis and NPLs: Economic depressions trigger the level of NPLs and the deterioration in economic fortune shoots up the risk of non-performing loans (Sinkey and Greenawalt, 1991). The world has witnessed more financial crisis in the last ten years probably as a result of liberalization of financial systems (Yang, 2003). In the wake of the 1997 Asian financial crisis, there had been a rapid rise in the level of NPLs across those economies (Wade, 1998; Yang, 2003). Further worsening of NPLs' level accompanies financial crisis (Louzis et al., 2012). But some researchers are of the opinion that the beginning of a financial crisis can be highlighted by a rise in NPLs' level (Reinhart & Rogoff, 2010). NPLs in any economy, is one of the drivers of banking crises. Banks can create money through credit expansion to the system and also make significant portion of their earnings through loan creation (Vodova, 2011). Banks undertake different risks in order to remain in business, but a credit risk which is positively related to banking crises, is the main risk carried by banks (Yang, 2003; Fofack, 2005). Credit risk is the risk that borrowers may not pay back, thereby, making

loans become NPLs. NPLs reflect the stability of the banking system and largely the financial system since historically, a built-up level of NPLs has often been found to be associated with banking crises (Fofack, 2005). This relationship is established in the East Asian banking and financial crisis of 1997, which severely affected economic growth in Thailand, Indonesia, Malaysia and Korea, when more than 300 percent increase in NPLs level preceded the crisis (Mishkin (1999). Reinhart & Rogoff (2010) further link financial crisis with sovereign debt crisis as was the case in Greece. Barseghyan (2010) also argued that the huge level of NPLs in Japan accounts in part towards the prolonged slowdown in that economy for over a decade till 2003. Finally, the global financial market instability of 2007 was triggered by mortgage defaults, which started from the United States of America (USA) mortgage market. The severity of the later spread to different countries of the world then depended on each country's cross-border financial exposure and link to the USA (Leaven & Valencia, 2010).

3. Methodology

Model Specification: It is typical of non-performing loans' empirical models to include macroeconomic and bank-specific variables. Representing the work of Moinescu (2012) in functional form, we have:

NPLs = f(credit accelerator, macro, market)…… (1)

Suppose β is the coefficient of 'macro', then, $\beta < 0$. Also, suppose $\propto$ is the coefficient of 'market', then, $\propto > 0$.

According to Moinescu, a credit accelerator is made up of important components such as credit flow (F), liquidity ratio (L) and inflation rate. That is:
$C_{i,t} = f(F_{it}, L_{i,t}, \pi_{i,t})$…… (2)
Few studies that have included institutional variables such as Ahmad (2013) and Goel & Hasan (2011) find the same relationship as 'market' with the level of NPLs.
Hence, our model, is therefore hypothesised as follows:
$bnpl_{i,t} = f\left(bcar_{i,t},\ btcr_{i,t}, roa_{i,t},\ roe_{i,t},\ blr_{i,t},\ ledr_{i,t},\ exr_{i,t}, infr_{i,t},\ msgr_{i,t},\ gdpgr_{i,t}, crptn_{i,t}\right)$.....(3)
Where all variables are as defined in section 3.5.

We consider two main estimating techniques under static panel data analysis and a dynamic panel data estimating technique. The first one is a fixed effects model (FEM) ('within group' and Least Squares Dummy Variable). This allows us to control for unobserved heterogeneity across the MINT countries. But this technique may yield biased results if fixed effects, π_i, is correlated with error term, μ_{it}. We proceed to estimate the second technique known as the random effects model (REM), which is only appropriate if we think that $Cov(\pi_i, X_{it})=0$. We then conclude by obtaining the results of dynamic estimation utilising systemic generalised method of moments (GMM), which helps to overcome the presence of possible endogeneneity in our static model through the use of instrumental variables.

Estimation Technique: Panel data analysis: Panel models are basically divided into two: one is the static panel model while the other is the dynamics panel model (Bai, 2009). Fixed effect ('within group' (WG) and least square dummy variable (LSDV)) and random effects are the two static panel models available in the panel literature (Hedges & Vevea, 1998; Rowland & Torres, 2004). The literature has supported usage of fixed effect (WG) because it is capable of producing what is called consistent estimators, the reason being that values are differenced around their various sample means (Blundell, Bond & Windmeijer, 2000). In the case of fixed effect, LSDV cross-sectional variation is allowed through the use of dummy variables (Kezdi, 2004; Andrews, Schank & Upward, 2006). However, Gujarati and Sangeetha(2007) and Hayes and Preacher(2013) cautioned that when the dummy variables become too many, the degree of freedom that is consumed is too much and this will have serious implicationsfor the result.
The equation of fixed effect is given as:
$Y_{it} = X_{it}\beta + \pi_i + \mu_{it}$ …… (4)
Where intercept is not expressly stated, y_{it} is the vector of bank non-performing loans, bnpl, across the MINT countries, π_i is the unobserved country-specific effect, β is a vector of parameter estimates for each of the explanatory variables and the constant, x_{it}, is a K-dimensional row vector of explanatory variables

$(bcar_{i,t},\ btcr_{i,t}, roa_{i,t},\ roe_{i,t},\ blr_{i,t},\ ledr_{i,t},\ exr_{i,t}, infr_{i,t}\ \ msgr_{i,t},\ gdpgr_{i,t}, crptn_{i,t})$ as defined in section 3.5 over the time period that variables were observed, and μ_{it} is the error term.

For the LSDV equation, we have the following:
$y_{it} = \sum_{j=2}^{4} D_j + X_{it}\beta + \pi_i + \mu_{it}$ ……(5)

Where D_j represents the dummy variables for N-1 cross-section of countries. This is the only addition to equation (2). This means we have 'dummyindonesia', 'dummynigeria', and 'dummyturkey' in the equation with Mexico being the reference for the others. In other words, other country dummies give intercepts relative to the intercept of Mexico.

However, there is the possibility of a multicollinearity problem if the dummy variables are too many and this may lead to an endogeneity problem where regressors can be correlated, thus leading to bias and an inconsistent estimator (Gujarati& Sangeetha, 2007). For the random effect model (REM), developed by Nerlove &Balestra (1996), this aims to account for the possible variable omission in the fixed effects model. The basic equation for the random effect model is presented thus:
$y_{it} = \alpha + X_{it}\beta + \pi_i + \mu_{it}$ ……(6)

Wherey_{it} is a vector of bank non-performing loans, bnpl, across MINT countries,α is the constant, β is a vector of parameter estimates for each of the explanatory variables, x_{it} is a K-dimensional row vector of explanatory variables $(bcar_{i,t},\ btcr_{i,t}, roa_{i,t},\ roe_{i,t},\ blr_{i,t},\ ledr_{i,t},\ exr_{i,t}, infr_{i,t}\ \ msgr_{i,t},\ gdpgr_{i,t}, crptn_{i,t})$as defined in section 3.5, $\pi_i$is within-entity error, and $\mu_{it}$is between-entity error. Under REM, we assume that π_i is random and does not correlate with the explanatory variables.

The Hausman (1978) test is utilised in this study on the appropriateness of either the FEM or REM (see Mutl &Pfaffermayr, 2011).
This study also explores the dynamic panel data approach (see Arellano &Bond, 1991; Eigner, 2009). This method, called the generalised method of moments (GMM) generates a model that improves the performance of the estimator.
The equation of the GMM is thus:
$y_{it} = X_{it}\beta_1 + W_{it}\beta_2 + \varepsilon_{it}$ …… (7)

Where y_{it} is the vector of bank non-performing loans, bnpl, across the MINT countries,$W_{it}$is the vector of predetermined regressors including lag(s) of y, intercept, β_i for *i=1,2*are parameter estimates for each of the explanatory variables, x_{it} is a K-dimensional row vector of strictly exogenous explanatory variables as defined in section 3.5 over the time period that variables were observed, and $\varepsilon_{it} = \pi_i + \mu_{it}$is the error term.

This equation is just a modification of the fixed effect equation with the inclusion of instrumental variables. However, system-GMM by Blundell &Bond (1998) and Blundell et al. (2000) was used as this approach completely eliminates the problem of weak instrumental variables, which may be possible in the GMM version of the dynamic panel data by Arellano-Bond particularly as variables approach a random walk. Another advantage of system-GMM it gives room for the inclusion of time-invariant regressors which disappears in Difference-GMM. System-GMM uses additional restrictions by using modified instruments with lagged differences in addition to lagged levels used by Arellano-Bond.

Data: Data on bank non-performing loans for the MINT countries were sourced from the Reserve Bank of St. Louis database. Data on national basis, on official exchange rate, GDP growth rate, money supply growth rate, inflation rate, total bank credit to domestic economy, bank liquidity ratio, bank capital adequacy ratio, return on assets, return on equity, lending rate (for Mexico, Indonesia, Nigeria and Turkey) were sourced from the World Bank Tables 2013 edition and reported. The database of Transparency International supplied the CorruptionPerceptionIndex (CPI) for the countries. The database for the Central Bank of Turkey is the source for the lending rate of Turkey. The scope of data was 17 years (1998-2014) for all countries. Data are scooped on a quarterly basis and the likes of the Corruption Perception Index, which is only available annually, were interpolated as in Chow and Lin (1971) and Auffhammer, Hsiang, Schlenker, & Sobel (2013). The main

limitation of this study relates to reliability of data, particularly on non-performing loans arising from representative bias as Bankscope publishes aggregate country data once data from at least four banks is received (Breuer, 2006). However, the most accurate data for NPLs are available from 1996 (Greenidge &Grosvenor, 2010; Hasan &Wall, 2004. Our data set starts from 1998 to mitigate this limitation.

Variables identification and empirical relationship: The selection of variables for this study is based on theory and previous empirical work. The bank capital adequacy ratio (bcar), which is a bank-specific variable, is used as in Sinkey & Greenawalt (1991) and Berger & DeYoung (1997). Berger and DeYoung (1997) found an inverse relationship between the level of non-performing loans and the bank capital adequacy ratio. The banks' credit to the economy, a bank-specific variable, was used in the work of Boudriga et al., (2010) where an inverse relationship was suggested. As a proxy for bank performance, Fofack (2005) and Godlewski (2006) used return on assets, '*roa'* (we have also included return on equity, '*roe*'), and found a negative relationship between non-performing loans and *roa,* which is a bank-specific variable. Also, one important determinant of bank performance is the bank liquidity ratio. Jiménez, Ongena, Peydró & Saurina (2014) linked this with non-performing loans and we have included this as a bank-specific variable. As a macroeconomic variable, lending rate was used by Nkusu (2011) and Fofack (2005) who find a direct relationship with non-performing loan levels. Krueger and Tornell (1999) and Benavente, Johnsonand Morande, (2003) linked the exchange rate and non-performing loans, and this has also been included as a macroeconomic variable. Makin (2007) linked money supply to non-performing loans and thus we have included its growth rate in this study as a macroeconomic variable. The GDP growth rate, a macroeconomic variable, has also been selected and this is following the work of Kruegerand Tornell (1999), Louzis, Vouldis and Metaxas, (2012) and Fofack (2005), who find a negative relationship between economic growth and non-performing loans. The level of corruption (see Boudrigaet al., 2010; Ahmad, 2013; Goeland Hasan,2011) captured by Corruption Perception Index, represents an institutional variable used in this study. There seems to be unanimity in previous empirical studies that there is a direct relationship with non-performing loans.

Variables definition and measurement: Where *bnpl* is the total bank non-performing loansmeasured as a percentage of gross loans;

bcar isthe capital adequacy ratio measured as the bank capital to asset ratio;
btcr isthe banks' total credit to private sector measured as a percentage of GDP;
roa isthe banks' return on assets measured as an average period percentage;
roe is the banks' return on equity measured in average period percentages;
blr is the annual banks' liquidity reserve as a percentage of bank assets;
ledr isthe lending rate measured in average period percentage;
exr isthe official exchange rate measured in local currency per US$, period average;
msgr isthe money supply growth rate (broad money growth in average period percentage);
infr isthe inflation rate measured as consumer price inflation in average period percentage;
gdpgr isthe GDP is the growth rate of Gross Domestic Product;
crptn isthe corruption index for each average period measured from 1=low to 10=high.

4. Results and Discussion

This section of the research work explains the empirical results and findings. It contains the panel estimation results as well as the dynamic panel model results. Basic inferences are made after the discussion of the results. The first aspect explains the descriptive analysis.

Table 1: Fixed effect within group result

Variable	Coefficient	p-value
Capital adequacy ratio	-0.787***	0.000
Bank liquidity	-0.052	0.464
Total bank credit	0.164***	0.001
Return on assets	-1.346***	0.000
Return on equity	0.015	0.291
Exchange rate	0.002***	0.003
Inflation rate	-0.032	0.705
Lending rate	0.190**	0.038
Money supply growth rate	0.073**	0.031
GDP growth rate	-0.056	0.444
Corruption	-9.309***	0.000
Constant	33.360	0.000

Note: * represents significance level of 10%, ** represents significance level of 5% and *** represents significance level of 1%. R-square: Within= 0.745, Between= 0.570,Overall= 0.436, corr(u_i, Xb) = -0.857. F statistic: F(11, 241) = 63.87,Prob > F = 0.000, rho=0.898

Source: Author's computation

Table 2: Random effect result

Variable	Coefficient	p-value
Capital adequacy ratio	-0.755***	0.000
Bank liquidity	-0.103	0.119
Total bank credit	0.218***	0.000
Return on assets	-1.064***	0.000
Return on equity	0.013	0.335
Exchange rate	-0.000*	0.080
Inflation rate	0.019	0.806
Lending rate	0.319***	0.000
Money supply growth rate	0.065*	0.061
GDP growth rate	-0.064	0.377
Corruption	-6.808***	0.000
Constant	29.487	0.000

Note: * represents significance level of 10%, ** represents significance level of 5% and *** represents significance level of 1%. R-square: Within= 0.722, Between= 0.992, Overall= 0.783, corr (u_i, X) = 0 (assumed). Wald chi2(11) = 882.31,Prob > chi2 = 0.0000, rho = 0

Source: Author's computation

Table 3: Hausman test result

Variable	(b) Fixed	(B) Random	(b – B) difference	Sqrt(diag(V_b-V_B)) standard error
Capital adequacy ratio	-0.787	-0.755	-0.031	0.000
Bank liquidity	-0.052	-0.103	0.051	0.026
Total bank credit	0.164	0.218	-0.054	0.032
Return on assets	-1.346	-1.064	-0.282	0.014
Return on equity	0.015	0.013	0.001	0.002
Exchange rate	0.002	-0.000	0.0025	0.001
Inflation rate	-0.0318	0.019	-0.050	0.036
Lending rate	0.190	0.319	-0.129	0.052
Money supply growth rate	0.073	0.065	0.008	0.000
GDP growth rate	-0.056	-0.064	0.008	0.000
Corruption	-9.309	-6.808	-2.500	0.655

chi2(11) = (b-B)'[(V_b-V_B)^(-1)](b-B)= 25.01, Prob>chi2 = 0.0091

Source: Author's computation

Tables 1 and 2 contain the results of the panel model. Both the fixed and the random effects are reported, as the Hausman test shows that there is significant difference between the two. From the result of the Hausman test, we reject the null hypothesis that the random effects model is the appropriate model to use, and accept that the fixed effects model is the appropriate model to use. The use of FEM is further justified as it tackles the effect of heterogeneity which would have affected our results. All the same, all the variables that are significant in the REM are also significant in the FEM. The following variables, namely: capital adequacy ratio, corruption, lending rate, return on assets, total bank credit, exchange rate, and money supply growth rate, appear significant in both models. Both models suggest the nature of the relationship (that is direct or inverse) between each of the significant variables and non-performing loans. This is an indication that they are likely to be important determinants of non-performing loans in the MINT economies. However, to confirm their individual effect the dynamic panel model might be necessary. The R-square of the two models is good. The reason is that at least all the determinants account for above 70% variation in the non-performing loans of the four economies. To corroborate the R-square results, the two models are tested for overall significance through the F-test for fixed effect and chi square test for the random effect. The results show that the two models pass the test of overall significance. This shows that the choice of variables used as determinants appears to be appropriate. Furthermore, empirical literature has shown that there is a possibility of cross-sectional dependence in panel results, and this necessitates the need to conduct the test of significant differences in intercepts of MINT countries using the fixed effect LSDV as shown below.

Test of difference in intercepts of entities: Fixed effects LSDV (least square dummy variable)

Table 4: Fixed effects LSDV result

Variable	coefficient	Standard error
Capital adequacy ratio	-0.787***	0.000
Bank liquidity	-0.052	0.464
Total bank credit	0.164***	0.001
Return on assets	-1.346***	0.000
Return on equity	0.015	0.291
Exchange rate	0.002***	0.003
Inflation rate	-0.032	0.705
Lending rate	0.190**	0.038
Money supply growth rate	0.073**	0.031
GDP growth rate	-0.056	0.444
Corruption	-9.309***	0.000
Constant	40.068***	0.000
Country 2	-26.601***	0.001
Country 3	-2.9865*	0.051
Country 4	5.665***	0.001

F(14, 241) = 70.38, Prob> F = 0.0000, R-squared = 0.8035
Note: * represents significance level of 10%, ** represents significance level of 5% and *** represents significance level of 1%, *Source: Author's computation*

Static Diagnostic tests

Autocorrelation: We conduct the Wooldridge test for autocorrelation in panel data by testing the null hypothesis such that there is no first order autocorrelation. Since Prob > F = 0.0001, we reject the null and accept the alternative that there is autocorrelation.

Correlation in residuals: Using Pesaran's CD Test of cross-sectional independence, we investigated the correlation of residuals across entities. Confirmation of contemporaneous correlation using this test can lead to bias in test results. After testing the null hypothesis that there is no correlation in residuals across entities, we obtained a P value of 0.0054. This result leads us to reject the null and conclude that there is evidence of contemporaneous correlation.

Heteroscedasticity: We also investigated evidence of heteroscedasticity in the FEM in which errors are assumed to be independently distributed, making our standard error consistent in order to ensure valid statistical inference. We conducted the Modified Wald test for group-wiseheteroscedasticity with the null hypothesis that there is constant variance (homoscedasticity). The null hypothesis is rejected and we conclude that there is evidence of heteroscedasticity in the FEM.

Test of cross-sectional dependence: According to Batalgi (cited in Griffith &Chun, 2014), cross-sectional dependence is a problem in macro panels with a long time series. The Breusch Pagan/LM test of independence is given as follows:

Table 5: Correlation matrix of residuals

	__e1	**__e2**	**__e3**	**__e4**
__e1	1.0000			
__e2	0.1757	-1.0000		
__e3	0.2322	-0.2517	1.0000	
__e4	-0.1950	-0.3644	-0.2559	1.0000

chi2(6) = 19.996, Pr = 0.0028
Source: Author's computation

Based on the result obtained, we reject the null hypothesis and conclude that there is cross-sectional dependence. Also, as shown in Table 4, there is an indication of cross-sectional dependence in the result. All the four dummy intercept variables for each of the countries are statistically significant. Here, Mexico is used as the reference intercept for the intercept of the other countries. The implication is that there is presence of a cross-sectional specific factor that can have an influence on our result. Three of the significant intercepts are at 1% while one is at 10% giving a strong case for the element of cross-sectional dependence noticed in the panel. The implication for our findings is that individual countries in the MINT economies are likely to possess some peculiar structural and institutional differences that distinguish them from one another, and this can have implicationsfor our result. This is inline with the findings of some authors in the past who were of the opinion that most economic blocs, such as BRICS and the Organisation for Economic Co-operation and Development (OECD), do have individual peculiarities that distinguish them from one another. Therefore, the result shows that MINT is not an exception in this respect either (Pao, Lin or Chang, 2011). However, the LSDV result is also significant at 1% and the R-square is also relatively high showing that over 80% variation in the non-performing loans is explained by all the independent variables. It indicates that all the choice variables are most likely the core non-performing loans determinants in these economies.

Furthermore, as a result of the outcomes of some of the diagnostic tests conducted, we need to make some adjustments. For instance, when there is evidence of contemporaneous correlation of residuals in panels and autocorrelation, the use of the standard errors of Driscoll and Kraay (1998) is suggested as a robust standard error (Hoechle, 2007). Also, in a situation where heteroscedasticity is present in panels, it is suggested that the Huber/White, otherwise referred to as the Sandwich estimator, is used to derive heteroskedastic-robust standard errors. Alternatively, in addition to these problems as well as possible endogeneity in our model, panel model extension has made it possible to obtain more realistic results using the dynamic panel data. This will further help us to ascertain the level of consistency in the result and obtain more efficient estimators (see Arellano & Bond, 1991). We therefore proceed to the dynamic panel data analysis.

Table 6: Dynamic panel data result

Dynamic Panel (Arellano-Bond)				Systemic Dynamic Panel (Blundell-Bond)		
Variables	Coefficient	S.E	p value	Coefficient	S.E	p value
bnpl (L1)	0.7343***	0.0243	0.000	0.9527***	0.0151	0.000
bcar	-0.0203	0.0529	0.701	0.0989***	0.0137	0.001
Liquidity	0.0484**	0.0227	0.033	-0.0596***	0.0137	0.000
Corruption	-0.3262	0.4497	0.468	0.3017	0.2122	0.155
Lending rate	0.0280	0.0337	0.405	0.0874***	0.0166	0.000
Inflation rate	-0.0728***	0.0271	0.007	-0.1745***	0.0166	0.000
return on assets	-1.0885***	0.0856	0.000	-0.2739***	0.0370	0.000
return on equity	0.0565***	0.0052	0.000	0.0134***	0.0020	0.000
GDP Growth Rate	0.0381	0.0249	0.126	-0.0233*	0.0122	0.056
Bank Total credit	0.0618**	0.0246	0.012	0.0063	0.0151	0.678
Exchange rate	0.0009***	0.0003	0.000	0.0001	0.0000	0.104
Money Supply growth rate	0.0028	0.0103	0.784	0.0420***	0.0083	0.000
Constant	-0.6339	1.6548	0.702	-0.9954	0.7981	0.212

Note: * represents significance level of 10%, ** represents significance level of 5% and *** represents significance level of 1%
Source: Author's computation

Dynamic panel data: This study employs systemic GMM, which is generalised method of moments, to analyse the dynamic panel data. Aside from being able to deal with endogeneity issue in the dataset used in the study, the choice of SYS GMM is based on Hsiao & Tahmiscioglu (2008) who were of the opinion that the selection of instrumental variables under the GMM, that is the Arellano and Bond (1991) version, is not completely appropriate. They advise the use of SYS GMM, which is the version of Blundell and Bond (1998) for dynamic panel data. Endogeneity always arises from error in measurement, simultaneity and omitted variable. Just as in Louzis et al. (2012), we identify bank-specific variables as sources of endogeneity using internal instruments but acknowledge that identifying instrumental variables that are valid is a challenge in econometrics. Maddala (1977) queries where such variables could come from (Larcker & Rusticus, 2010). All the same, the result of both versions for our study shows the use of instruments to deal with endogeneity as contained in Table 6.

The result of the SYS GMM in Table 6 also confirms that many of the variables that were found to be significant in the static panel model are also significant in the SYS GMM. Notwithstanding, the SYS GMM result further shows that liquidity ratio, inflation rate and GDP growth rate have joined the pool of variables that may constitute major determinants of non-performing loans in the MINT economies. A growing non-performing loans level stunts growth as allocated resources are trapped with unproductive economic agents (Keeton & Morris; 1987; Krueger & Tornell, 1999; Fofack, 2005; Louzis et al., 2012; Škarica, 2013). When the economy is growing, with likely associated income rise, financial capacity which reduces economic burden is enhanced and this in turn is expected to reduce financial distress (also see Nkusu, 2011). Also, since bank performance has an influence on risk-taking by managers, this is corroborated by the significance of the ROE as a determinant of non-performing loans(Fofack, 2005).Furthermore, as in Makri et al. (2014), the level of NPLs in the previous year is found to be positively significant in determining the NPLs level. In conclusion, capital adequacy ratio, liquidity ratio, return on assets, exchange rate, lending rate and GDP levels are major variables that have individual significant impact on the magnitude of non-performing loans in the MINT economies. But we need to conduct some tests on these results so that we can ascertain their validity.

Dynamic Diagnostic Test: We proceed to test for validity of instruments utilized in the model. This can be done using the Sargan Test even though Roodman (2009) cautioned about the use of this test when many instruments are utilised. The puzzle here is that what constitutes too many instruments is not clear in the

literature (Ruud, 2000). The two important requirements of an appropriate instrumental variables are that of their orthogonality with the error term and correlation to the endogenous variable(s). The systemic dynamic panel data results can only produce the correct results given valid moment conditions. The validity of moment conditions can be tested only when they are overidentified and this cannot be tested when they are exactly identified in a model. The Sargan Test is that of the null hypothesis that the overidentifying restrictions are valid. Rejecting the null hypothesis means that our model's instrumental variables need to be reconsidered except we attribute the rejection to the presence of heteroscedasticity (Arellano and Bond, 1991). In our overidentified model with 163 instrumental variables generated, the result of the Sargan Test is produced Prob > chi2 =0.0000. This leads us to reject the null hypothesis and accept the alternative hypothesis that the instruments used are invalid (http://www.stata-press.com/data/r13/abdata). As recommended by Baum, Schaffer, & Stillman (2007). the validity of results should be doubted once the null hypothesis of Sargan Test is rejected.

We now turn our attention to generating standard errors that are robust for some reasons. Firstly, some underlying regression model assumptions are violated and this leads to invalid statistical inference culminating in invalid results obtained in the chosen fixed effect models. Secondly, our model is not dynamic in nature and instruments used for the systemic dynamic panel analysis has been found to be statistically invalid. In Hoechle (2007), 'White' standard errors help to obtain heteroskedasticity-consistent estimates. This robust estimate assumes that residuals are independently distributed and standard errors obtained are consistent even in spite of heteroskedastic residuals. The clustered standard error otherwise called Rogers further relaxes the assumption of independent distribution of residuals also helps to obtain heteroskedasticity and autocorrelation-consistent (HAC) estimates. Dealing with panel residuals that are temporal and spatially dependent as well as heteroskedasticity was earlier achieved with feasible generalized least squares (FGLS) otherwise known as Parks-Kmenta method. Standard error estimates obtained here are consistent to disturbances that are not homoscedastic, autocorrelated and contemporaneously cross-sectionally autocorrelated. But this is deemed inappropriate for use in microeconomic panels that are not small because SE is either unacceptably small or N is greater than T. The panel corrected standard errors (PCSE) of Beck and Katz (1995) demonstrates superiority in this manner to the FGLS. But Driscoll and Kraay (1998), making use of Newey-West standard error demonstrates more appropriateness of use when N gets large. The Newey-West estimator is the best HAC approach to an instrumental variable-GMM problem (Baum et al., 2007). Hence, we shall conduct these tests to obtain valid results and compare outcomes as follows:

Table 7: Robust result (1)

Estimating Technique	**Standard Error adjusted for 4 countries (FE ROBUST)**			**Robust Standard Error (FE CLUSTER)**		
Variables	**Coefficient**	**S.E**	**p value**	**Coefficient**	**S.E**	**p value**
bcar	-0,787*	0,273	0,064	-0,787***	0,134	0,000
Liquidity	-0,052	0,074	0,531	-0,052	0,071	0,464
Corruption	-9,309**	2,599	0,037	-9,309***	0,924	0,000
Lending rate	0,190	0,145	0,282	0,190**	0,091	0,038
Inflation rate	-0,032	0,030	0,362	-0,032	0,084	0,705
return on assets	-1,346*	0,501	0,075	-1,346***	0,213	0,000
return on equity	0,015	0,030	0,664	0,015	0,014	0,291
GDP Growth Rate	-0,056	0,213	0,811	-0,056	0,073	0,444
Bank Total credit	0,164*	0,057	0,064	0,164***	0,050	0,001
Exchange rate	0,002**	0,001	0,033	0,002***	0,001	0,003
Money Supply growth rate	0,073**	0,017	0,023	0,073**	0,033	0,031
Constant	33,360	6,807	0,016	33,360	3,857	0,000
sigma_u	14,207			14,207		

sigma_e	4,785	4,785
rho	0,898	0.898 (fraction of variance due to u_i)
Wald chi2(11)		
Prob> chi2		
R-squared		

Note: * represents significance level of 10%, ** represents significance level of 5% and *** represents significance level of 1%

In our results under White standard errors that are robust to heteroscedasticity, bank capital adequacy, return on assets and corruption are statistically significant and have a negative relationship with level of NPLs. In contrast, lending rate, bank total credit to the private economy, exchange rate and money supply growth rate demonstrates positive relationship to NPLs levels and are statistically significant. The Rogers and FGLS produce similar results and fairly different significant levels on rare occasions. For instance, bank capital adequacy, return on assets and corruption (this seeming puzzle is explained below) are statistically significant and have a negative relationship with level of NPLs. In contrast, lending rate, bank total credit to the private economy, exchange rate and money supply growth rate demonstrates positive relationship to NPLs levels and are statistically significant. Under these estimates, lending rate is the only additional variable found significant compared to the White standard errors. Further, the Newey-West standard errors produced the results of Rogers and FGLS and in addition, a result that suggest that liquidity ratio has a statistically significant negative relationship with the NPLs levels. This is consistent with the literature that a higher level of liquidity in banks is accompanied by a lower level of NPLs (Jimenez et al., 2014). Conversely, the PCSEs produced results that are almost similar to Newey-West but different only in exchange rate which is insignificant but ultimately is of the same effect because the coefficients are both zero.

However, the individual relationship between the non-performing loans and each variable shows that the lending rate has a positive and significant impact on non-performing loans in the MINT economies. This result is similar as in some of the previous literature that postulates a direct relationship between the two. The idea, according to this literature, is that an increase in the lending rate leads to a rise in the non-performing loans because borrowers become more irresponsive to lending rate increases. Also, borrowers' debt servicing capacity is expected to be weakened by a high interest rate (see Nkusu, 2011; Fofack, 2005). Therefore, non-performing loan is expected to show positive relationship with interest rate. Among the bank specific ratios, capital adequacy ratio appears to have one of the highest impacts on non-performing loans. It is significant in all the models. This is in support of literatures that tied non-performing loans to moral hazard (see Sinkey and Greenwalt (1991) and Berger and DeYoung (1997)). The implication is that the bank-specific factors such as capital adequacy ratio are an important variable that can be used to control the volume of non-performing loans in the banking sector (Louzis et al., 2012). According to Berger and DeYoung (1997) the importance of moral hazard is linked with the capital adequacy ratio, the higher the capital adequacy ratio the more guaranteed the corporate existence of the bank and the less the management tendency to go after low quality loan.

Table 8: Robust result (2)

Estimating Technique	**Cross-sectional time-series FGLS regression**			**Lin. Reg., correlated panels corrected st.d errors (PCSEs)**			**Regr. with Newey-West standard errors**		
Variables	**Panels: Homoscedastic Estimated Autocorrelation = 0**			**Coefficient**	**S.E**	**p value**	**Coefficient**	**S.E**	**p value**
	Coefficients	**S.E**	**p value**						
Bcar	-0,755***	0,134	0,000	-0,755***	0,129	0,000	-0,755***	0,257	0,004
Liquidity	-0,103	0,064	0,111	-0,103	0,062	0,099	-0,103*	0,061	0,092
Corruption	-6,808***	0,637	0,000	-6,808	0,475	0,000	-6,808***	0,705	0,000
Lending rate	0,319***	0,073	0,000	0,319*	0,069	0,000	0,319***	0,103	0,002

Inflation rate	0,019	0,074	0,801	0,019	0,077	0,808	0,019	0,126	0,883
return on assets	-1,064***	0,207	0,000	-1,064***	0,179	0,000	-1,064***	0,177	0,000
return on equity	0,013	0,013	0,323	0,013	0,013	0,321	0,013	0,013	0,301
GDP Growth Rate	-0,064	0,071	0,366	-0,064	0,057	0,261	-0,064	0,126	0,610
Bank Total credit	0,218***	0,037	0,000	0,218***	0,026	0,000	0,218***	0,041	0,000
Exchange rate	0,000*	0,000	0,073	0,000	0,000	0,122	0,000*	0,000	0,086
Money Supply growth rate	0,065*	0,034	0,055	0,065**	0,026	0,015	0,065*	0,038	0,089
Constant	29,486	2,282	0,000	29,486	1,926	0,000	29,486	2,719	0,000
Wald chi2(11)	925,7			1598,69			126,65		
Prob> chi2	0,000			0,000			0,000		
R-squared				0,7834					

Note: * represents significance level of 10%, ** represents significance level of 5% and *** represents significance level of 1%
Source: Author's computation

Further, the individual relationship between the non-performing loans and the exchange rate shows a positive and statistically significant relationship on non-performing loans in the MINT economies. This result agrees with most of the previous literature that postulates a direct relationship between the two. This connotes that an increase in exchange rate tends to increase non-performing loans as the cost of servicing foreign-denominated loans rises (Beck et al., 2013). Also, capital adequacy ratio appears to have one of the highest impacts on non-performing loans. It is significant in all the models. This is in support of literature that tied non-performing loans to moral hazard (see Sinkey & Greenawalt, 1991; Berger & DeYoung, 1997). The implication is that the bank-specific factors, such as capital adequacy ratio, are an important variable that can be used to control the volume of non-performing loans in the banking sector (see Louzis et al., 2012). The higher the capital adequacy ratio, the more guaranteed the corporate existence of the bank and the less the management tendency to go after low-quality loans. Also, among the bank specific variables, total credit and return on assets both have a significant impact on non-performing loans. This is an indication that the volume of credit in the economy alongside and the return on assets of the banks have strong links with non-performing loans in the MINT economies. Indeed, Godlewski (2006) used return on assets as proxy for bank performance and concluded that non-performing loans are negatively related to return on assets. The tendency is that managers whose bank's 'ROA' is high are not motivated to go after low-quality assets in desperation to cover performance. Inefficient bank managers tend to shore up profitability performance by engaging in loans of low quality.

A supposed exogenous (institutional) variable included in the model, which is the corruption index, corroborates findings in literature showing a positive and very significant relationship with the non-performing loans in both models. Indeed, it has the highest coefficients of all the determinants of non-performing loans in the MINT economies. Even though the sign is negative, the correct interpretation lies in the description of the data by Transparency International which ranks corruption from 1 (highest corruption level) to 10 (lowest corruption level). Hence this means the higher the ranking towards lowest corruption level, the lower the level of non-performing loans. Again, several studies in the literature have pointed out that the prevalence of corruption in many developing countries in the world is aggravating the problem of non-performing loans in the banking sectors of these economies. They show that the MINT economies are not exempted (see Boudriga et al., 2010; Goel and Hasan, 2011; Ahmad, 2013). Considering all the results, it appears that lending rate, exchange rate, money supply growth rate, corruption, capital adequacy ratio, total credit, liquidity ratio and return on assets are likely to be strong determinants of non-performing loans in the MINT economies.

5. Conclusion and Implications

The study has empirically studied the determinants of non-performing loans in the MINT economies. Ultimately, the study confirms that bank capital adequacy ratio, return on assets, returnon equity, bank liquidity, total credit, lending rate, exchange rate, money supply growth rate, corruption and GDP levels are important determinants of non-performing loans in the MINT economies. They account for about83% variation in the volume of non-performing loans in the MINT economies. Again, capital adequacy ratio, bank liquidity and return on assets are the strongest bank-specific variables that affect non-performing loans. This underscores the importance of avoidance of moral hazard as a panacea for non-performing loans in the banks. Also, a rise in bank performance as measured by return on assets puts less pressure on managers to book loans recklessly, hence leading to a reduction in non-performing loans. Another conclusion that can be drawn from the study is that a lending rate increase can aggravate the problem of non-performing loans in the MINT economies. This implies that an excessive interest rate charged on loans by banks contributes to the upsurge of non-performing loans. The literature reveals that borrowers become more resistant to loan repayment in this situation; in other words, loan defaulters are most likely to be on the rise with an increase in the lending rate when the capacity to pay is encumbered. Concluding on the determinants, sinceinstitutional, macroeconomic and bank-specific variables have shown up as determinants of non-performing loans, these identified factors have to be combined in order to properly model non-performing loans in the MINT economies.

Finally, since the results have shown that there is likelihood of cross-sectional dependence, an area for further research will be to individually appraise each economy and find out what peculiar features might distinguish them from one another in terms of non-performing loans and the MINT economies. On policy implications, we recommend that policy-makers in these countries should focus more on the major determinants identified in this study and proactively bring up policies that will rein-in the current observed growth in NPLs in order to avoid its undesired consequences.For instance, institutions should be strengthened in a manner that will encourage transparency and discourage corruption. Also, subject to policy-consistency and availability of options to the monetary authorities in 'MINT' countries, policy choices should tilt more towards those that will lower interest rate because of its direct influence on lending rates. Furthermore, reasonable stringent measures should be applied to the growth of money supply and its various drivers. Finally, in terms of bank-specific determinants, the banking supervisory agencies in 'MINT' countries should bolster capital and liquidity of banks to benchmarked standards. This creates the requisite shock-absorbers against NPLs' rise and its attendant consequences. On academic front, MINTs align with the findings of some authors in the past who were of the opinion that most economic blocs, such as BRICS and the Organisation for Economic Co-operation and Development (OECD)have individual peculiarities that distinguish them from one another.

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Investigating Chaos on the Johannesburg Stock Exchange

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Abstract: This study investigates the existence of chaos on the Johannesburg Stock Exchange (JSE) and studies three indices namely the FTSE/JSE All Share, FTSE/JSE Top 40 and FTSE/JSE Small Cap. Building upon the Fractal Market Hypothesis to provide evidence on the behavior of returns time series of the above mentioned indices, the BDS test is applied to test for non-random chaotic dynamics and further applies the rescaled range analysis to ascertain randomness, persistence or mean reversion on the JSE. The BDS test shows that all the indices examined in this study do not exhibit randomness. The FTSE/JSE All Share Index and the FTSE/JSE Top 40 exhibit slight reversion to the mean whereas the FTSE/JSE Small Cap exhibits significant persistence and appears to be less risky relative to the FTSE/JSE All Share and FTSE/JSE Top 40contrary to the assertion that small cap indices are riskier than large cap indices.

Keywords: *Fractal Market Hypothesis; Efficient Market Hypothesis; Chaos Theory; Rescaled Range Analysis*

1. Introduction

Financial crises, such as the ones that occurred in 1987, 1998, 2000 and then recently in 2007, have been brushed off as anomalies by proponents of the Efficient Market Hypothesis (EMH) who maintain that markets remain informationally efficient. However, the frequency with which these crises occur cannot be explained by the underlying assumptions of an efficient market. Although a study by Bendel, Smit and Hamman (1996) provides a special impetus on the behaviour of the stock market time series using a variety of indices, results were somehow mixed across indices. However, evidence of long-run persistence in the overall share returns were observed suggesting that future returns are influenced by past returns at least in the long term (Bendel, Smith & Hamman, 1996) which cultivates the need for further interrogation of the behaviour of share returns in modern economies. Classical finance theory is based, inter alia, on the assumptions of investors being rational, of informationally efficient markets and market equilibrium. Equilibrium infers the nonexistence of emotional forces like greed and fear, which trigger the economy to evolve and to adjust to new conditions. Regulating such human tendencies are desirable to minimise their effects, but doing away with them, however, "would take away the life out of the system, including the far from equilibrium conditions that are necessary for development" (Peters, 1996: 5).

This study applies the BDS test as described by Brock, Dechert and Scheinkman (1996) to test for the null hypothesis that the return series of the selected indices are pure noise or completely random. The BDS test, inter alia, has the ability to identify different kinds of deviations from randomness be it non-linear or linear stochastic processes and deterministic chaos. The BDS test is the most popular test for non-linearity and was originally created to test for the null hypothesis of independent and identical distribution (iid) aimed at identifying non-random chaotic dynamics (Zivot & Wang, 2006). The study further applies the rescaled range analysis developed by Hurst (1951) to detect persistence, mean reversion or randomness on the Johannesburg Stock Exchange (JSE) with the aim of providing more adequate assumptions and consequently more realistic models of financial behaviour on the JSE. Closely related to the rescaled range analysis is the Hurst exponent, which is indicated by *H*, sometimes referred to as 'the index of dependence', which measures three kinds of trends in a given time series, namely, mean reversion, persistence and randomness. The rescaled range analysis was widely used in financial analysis when the application of chaos theory in financial analysis was popular in the early 1990s (Voss, 2013).

As risk remains a fundamental consideration in any investment strategy, an appropriate evaluation of risk based on empirical evidence rather than theoretical postulations will provide practitioners a more comprehensive understanding of risk. Moreover, with the use of fractal statistics, it would be possible to improve financial risk models and provide an alternative discussion of financial markets which differs from the neoclassical assumptions of equilibrium, rationality, perfect markets and the mathematical hypotheses of

continuity and symmetry. Chaos Theory and fractal science offers a description of the messiness and the fractal characteristic of financial markets and provide sufficient perspective as well as the mathematical tools required to analyse it. These tools will be beneficial to finance theories as they offer more suitable and realistic assumptions and models of financial market behaviours. This study is conducted on the time series of selected indices on the JSE in South Africa (FTSE/JSE All Share, Top 40 and Small Cap). The JSE is the 19th largest stock exchange in the world by market capitalization, it is the largest and the first stock exchange in Africa established in 1887 during the first gold rush in South African, with 383 listed companies and $ 997.17 billion in market capitalization as at June 2016 (JSE, 2013, World Federation of Exchanges, 2016).South Africa is ranked number one in terms of securities exchange regulations out of 144 countries according to the World Economic Forum's 2014-2015 Global Competitive Index Survey making it the fifth consecutive year the JSE has remained number one in the survey, also ranked number three in the ability to raise capital through the local equity market, number three again in terms of the effectiveness of corporate boards and number two in protecting the rights of minority shareholders (African Securities Exchanges Association, 2016).

2. Literature Review

As financial crises are becoming pervasive, the assumption of efficient markets is increasingly being criticised. Velasquéz (2009) proposes adapting Chaos Theory and Fractal Science to explain financial phenomena. Chaos theory is the study of systems that appear to follow a random behaviour, even though they are actually part of a deterministic process, and the random behaviour is given by their typical sensitivity to initial conditions that leads the system to unpredictable dynamics. One of the founders of chaos theory, Edward Lorenz, summarises this theory elegantly: "Chaos: when the present determines the future, but the approximate present does not approximately determine the future" (Hand 2014: 45). Financial markets are non-linear dynamic systems characterised by positive feedback and fractals, and therefore "what happened yesterday influences what happens today" (Peters, 1996:9). Peters (1996) therefore proposed the Fractal Market Hypothesis (FMH) for modelling financial markets. Benoit Mandelbrot, who is regarded as the father of fractal geometry, first discovered the distinguishing characteristics of fractals in financial time series, but many economists rejected his ideas so he began to lose interest in fractals in finance, and turned to physics. In the field of physics, he developed the fractal geometry of nature (Velasquéz, 2009). Mandelbrot spotted that the variance of prices misbehaved, culminating in abnormally big changes. This behaviour was manifested in "fat-tailed" and high-peak distributions, which commonly followed a power law with the implication that graphs, will not descend toward zero as strikingly as a Gaussian curve. However, the most distinctive property was that these leptokurtic (fat-tailed and high-peak) distributions seemed unchanged irrespective of time scale (weekly, monthly or yearly). Mandelbrot therefore concluded that "the very heart of finance is a fractal" (Mandelbrot & Hudson, 2005:147).

With the underlying classical assumptions of financial markets behaviour being heavily criticised, Buchanan (2013) suggests adopting a disequilibrium view of financial markets, claiming that the disequilibrium view submits that the crashes of 6 May 2010 or of October 1987 or of 2007–2008 were not any more abnormal than the March 2011 earthquake in Japan or the April 1906 quake in San Francisco. Market economies are self-referential and self-propelling systems intensely propelled by expectations and perceptions, and these systems regularly foster explosive amplifying feedbacks. Buchanan (2013) asserts that it is not easy to foretell the instant when a bubble will collapse, and equilibrium economics has resolved, therefore, that bubbles do not exist. A classic example is the refusal of Eugene Fama to admit to the existence of bubbles, for example in an interview in November 2013 on National Public Radio's *Planet Money*. Fama states that the word 'bubble' drives him crazy given that there is nothing to prove that anyone can predict when prices will go down, claiming that markets work and so bubbles cannot be predicted (NPR, 2013). The first comprehensive research on daily stock returns was done by Fama (1965) who discovered that stock returns were negatively skewed; therefore more observations were in the left-hand tail than in the right-hand. Furthermore, the tails appeared fatter and the peak round the mean was higher than what the normal distribution predicted. According to Corhay & Rad (1994), empirical findings reveal the existence of non-linear dependencies that the random walk model fails to explain. Sterge (1989), in an additional study of financial futures prices of treasury bonds, treasury notes and Eurodollar contracts, finds the same leptokurtic distributions. Sterge (1989) notes that "very large (three or more standard deviations from the norm) price changes can be expected to occur two to three times as often as predicted by normality."

McLean & Pontiff (2016) studied the return predictability of 97 factors that academic studies have shown to predict the cross-section of stock returns using out-of-sample and post-publication and found that factors lose 26% of their power after discovery. This inter alia, may be attributed to the effects of data mining. Factors further lose 32% of their predictability power after they appear in academic papers suggesting that investors only learn about this mispricing only after they have been published in academic papers. British hydrologist H.E. Hurst published a paper in 1951 with the title "Long-Term Storage Capacity of Reservoirs", which dealt with modelling of reservoirs, while he was trying to find a way to model the river Nile levels so that architects could build a reservoir of appropriate size (Peters, 1996). This work by Hurst paved the way for a statistical methodology that distinguishes random from non-random systems and for identifying the persistence of trends – a methodology referred to as rescaled range analysis (R/S analysis) (Mansukhani, 2012). While researching the fractal nature of financial markets, Mandelbrot chanced on Hurst's work and recognised it's potential and therefore introduced it to fractal geometry (Mansukhani, 2012). The Hurst exponent measures long-term memory of time series. The exponent relates to the autocorrelations of a given time series, and the rate at which such autocorrelations diminish as the lag between pairs of values increases. According to Peters (1996), a higher value of H depicts less noise and more persistence and a more distinct trend than lower values with higher values showing less risk albeit exhibiting abrupt changes.

On the JSE, Jefferis and Smith (2005), adopting a GARCH methodology with parameters that vary with time, and employing a test of evolving efficiency (TEE) over the period 1990 to 2001, concluded that the JSE is weak form efficient. Adelegan (2003, 2009) finds the JSE to be informationally inefficient, by testing the reaction of market participants to changes in dividend policies of listed firms. Smith (2008), however, rejects the random walk hypothesis on the JSE, using tests of four joint variance ratios. In the following section, we describe the data and the methodology for conducting the BDS test and deriving the Hurst exponent. Section 3 provides the results and discussion of our findings Section 4 concludes the paper and section 5 provides the list of figures referred to in section 3.

3. Methodology

This section discusses the data selected for the study and the methodology the study adopts in testing for non-linearity and chaos on the JSE.

Data: The data for this study were obtained from the database of McGregor BFA, based in Johannesburg, South Africa. McGregor is a prominent provider of stock exchange and accounting data to firms and researchers. McGregor has standardised financial data dating from 1972 to date, and has information for all companies and industries on the JSE. This study investigates the fractal nature of the JSE over the period 15 June 1995 to 12 November 2014. The indices investigated are the daily returns of the FTSE/JSE All Share (J203), which represents 99% of the full market capitalisation of all eligible shares listed on the main board of the JSE; FTSE/JSE Top 40 (J200), which represents the largest 40 companies on the JSE ranked by market capitalisation; and FTSE/JSE Small Cap (J202), which consists of all the remaining companies after the selection of the top 40 and mid cap companies. The study takes 8 cycles of sub-samples from a large sample of n = 4840, with n = 2420 in the second cycle with 2 sub-samples, and so on until 20 sub-samples of n = 242.

The BDS Test: The test for correlation integral is the main concept behind the BDS test (Zivot& Wang, 2006). The correlation integral measures how frequent temporal patterns are repeated in a given time series. The BDS test is designed to spot non-linear dependence (Oppong et al., 1999).
For a given time series x_t for t =1,2,…,T with its m-history as $x_t^m = (x_t, x_{t-1}, \dots, x_{t-m+1})$, we can estimate the correlation integral at embedded dimension m by:

$$C_{m,\epsilon} = \frac{2}{T_m(T_m - 1)} \sum_{m \leq s} \sum_{< t \leq T} I(x_t^m, x_s^m; \epsilon)$$

Where $T_m = T - m + 1$and $I(x_t^m, x_s^m; \epsilon)$represents a signalling function equal to 1 if $|x_{t-1} - x_{s-1}| < \epsilon$ for i = 0,1,…,m – 1 and zero otherwise. Instinctively, the correlation integral is an estimation of the probability that any m-dimensional points being in a distance of ϵ of each other. This implies that it calculates the joint probability:

$$\mathrm{PR}(|x_t - x_s| < \epsilon, |x_{t-1} - x_{s-1}| < \epsilon, \dots, |x_{t-m+1} < x_{s-m+1|} < \epsilon)$$

If x_t are iid, then this probability must be equal to:

$$C_{1,\epsilon}^m = PR(|x_t - x_s| < \epsilon)^m$$

(Brock et al., 1996) define the BDS test as:

$$V_{m,\epsilon} = \sqrt{T}\frac{C_{m,\epsilon} - C_{1,\epsilon}^m}{s_{m,\epsilon}}$$

Where $s_{m,\epsilon}$ is the standard deviation of $\sqrt{T}(C_{m,\epsilon} - C_{1,\epsilon}^m)$ and can be consistently estimated, as documented by Brock et al. (Brock et al., 1996). Under conditions of fairly moderate regularity, the BDS test converges in distribution to $N(0,1)$:

$$V_{m,\epsilon} \xrightarrow{d} N(0,1)$$

One advantage of the BDS test is that it requires no distributional assumptions on the series to be tested.

The Hurst Exponent: In proposing the FMH, Peters (1994) applied a modified rescaled range (R/S) procedure, which was pioneered by Hurst (1951). Peters (1994) and Howe, Martin & Wood (1997) review the steps for computing the R/S analysis. First, the index series of the JSE is converted into logarithmic returns, S_t, at time period t of the series of the JSE index. Using raw daily price data in stock markets has many limitations because prices are generally non-stationary (Mehta, 1995) and therefore interfere with estimating the H exponent. The series is therefore converted into logarithmic rates of returns to overcome the problem. In line with Peters (1994), the study divides the time period into A sub-periods with a length of n, so that $A \times n = N$, with N being the length of the series N_t. The study labels each sub-period I_a where a = 1,2,3..., A. The study further labels each element in I_a is categorised $N_{k,a}$ where k= 1,2,3,...,n. The average value, e_a for each I_a of length n is defined as:

$$e_a = \left(\frac{1}{n}\right) \times \sum_{k=1}^{n} N_{k,a}$$

The range R_{I_a} is given as the maximum minus the minimum value $X_{k,a}$, within every sub-period I_a given as:

$$R_{I_a} = \max(X_{k,a}) - \min(X_{k,a}), \text{where } 1 \le k \le n, 1 \le a \le A,$$

with

$$X_{k,a} = \sum_{i=1}^{k}(N_{i,a} - e_a), k = 1,2,3, \dots n,$$

being the time series of the accumulated divergence from the mean for each sub-period. Each range R_{I_a} is divided by the sample standard deviation S_{I_a} that corresponds to it to normalise the range. The standard deviation is given as:

$$S_{I_a} = \left[\left(\frac{1}{n}\right) \times \sum_{k=1}^{n}(N_{k,a} - e_a)^2\right]^{0.5}$$

The mean R/S values for length n is given as:

$$(R/S)_n = \left(\frac{1}{A}\right) \times \sum_{a=1}^{A}(R_{I_a}/S_{I_a})$$

Finally, an OLS regression is applied with log(R/S) as the dependent variable and log(n) being the independent variable. The Hurst exponent, H, is obtained from the slope coefficient of the regression. An H of 0.5 means the series under investigation exhibits characteristics in line with the random walk hypothesis. An H greater than 0.5 denotes persistence while an H lower than 0.5 denotes anti-persistence.
Once H is computed, the autocorrelation within the time series is computed as:

$$CN = 2^{(2h-1)} - 1$$

According to Peters (1994), the CN represents the percentage of movements in the time series that can be explained by historical information. A CN = 0 signifies randomness in the time series under consideration pointing to a weak-form efficient market where historical information cannot be relied on to outperform the market.

4. Results and Discussion

Figure 1 shows the market capitalisation of the selected FTSE/JSE indices for the study. Figure 2 shows the statistical depiction of the data the study used.

Table 1: Market Capitalization of the Selected FTSE/JSE Indices

INDEX	MARKET CAPITALIZATION	DATE
FTSE/JSE TOP 40	R 8,283,699 MILLION	12 DECEMBER 2014
FTSE/JSE ALL SHARE	R 9,899,880 MILLION	12 DECEMBER 2014
FTSE/JSE SMALL CAP	R 306,991 MILLION	12 DECEMBER 2014

The kurtosis values for the indices selected are all larger than 3, which is the value for normal distribution signifying that all the series of the indices have fat tails compared to a normal distribution and leptokurtic. The returns of the indices therefore have frequent extremely large deviations from the mean with the FTSE/JSE Small Cap exhibiting the highest leptokurtosis.

Table 2: Summary Statistics for FTSE/JSE Indices

STATISTIC	FTSE/JSE All Share	FTSE/JSE Top 40	FTSE/JSE Small Cap
N	4840	4840	4840
Mean	0.000209	0.000203	0.000212
Standard deviation	0.005393	0.005934	0.002919
Skewness	-0.477473	-0.403190	-1.769811
Kurtosis	9.284673	9.290103	17.63013
Minimum	-0.055112	-0.062047	-0.033932
Maximum	0.032238	0.036685	0.017227
p – value*	0.000000	0.000000	0.000000
Anderson-Darling (A^2) Test	44.56388	41.43948	81.56400
p-value for A^2Test	0.0000	0.0000	0.0000

*Significant at 0.01 level

The series of all the indices are also negatively skewed, again with the FTSE/JSE Small Cap displaying the highest (in absolute terms) of negative skewness. The Anderson-Darling test also rejects the null hypothesis of a normal distribution at the 0.01 significance level. The implications of these findings are that the series of indices considered in this study show significant and frequent deviations from the mean, and therefore applying statistical models that do not take fatter tails into consideration will underestimate the likelihood of very good or very bad outcomes.

Table 3: BDS Test for FTSE/JSE Top 40

Dimension	BDS Statistic	Std. Error	z-Statistic	Prob
2	0.020296	0.001263	16.06869	0.0000
3	0.043829	0.002005	21.86348	0.0000
4	0.061754	0.002384	25.90133	0.0000
5	0.071797	0.002482	28.92776	0.0000
6	0.076036	0.002391	31.80620	0.0000
7	0.076134	0.002188	34.79629	0.0000
8	0.073571	0.001931	38.09098	0.0000
9	0.069521	0.001660	41.88956	0.0000
10	0.064655	0.001397	46.29486	0.0000

Table 4: BDS Test for FTSE/JSE All Share

Dimension	BDS Statistic	Std. Error	z-Statistic	Prob
2	0.020446	0.001272	16.07334	0.0000
3	0.044719	0.002019	22.15165	0.0000
4	0.063110	0.002401	26.28666	0.0000
5	0.073500	0.002499	29.40969	0.0000
6	0.077907	0.002407	32.36510	0.0000
7	0.078095	0.002203	35.44835	0.0000
8	0.075613	0.001945	38.88169	0.0000
9	0.071584	0.001671	42.84050	0.0000
10	0.066711	0.001406	47.44444	0.0000

BDS Test: The results for the BDS test on the three indices are presented in figures 3, 4 and 5. All BDS test statistics are presented at the 0.01 significance level. The BDS test is a robust statistical tool for differentiating non-linear stochastic systems or deterministic chaos from random independent and identically distributed systems.

Table 5: BDS Test for FTSE/JSE Small Cap

Dimension	BDS Statistic	Std. Error	z-Statistic	Prob
2	0.024080	0.001291	18.64708	0.0000
3	0.045668	0.002046	22.31723	0.0000
4	0.061074	0.002430	25.13436	0.0000
5	0.068026	0.002526	26.93400	0.0000
6	0.070060	0.002429	28.84341	0.0000
7	0.068195	0.002220	30.72152	0.0000
8	0.064567	0.001957	33.00075	0.0000
9	0.059558	0.001679	35.47940	0.0000
10	0.054089	0.001411	38.34702	0.0000

The series are examined up to 10 dimensions in line with Oppong, Mulholland and Fox (1999) and Bhattacharya & Sensarma (2006). The z—statistic is given as the BDS test divided by the standard error and is the final step that is used to test the null hypothesis. The null hypothesis of iid is not accepted if the z-statistic is greater than 2.58 at 0.01 level of significance. Given that the z-statistics are all greater than 2.58 for all the ten dimensions for the indices selected and *p*-values of 0.0000, the study concludes that the times series of returns for all the three indices do not exhibit randomness at 0.01 significance level.

Rescaled Range Analysis: Hypothetically, the *H* suggests some trading strategies, for example, *H* greater than 0.5 signifies persistence in the time series, and an *H* less than 5 signifies reversion to the mean, and *H* = 0.5 signifies randomness in the time series, therefore the more divergent the *H*, the less efficient the market is. Figures 6 and 7 present the outcome of the R/S analysis of the FTSE/JSE indices selected for the study.

Table 6: Average R/S for Each Value of *n*

N	FTSE/JSE Top 40	FTSE/JSE Small Cap	FTSE/JSE All Share
4840	69.63505	190.7382	73.78643
2420	53.53300766	138.1191622	56.1917233
1613	52.50887127	103.6487477	53.50605385
1210	42.71046899	82.26782126	44.12135614
968	34.4884864	63.74142505	35.87497224
605	28.48231733	44.88302406	29.2172694
484	25.71719924	41.59856064	27.10216567
242	18.36267392	28.20862672	19.21426979

Table 7: Hypothesis Test for *H*

	FTSE/JSE Top 40	FTSE/JSE Small Cap	FTSE/JSE All Share
$C = \exp(b_0)$	0.179338	-0.193979	0.189598
$H = b_1$	0.460994	0.679026	0.463352
CN	-0.052637863	0.281693572	-0.049535852
R^2	0.973949	0.987767	0.980835
SE (C)	0.093843	0.030850	0.080617
SE (H)	0.030779	0.030850	0.026442
*T-test (C)**	1.911052	-2.062362	2.351825
*T-test (H)**	14.97736	22.01089	17.52357
Prob (C)	0.1046	0.0848	0.0569
Prob (H)	0.0000	0.0000	0.0000

The FTSE/JSE Top 40 and the FTSE/JSE All Share exhibit slight reversion to the mean with an *H* of 0.461 and 04634, respectively. The correlation coefficients are -0.0526 and -0.0495 for the FTSE/JSE Top 40 and the FTSE/JSE All Share, respectively, implying that only 5.26% of the movements in the time series of the FTSE/JSE Top 40 are dependent on historical data and 4.95% for the FTSE/JSE All Share index. The FTSE/JSE Small Cap, however, displays significant persistence with an *H* of 0.6790 and a correlation coefficient of 0.2817, implying that 28.17% of movements in this index are dependent on historical information. Given that the FTSE/JSE All Share is a free-float market weighted index, the time series of its returns will be significantly influenced by the large caps companies and therefore the *H* for the series will be similar to that of the FTSE/JSE Top 40 as can be seen from figure 7. A high *H* according to Peters (1996), implies less risk, clearer trend and less noise and therefore the FTSE/JSE Small Cap can be construed to be less risky than the FTSE/JSE All Share and FTSE/JSE Top 40 contrary to the popular notion that small cap indices and stocks are riskier. Jefferis and Smith (2005) conclude that the JSE is weak form efficient. Peters (1996;18), however, posits that the efficient market hypothesis in its pure form does not accept only iid observations and does not necessarily entail independence over time, asserting that "if returns are random then the market is efficient. The converse may not be true, however." The study corroborates the conclusions of Smith (2008), that the JSE does not exhibit a random walk.

The findings of this study are in line with the assertion that small cap companies are less explored or totally ignored by many analysts and a large population of investors, and therefore the market for small stocks tend to be inefficient compared to their large cap counterparts, leading to prices deviating from fair values (Fundamental Index, 2008; Foley, 2014; Credit Suisse, 2014). Kuppor (2013) argues that small cap markets require less efficiency, otherwise this market that historically has created jobs, brought about break-through technologies while rewarding investors with price escalation will seize up for good. This finding further corroborates the assertions of McLean & Pontiff (2016) who argue that mispricing exist in financial markets and investors learn about these mispricing from academic publications. Financial markets can therefore not be construed to incorporate all relevant information since factor models purely reflect risk-return trade-offs and should not be affected by the publications done by academics. There are at least 316 factors that have been tested by financial market researchers that explain the cross-section of expected returns and many of the factors discovered are only significant by chance (Harvey, Liu and Zhu, 2015).

5. Conclusion

The study finds that the time series of returns of the JSE are not random. The FTSE/JSE Small Cap exhibits a high persistence while the FTSE/JSE All Share and the FTSE/JSE Top 40 exhibit slight mean reversion. Given that the JSE All Share is a free-float market cap-weighted index, the time series of its return will be heavily influenced by the large market cap companies, and therefore will exhibit characteristics similar to the FTSE/JSE Top 40. The study concludes that the FTSE/JSE Small Cap exhibits highly exploitable inefficiencies relative to the FTSE/JSE All Share and Top 40. As the small market cap companies are less popular, they will not be as highly researched by analysts and investors as their large cap counterparts, and therefore will exhibit exploitable inefficiencies. The study further concludes that the FTSE/JSE Small Cap exhibits less risk, less noise, clearer trend and more persistence, and therefore, contrary to the popular belief that small cap

companies are riskier than large cap companies, at least on the JSE, the small cap index is less risky than the top 40 index and all share index as the *H* exponent of the FTSE/JSE Small Cap is significantly higher than 0.5 as compared to the FTSE/JSE Top 40 and all share index. This finding can be corroborated by the high standard deviation of 0.005934 for the FTSE/JSE Top 40 and 0.005393 for the FTSE/JSE All Share, as compared to 0.002919 for the FTSE/JSE Small Cap. In line with Peters (1996), we find an index with a higher *H* to be less risky than an index with a low *H.* This study therefore recommends a fractal approach to evaluating risk, as this provides a more adequate description of financial market behaviour. This paradigm would permit practitioners in financial and risk management to work with appropriate models to achieve their objectives as this would imply better analytical tools which can augment their awareness and understanding of the risk in financial markets. Table 8 presents the results of the linear regression of log N and log R/S.

Table 8: Result of linear Regression of Log N and Log R/S

ALL SHARE		
LOG N	**LOG R/S**	**SLOPE**
3.684845	1.867977	0.463352057
3.383815	1.749672	
3.207634	1.728403	**AUTOCORRELATION**
3.082785	1.644649	-0.049535852
2.985875	1.554792	
2.781755	1.46564	
2.684845	1.433004	
2.383815	1.283624	
TOP 40		
LOG N	**LOG R/S**	**SLOPE**
3.684845	1.842828	0.460993959
3.383815	1.728622	
3.207634	1.720233	**AUTOCORRELATION**
3.082785	1.630534	-0.052637863
2.985875	1.537674	
2.781755	1.454575	
2.684845	1.410224	
2.383815	1.263936	
SMALL CAP		
LOG N	**LOG R/S**	**SLOPE**
3.684845	2.280438	0.679025691
3.383815	2.140254	
3.207634	2.015564	**AUTOCORRELATION**
3.082785	1.91523	0.281693572
2.985875	1.804422	
2.781755	1.652082	
2.684845	1.619078	
2.383815	1.450382	

Table 9 presents the R/S values of all the sub samples used in the study.

Table 9: R/S Values for all Sub Samples

ALL SHARE					TOP 40					SMALL CAP				
N	ST DEV	MAX – MIN	R/S	LOG R/S	n	ST DEV	MAX – MIN	R/S	LOG R/S	n	ST DEV	MAX - MIN	R/S	LOG R/S
48	0.005	0.3978	73.786	1.867	48	0.002	0.5566	190.73	2.280	48	0.005	0.4131	69.63	1.842
40	3925	948	4305	9765	40	918	62	8196	438	40	933	46	5054	828
24	0.005	0.2834	54.531	1.736	24	0.003	0.4287	130.93	2.117	24	0.005	0.3038	52.72	1.722
20	1986	876	4570	6471	20	275	59	0872	042	20	762	06	5641	022
24	0.005	0.3227	57.851	1.762	24	0.002	0.3649	145.30	2.162	24	0.006	0.3314	54.34	1.735
20	5796	895	9896	3183	20	512	59	7452	288	20	099	27	0374	123
16	0.005	0.2887	53.255	1.726	16	0.003	0.3094	83.261	1.920	16	0.006	0.3138	52.10	1.716
13	4215	256	3927	3636	13	717	86	101	442	13	023	37	8335	907
16	0.005	0.2830	55.438	1.743	16	0.002	0.3502	144.02	2.158	16	0.005	0.3021	54.10	1.733
13	1052	258	8876	8145	13	432	53	8537	449	13	584	58	8139	263
16	0.005	0.2920	51.823	1.714	16	0.002	0.2006	83.656	1.922	16	0.006	0.3168	51.31	1.710
13	6361	851	8812	5299	13	398	01	605	500	13	175	24	0139	203
12	0.005	0.2683	48.773	1.688	12	0.003	0.2498	63.276	1.801	12	0.006	0.2859	46.37	1.666
10	5018	413	6630	1854	10	949	67	024	239	10	165	34	7784	310
12	0.004	0.2506	51.409	1.711	12	0.002	0.2354	97.588	1.989	12	0.005	0.2709	50.84	1.706
10	8764	922	0228	0393	10	412	17	900	400	10	328	26	8449	278
12	0.006	0.3318	49.219	1.692	12	0.002	0.3643	122.19	2.087	12	0.007	0.3398	46.26	1.665
10	7420	372	7585	1395	10	982	59	9737	070	10	346	84	8318	284
12	0.004	0.1110	27.082	1.432	12	0.001	0.0888	46.006	1.662	12	0.004	0.1236	27.34	1.436
10	0998	338	9802	6965	10	930	09	624	820	10	520	19	7324	915
96	0.005	0.2497	45.439	1.657	96	0.003	0.2578	64.631	1.810	96	0.006	0.2504	40.38	1.606
8	4959	274	2509	4312	8	989	10	356	443	8	202	63	7359	245
96	0.005	0.2052	38.361	1.583	96	0.002	0.1725	57.882	1.762	96	0.005	0.2278	39.18	1.593
8	3513	827	1762	8919	8	982	88	648	548	8	813	01	6015	131
96	0.004	0.1194	25.689	1.409	96	0.002	0.1047	46.942	1.671	96	0.005	0.1235	24.19	1.383
8	6492	366	7840	7605	8	231	31	549	567	8	106	64	9807	812
96	0.007	0.2822	40.222	1.604	96	0.003	0.2986	99.232	1.996	96	0.007	0.3050	39.86	1.600
8	0174	579	3625	4676	8	010	92	803	655	8	651	20	7454	618
96	0.003	0.1169	29.662	1.472	96	0.001	0.0921	50.017	1.699	96	0.004	0.1255	28.80	1.459
8	9437	786	2876	2046	8	843	69	770	124	8	359	56	1797	420
60	0.004	0.1229	28.500	1.454	60	0.002	0.1082	39.402	1.595	60	0.004	0.1427	28.59	1.456
5	3143	574	2061	8480	5	746	02	609	525	5	993	80	7642	330
60	0.006	0.2588	39.978	1.601	60	0.004	0.2407	49.525	1.694	60	0.007	0.2633	36.84	1.566
5	4746	460	4451	8259	5	860	08	216	826	5	147	52	7068	403
60	0.005	0.1844	34.844	1.542	60	0.002	0.1001	36.201	1.558	60	0.005	0.1967	34.41	1.536
5	2941	669	1750	1302	5	766	17	640	728	5	718	88	3215	725
60	0.004	0.1567	35.432	1.549	60	0.001	0.0975	50.153	1.700	60	0.004	0.1668	33.97	1.531
5	4225	023	9502	4073	5	944	03	757	303	5	911	51	6960	185
60	0.005	0.1201	23.547	1.371	60	0.002	0.1132	43.586	1.639	60	0.005	0.1224	22.07	1.343
5	1039	853	7100	9487	5	599	70	294	350	5	550	92	1010	822
60	0.008	0.2740	34.060	1.532	60	0.003	0.2428	73.978	1.869	60	0.008	0.2978	33.94	1.530
5	0465	678	3709	2494	5	283	67	970	108	5	776	88	4275	767
60	0.004	0.0829	17.851	1.251	60	0.002	0.0733	36.170	1.558	60	0.005	0.0940	18.29	1.262
5	6456	325	9202	6849	5	027	20	195	351	5	142	77	5484	344
60	0.003	0.0676	19.522	1.290	60	0.001	0.0548	30.045	1.477	60	0.003	0.0748	19.71	1.294
5	4676	965	3779	5327	5	824	17	512	780	5	796	34	2885	750
48	0.002	0.0984	34.042	1.532	48	0.001	0.1139	65.174	1.814	48	0.003	0.0981	28.37	1.453
4	8919	486	9441	0271	4	749	95	859	080	4	458	43	9391	003
48	0.007	0.2342	32.488	1.511	48	0.005	0.2433	45.427	1.657	48	0.008	0.2335	28.99	1.462
4	2110	712	2047	7257	4	358	91	205	316	4	056	57	0108	250
48	0.005	0.1639	31.862	1.503	48	0.003	0.1308	39.365	1.595	48	0.005	0.1744	31.34	1.496
4	1465	777	1358	2749	4	323	17	244	113	4	567	79	2110	128
48	0.005	0.2260	40.783	1.610	48	0.002	0.0695	26.943	1.430	48	0.006	0.2455	40.64	1.609
4	5415	034	9233	4890	4	581	33	618	456	4	040	12	9137	051
48	0.004	0.1076	25.862	1.412	48	0.001	0.0790	41.946	1.622	48	0.004	0.1099	23.76	1.375
4	1634	754	2603	6665	4	884	11	082	691	4	625	21	4678	932
48	0.005	0.0947	18.619	1.269	48	0.002	0.0979	38.694	1.587	48	0.005	0.0970	17.49	1.243
4	0882	395	6163	9707	4	530	01	780	652	4	544	21	9438	024

48	0.008	0.2385	29.244	1.466	48	0.003	0.1919	55.923	1.747	48	0.008	0.2611	29.38	1.468
4	1582	828	4117	0429	4	432	27	059	591	4	885	10	6872	153
48	0.005	0.1035	18.390	1.264	48	0.002	0.0871	35.141	1.545	48	0.006	0.1085	17.64	1.246
4	6302	413	3333	5896	4	481	78	627	822	4	155	83	0457	510
48	0.004	0.0844	19.711	1.294	48	0.001	0.0723	40.858	1.611	48	0.004	0.0923	19.32	1.286
4	2865	934	6611	7232	4	770	23	631	284	4	781	80	1856	049
48	0.003	0.0714	20.016	1.301	48	0.001	0.0506	26.510	1.423	48	0.003	0.0785	20.19	1.305
4	5674	060	1661	3809	4	909	14	502	418	4	891	96	7946	307
24	0.002	0.0580	19.750	1.295	24	0.001	0.0739	46.747	1.669	24	0.003	0.0572	16.11	1.207
2	9407	807	6103	5805	2	581	29	334	757	2	551	27	3776	197
24	0.002	0.0515	18.196	1.259	24	0.001	0.0594	31.329	1.495	24	0.003	0.0551	16.45	1.216
2	8323	373	5086	9881	2	899	80	850	958	2	351	51	7386	361
24	0.006	0.1813	26.173	1.417	24	0.004	0.1963	40.358	1.605	24	0.007	0.1945	24.80	1.394
2	9271	053	2330	8574	2	866	89	023	930	2	845	78	1812	483
24	0.007	0.2078	27.774	1.443	24	0.005	0.2116	36.575	1.563	24	0.008	0.1991	24.10	1.382
2	4833	417	0440	6391	2	787	51	105	186	2	262	80	7543	153
24	0.005	0.1645	29.793	1.474	24	0.003	0.1353	35.990	1.556	24	0.006	0.1751	29.12	1.464
2	5223	281	1821	1169	2	761	65	409	187	2	013	45	8148	313
24	0.004	0.0768	16.214	1.209	24	0.002	0.0620	22.027	1.342	24	0.005	0.0817	16.08	1.206
2	7409	728	8545	9131	2	817	48	845	972	2	082	32	3000	367
24	0.005	0.1604	27.752	1.443	24	0.002	0.0675	23.717	1.375	24	0.006	0.1765	28.13	1.449
2	7818	602	5211	3024	2	850	96	819	075	2	275	33	4392	238
24	0.005	0.1044	19.969	1.300	24	0.002	0.0457	20.066	1.302	24	0.005	0.1104	19.27	1.284
2	2318	761	6274	3700	2	279	34	204	465	2	732	59	0597	895
24	0.004	0.0737	16.307	1.212	24	0.002	0.0506	25.141	1.400	24	0.005	0.0775	15.50	1.190
2	5208	210	1162	3772	2	016	88	075	384	2	005	92	1646	378
24	0.003	0.0743	19.723	1.294	24	0.001	0.0653	37.629	1.575	24	0.004	0.0773	18.36	1.264
2	7707	714	4325	9825	2	737	67	866	533	2	210	18	6903	036
24	0.004	0.0771	18.530	1.267	24	0.002	0.0437	20.916	1.320	24	0.004	0.0812	17.84	1.251
2	1625	310	0827	8774	2	092	53	857	496	2	552	43	5919	539
24	0.005	0.0919	15.669	1.195	24	0.002	0.0913	31.518	1.498	24	0.006	0.0928	14.54	1.162
2	8687	579	1700	0460	2	898	48	543	566	2	383	73	9943	861
24	0.006	0.1090	18.166	1.259	24	0.003	0.0987	31.864	1.503	24	0.006	0.1144	17.53	1.243
2	0011	205	6638	2752	2	100	89	967	313	2	529	60	2285	839
24	0.009	0.1870	19.014	1.279	24	0.003	0.0902	24.373	1.386	24	0.010	0.2039	19.02	1.279
2	8375	536	3923	0824	2	702	37	617	920	2	718	52	8976	415
24	0.006	0.0895	13.908	1.143	24	0.002	0.0768	28.532	1.455	24	0.007	0.0940	13.36	1.125
2	4420	998	7078	2868	2	693	46	931	346	2	038	52	3327	915
24	0.004	0.0701	15.007	1.176	24	0.002	0.0540	24.063	1.381	24	0.005	0.0741	14.50	1.161
2	6721	171	6342	3122	2	246	52	185	353	2	114	96	8619	626
24	0.005	0.0652	12.641	1.101	24	0.001	0.0453	22.859	1.359	24	0.005	0.0718	12.50	1.097
2	1598	270	4330	7963	2	983	42	828	073	2	747	63	3739	040
24	0.003	0.0484	15.272	1.183	24	0.001	0.0317	21.100	1.324	24	0.003	0.0567	15.98	1.203
2	1723	491	4674	9092	2	503	06	377	290	2	553	82	0517	591
24	0.003	0.0581	15.005	1.176	24	0.001	0.0396	20.566	1.313	24	0.004	0.0604	14.29	1.155
2	8730	168	6835	2558	2	929	69	036	151	2	231	61	0721	054
24	0.003	0.0627	19.414	1.288	24	0.001	0.0354	18.792	1.273	24	0.003	0.0692	19.68	1.294
2	2326	583	0312	1157	2	885	32	664	988	2	519	62	4227	118

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Evidence-Based Practices of Promoting Entrepreneurship Education in Higher Education Institutions in Africa

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Abstract: This research applies the changing of cognitive mechanisms of University students through Entrepreneurship Education (EE). The study hypothesises that entrepreneurial orientation (achievement orientation, personal control, innovation and self-esteem) improves after completing the entrepreneurship module. The context of this research involves undergraduate commerce students from the University of the Western Cape (UWC) in South Africa. The study involves quantitative research using questionnaires through a longitudinal approach. The research design consists of a pre-test, post-test and post-test after the intervention. The impact of the training intervention was assessed over a 12 month period based on a randomised control design. This study indicates that entrepreneurial orientation was influenced through this Entrepreneurship module. The practical implications of this study emphasises the importance of training approaches that are based on empirical research. The uniqueness of this paper lies in the pedagogy used that allows the effectiveness of assessing a training program.

Keywords: *Entrepreneurial Action, Entrepreneurial Orientation, Achievement Orientation, Innovation, Self-Esteem, Personal Control, Higher Education*

1. Introduction

Slow economic growth in most African countries have led to job creation challenges and as such there are no job guarantees, in particular, for University graduates at the end of completing a degree. In South Africa, this is against the backdrop of rising cost of University education. According to the National Development Plan more than 10 million jobs are expected to be created where a large part of it needs to come from new entrepreneurial ventures (Jenvey, 2015). Entrepreneurship is therefore crucial for the on-going development of the country as well as innovating new products and services. South African universities have not placed sufficient importance on entrepreneurship education resulting in entrepreneurship being the less explored career path. Poor perceptions of entrepreneurship are driven by convictions already developed at school level that it is not a viable career option as opposed to obtaining employment. Entrepreneurship Education (EE) pedagogies have therefore not evolved sufficiently to improve Entrepreneurial Orientation (EO), particularly of commerce students. As a result the impact of EE in South African Universities is very low in contrast to other African Universities. South Africa has approximately one and a half million informal small and medium business enterprises (SMMEs) the bulk of which employs less than 50 employees (Statistics South Africa, 2015). This raises many questions relating to EE at Universities, specifically the scanty focus on improving existing curricula and secondly, the low level of start-up activity of graduate students. Although (EE) is growing speedily in higher education globally and the fact that governments tend to fully support it, proactive models are needed in order to ensure a better throughput of potential entrepreneurs. There is a lack of empirical studies that demonstrate how EE helps to create more entrepreneurs. The current literature reflects positive and negative reviews of EE in African Universities. This paper will review the HYTTI Model for Entrepreneurship programs at a South African (SA) University and how it influenced EO of commerce students.

2. Literature Review

The necessity of Entrepreneurship: With respect to the wide range of definitions one can deduce that an entrepreneur is an individual who innovates new composites of production factors as demonstrated through new approaches of communication, improved services, and new markets, as well as determining new sources of supply; or an individual with a higher risk profile by exploring market opportunities, contributing to the elimination of imbalance between supply and demand; or an individual who operates his/her own business

(Kalitanyi & Visser, 2010). One of the primary indicators used in the Global Entrepreneurship Monitor (GEM) to measure entrepreneurial growth is the total entrepreneurial activity index (TEA). TEA includes individuals in the process of having started a business as well as those operating a new business less than 3 ½ years old. South Africa has shown a low TEA consistently over the past decade (Singer, Amaros & Moska, 2014). An education system that contributes to an increase in start-up activity is therefore critical for TEA. Academics find the measuring of entrepreneurial growth to be a critical area in entrepreneurship research. The extended and keen interest in entrepreneurship is prompted by many factors: some include a means of stimulating stagnated economies; stimulating developing economies and coping with unemployment challenges by providing new employment opportunities. In developing economies, such as South Africa, entrepreneurship is seen as a means of promoting economic development, employment creation and social upliftment (Brijlal, 2011).

Human Capital Theory: As argued by Unger, Rauch, Frese (2009), Brijlal (2011), Martin, McNally & Kay, (2013), many studies focusing on entrepreneurship research have included human capital theory in their predictor models. The lack of employment opportunities for many students in South Africa prompted the University of the Western Cape (UWC) to introduce Entrepreneurship as a subject at second and third year levels (Friedrich & Visser, 2006). Over the years EE at Universities generally have not produced a significant increase in start-up enterprises and many researchers have been drawn to understand this phenomena. In terms of the generally accepted obligations of Universities the core focus is on teaching, research and technology transfer, more so in EE programs. Most of the empirical studies reviewed indicate that EE can enhance entrepreneurial skills, competencies and attitudes (Ronstadt, 1987; Braukmann, 2000; Hisrich, Peters & Shepherd, 2002; Timmons & Spinelli, 2004; Siteman, 2004; Green, Katz & Johannison, 2004). The specific purpose of this program is to capacitate students sufficiently to become future entrepreneurs. With similar programs offered in other major tertiary institutions how do tertiary institutions understand the concept of human capital in an EE context?

Human capital in the entrepreneurship literature is often operationalised by the level and type of education of the founding entrepreneurs (Urban & Congo, 2015). Contemporary research involving human capital includes work experience, Entrepreneurship experience, general skills, father's/mother's background and expertise. Recent studies involving human capital established that entrepreneurs with superior knowledge, expertise and skills attain higher performance (Martin et al., 2013). Effective human capital formation through EE has become important to governments globally. Gleaning from the literature limited research is available demonstrating the effectiveness of EE to produce more or better entrepreneurs. However, in a recent study there was support for the significance of EE and effective human capital (Martin et al., 2013). Their study established significance between human capital and entrepreneurial intention. The study indicates that the relationship between EE and entrepreneurial intention is more significant in an academic environment compared to a general training environment. These findings have significant practical implications. Governments globally will have a greater understanding of the content when considering forthcoming budgets related to EE and training. Second, these findings propose that future training program content can be improved which may benefit students by improving financial success over time (Martin et al., 2013). In Unger et al. (2009) study significance was established in human capital-success relationship ($r = .098$). Unger et al. (2009) study established that the use of knowledge/skills rather than education/experience in human capital indicated that emerging firms achieved a superior performance compared to established firms. These findings suggest that the human capital is not static and that the focus of research should rather be on learning processes and conversion of skills/knowledge to entrepreneurial action (Unger et al., 2009).

In Urban & Congo's (2015) study a cross-sectional research design was used to investigate the relationship between human capital comprising of education, work experience and business performance of $N = 126$ entrepreneurs of retail SMEs in the Democratic Republic of Congo. The study concluded that human capital is correlated to levels of education of the founder and employees which in turn positively influences business performance. Taking this into consideration human capital facilitates greater efficiency by the entrepreneur to convert entrepreneurial effort into commercialisation. Previous experience increases the owner-managers' entrepreneurial attentiveness, increase preparedness to determine opportunities. Prior business experience

has been linked to assets like extended networks, increased know-how and a solid reputation with investors, customers and suppliers.

Action Strategy Theory: As mentioned previously it is not always clear how EE can lead to new start-up businesses. Contemporary theories suggest that the motivation guides the pursuit of business opportunities through actions taken by the entrepreneur (Bird & Schjoedt, 2009; Shane, Locke, & Collins, 2012). Some perspectives suggest that the previous dispensation in South Africa created an education system where the focus was on producing individuals who would rather be job seekers rather than for themselves. The resultant effect of such approaches created an environment where University graduates failed to become self-reliant and instead pursued careers in large corporations (Nicolaides, 2011). Entrepreneurship researchers emphasized that concept of action is a principal construct in understanding entrepreneurial behaviour (Baron, 2007a:2007b; McMullen & Shepherd, 2006). As Nicolaides (2011) points out the predominant system continues to be biased toward producing individuals who prefer to seek a job after graduating from Universities. Given the focus of action in EE as well as new career options in Entrepreneurship, an obvious question presents itself in relation to the best approach to teach entrepreneurial action (Edelman, Manolova, & Brush, 2008; Neck & Greene, 2011). Action-based Entrepreneurship training has emerged as an effective method to develop students (Åsvoll & Jacobsen, 2012; Barr, Baker, & Markham, 2009; Fiet, 2001; Gorman, Hanlon, & King, 1997; Honig, 2004; Oosterbeek, van Praag, & Ijsselstein, 2010; Pittaway & Cope., 2007; Rasmussen & Sorheim, 2006).

Action principles are derived from applied psychology and provide knowledge about how to do something (Frese, Bausch, Schmidt, Rauch, & Kabst, 2012). This perspective regarding EE acknowledges the importance of both action and theory to ensure more start-ups. As various models pertaining to EE continue to evolve more research is needed to understand the short- and long-term effects of Entrepreneurship training. More scholars have noted that there are several issues that previous research has not adequately addressed (Martin et al., 2013). The study concluded that many evaluation studies focusing on EE have inconsistent theoretical grounding and more studies which develop a better theoretical contribution of Entrepreneurship training are needed (Martin et al., 2013). Generally, research studies are inclined to focus on short-term effects, such as knowledge, intentions and attitudes, or only on long-term outcomes, such as start-up or survival. The study evaluated the training in a randomized controlled field experiment. The 12-month evaluation study showed that the training had a significant impact on business start-ups: the likelihood of students in the training group was more likely to start a new business than students in the control group (Gielniek et al., 2015).

Entrepreneurship Education Models: Alarape (2008) drawing from the works of Ronstadt, 1990; Streeter, Jaquette & Hovis, 2002; and Blenker, Dreisler, Færgemann & Kjeldsen, 2004 has explored various methodologies and models of EE. These studies refer to three models of EE: composite, integrated and network models. The composite model involves courses presented from traditional academic departments typically at higher education institutions. The content typically includes SME management, taxation for SMEs, financial management, business management and computing. The composite model appears to be predominant in University curricula where the emphasis is placed on basic principles in Entrepreneurship. These introductory principles comprise the basic elements of Entrepreneurship in relation to the economy and the importance of the contribution of entrepreneurs in the global economy. Under the composite model the courses are typically presented by individuals who has never owned a business before and whose interest may lie elsewhere. In addition, one may find that because these lecturers/tutors may never have operated or started a business before they lack the practical skills that are a core requirement. This limitation in this particular model is addressed by the integrated model.

The approach of the integrated model is based on the delivery of the program through a specialised department or centre for Entrepreneurship studies. The content of the program comprises of entrepreneurial orientation; life skills; innovation; overcoming challenges; opportunity recognition skills; business assessment skills; business start-up skills; business strategy; environmental assessment skills; ethics; negotiating skills; networking skills; and harvesting skills (Ronstadt, 1990). With this model students are enrolled for the introductory business school courses as well as core modules. The key feature of this model is the fact that the modules are coordinated by a dedicated unit. The network model is based on a wider

collaborative effort and includes two or more Universities. With this approach greater synergy is obtained through economies of scale. The network model has become progressively prevalent due to the declining resources and the growth in the number of learners in Entrepreneurship studies. For example, there is a paradigm shift in EE pedagogies where increasing focus is placed on converting entrepreneurial skills into business start-ups. The advent of reviewing EE curricula/pedagogies through the revision of the network model marks a fresh approach in higher education. However, as with any new approaches a number of administrative and practicality challenges are presented relating to allocation of budgets among collaborating institutions (Blenker et al., 2004).

Given the above introduction, the following hypotheses were used to measure changes in components of entrepreneurial orientation in a longitudinal design:

Hypothesis 1 – achievement orientation in the training group improves after attending the training module;
Hypothesis 2 – personal control in the training group improves after attending the training module;
Hypothesis 3 – innovation in the training group improves after attending the training module;
Hypothesis 4 – self-esteem in the training group improves after attending the training module;
Hypothesis 5 – achievement orientation, personal control, innovation and self-esteem in the control group declines as a result of not participating in the training module;
Hypothesis 6 – there is a difference between the training and control group for locus of control after attending the training module;
Hypothesis 7 - there are differences between students who have parents who are self-employed and those who are employed concerning the variables achievement, innovation, locus of control and self-esteem;

3. Methodology

Research Method: Drawing from Crotty (2003:10), Guba & Lincolin (1989:83), the ontological stance of this study was one of objectivism as certain indicators of the phenomenon - Evidence-Based Practices of promoting entrepreneurship education in Higher Education Institutions in Africa - were perceived as social constructs but with very little clarity available. As such the epistemology stance of this research was firmly grounded in the ontological belief that the entrepreneurial skill of the students is a manifest of entrepreneurship education and training. Given this philosophical assumption, the study employed a research design of a pre-test (T1) and a post-test (T2) in conjunction with a non-randomised control group. In order to effectively measure the influence of the training the research involved a longitudinal study design where students of the experimental and control group were tested at the start of the academic period as well as at the end. Over the past few decades a number of questionnaires have been developed to measure entrepreneurship development (Wickham, 2004). The questionnaire used in this study is based on previous research conducted in Africa involving success factors in entrepreneurship (Frese et al., 2007: 2009; 2012). In line with such studies and in particular, studies involving entrepreneurship and personality, four constructs have emerged and have been used consistently in entrepreneurship research. The experimental group which participated in T1 and T2 consisted of N = 69 2nd year students while the control group N = 45 students who did not participate in any EE program for the period.

Table 1: Study Design

	T1 – before training	Intervention	T2 – 10 months after
Training group	0	Entrepreneurial training	0
Control group	0	No training	0

Note: 0 = Evaluation measures collected

Sample Selection: We used class lists of registered students from the Commerce Faculty and randomly assigned students to the training or the control group. The training group consisted of 69 participants (N = 69) second year students and were registered for the entrepreneurship program. The control group consisted of 45 participants (N = 45) second year students and were not involved in entrepreneurship training at all. The control group were essentially comprised of students from the Economics Department. Table 2 below provides an illustration of the sample of the training and control group as well as the breakdown in relation to gender.

Table 2: The Sample

Group	Frequency	Percent	Control group	Frequency	Percent
Experimental group			Male	15	33.3
Male	25	36.2	Female	27	60
Female	36	52.2	Missing	3	6.7
Total	61	88.4	Total	45	100
Missing	8	11.6			
Total	69	100			

Measures: Over the past few decades numerous measuring instruments have been developed in order to study and measure entrepreneurial orientation. In line with contemporary research and focusing on personality and entrepreneurship, four factors have been used. These factors include need for achievement, locus of control, innovation and self-esteem (Robinson, Stimpson, Huefner & Hunt, 1991a). These factors were measured with 5 point Likert scales. Several studies have associated education and training to entrepreneurial success involving the aforementioned factors (Kiggundu, 2002; Singer et al., 2014). In order to examine and to predict the effectiveness of entrepreneurship training at University level this instrument is based on Entrepreneurship attitude orientation (EAO) developed by Robinson et al. (1991). Attitude theory therefore suggests that the EAO measuring instrument is a good predictor of Entrepreneurship. EAO was also developed to predict the three elements of attitude (learning to understanding Entrepreneurship, learning to become entrepreneurial and learning to become an entrepreneur) instead of focusing on personality theory.

The four measures included need for achievement, locus of control, innovation and self-esteem and are described as follows:

- Achievement provides an indication of starting a business and growth of a business (Spencer, McClelland & Spencer, 1992; Robinson et al., 1991; Roberts, 1991).
- Innovation relates to an individual perceiving and implementing things in new ways. This factor is closely associated with creative thinking (Robinson et al., 1991; Kirton, 1976, 1978; Hornaday & Aboud, 1971).
- Perceived control relates to the degree of influence that an individual has in a situation (Robinson et al., 1991; Rotter, 1966, 1990; Levenson, 1981; Brockhaus, 1976).
- Self-esteem relates to the degree of self-efficacy and confidence that an individual has (Robinson et al., 1991; Crandall, 1973).

An Overview of the Hytti's Model: The case of UWC: The Hytti model was introduced for second year entrepreneurship students at UWC. The model is based on three dimensions as illustrated in table 2. The model is an action-based entrepreneurship program designed to stimulate change in cognitive mechanisms of the students. These cognitive mechanisms include beliefs, values and attitudes; and have a profound influence on students' perception of their abilities and skills. During the first semester students are introduced to theoretical and practical aspects of starting a business. Curriculum content includes entrepreneurship as a career choice, trait theory, learning about entrepreneurs, business plans, interviewing techniques, presentation skills, competition, group dynamics and finance.

Table 3: Hytti Model of Entrepreneurship

Understanding Entrepreneurship	Becoming more entrepreneurial	Becoming an entrepreneur
(a) What do entrepreneurs do?	(a) I need to take responsibility of my learning, career and life.	(a) Can I become an entrepreneur?
(b) What is Entrepreneurship?	(b) How do I take responsibility?	(b) How to become an entrepreneur?
(c) Why are entrepreneurs needed?		(c) How to manage a business?
(d) How many entrepreneurs do we need?		

Assessments are based on the students maintaining weekly journals, term tests, business plan, student peer evaluation and marketing research. The second semester focuses on operating a small business on the

campus as well as harvesting the enterprise. The curriculum in this regard involves business plan review, goal setting and success factors, action plans, innovation, personal initiative, micro enterprise operations, exit strategies, harvesting the enterprise and entrepreneurial life strategies. The assessments are based on weekly journals, case studies and final group report. The University provided the students with a micro loan of about USD 90 which is repayable at the end of the project. With own contributions and loans students managed to raise around USD 500. In cases where students incurred losses they were required to repay the seed capital provided by the University. On the other hand, when the businesses were successful they would share real profits. This represents real experience that is unparalleled by traditional approaches.

4. Results and Discussion

Results: Table 4 shows the means, standard deviations for both experimental and control groups in a paired sample comparison. Overall, the univariate comparison shows that the mean scores of the experimental group for the variables achievement orientation, innovation, self-esteem and personal control improved between T1 and T2 improved with the exception of self-esteem.

Table 4: Paired Samples – Statistical Comparison between T1 and T2

		Mean	N	Standard Deviation	Standard Error Mean
Experimental group					
Pair 1	Achav1	7.9108	60	0.66397	0.08572
	Achav2	8.1990	60	0.81062	0.10465
Pair 2	Inovav1	6.4475	60	0.67938	0.09493
	Inovav2	6.7183	60	0.73531	0.08771
Pair 3	Cntlav1	6.9846	65	1.08448	0.13451
	Cntlav2	7.2462	65	1.12614	0.13968
Pair 4	Slfav1	7.8041	63	0.94482	0.11904
	Slfav2	7.4561	63	0.81451	0.10262
Control group					
Pair 1	Achav1	8.2202	35	0.84552	0.14292
	Achav2	7.9464	35	1.08375	0.18319
Pair 2	Inovav1	6.5912	34	1.00178	0.17180
	Inovav2	6.4338	34	0.91102	0.15624
Pair 3	Cntlav1	7.2525	43	1.26968	0.19362
	Cntlav2	7.1794	43	1.18752	0.18109
Pair 4	Slfav1	7.8041	38	1.02600	0.16644
	Slfav2	7.4561	38	1.13893	0.18476

The results of the control group between T1 and T2 show a decline of means for all four variables. However, there significant achievement ($p < .00$, $T = -2.76$) and innovation ($p < .00$, $T = 2.83$) in the experimental group. For the control group there significant self-esteem ($p < .01$, $T = -2.08$). Therefore, hypotheses 1, 3, 4 and 5 are supported while hypothesis 2 is rejected.

Table 5: Paired Samples Test T1-T2

	T	Df	Significance (two-tailed)
Experimental group			
Pair 1 achav1 & achav2	-2.760	59	0.008**
Pair 2 inovav1 & inovav2	2.833	59	0.006**
Pair 3 cntlav1 & cntlav2	-1.718	64	0.091
Pair 4 slfav1 & slfav2	1.425	62	0.159
Control group			
Pair 1 achav1 & achav2	1.55	34	0.13
Pair 2 inovav1 & inovav2	-0.696	33	0.339
Pair 3 cntlav1 & cntlav2	0.387	42	0.701
Pair 4 slfav1 & slfav2	-2.080	37	0.044*

P<0.05 P<0.01***

Table 6 indicates the comparison between the training group and the control group at T2. Achievement, innovation and self-esteem of the training group were found to be significantly higher than for the same variable in the control group, while no significance was found for locus of control between the two groups. Hypothesis 6 was not supported.

Table 6: Comparison between Training Group and Control Group after Training

Source	Df	Mean Square	F	Significance
Achievement	1	3.493	8.574	0.004**
Control	1	1.449	1.449	0.170
Innovation	1	1.989	5.913	0.017*
Self esteem	1	3.805	5.735	0.019*

P<0.05 P<0.01***

Table 7 deals with results relating to the question of whether there are differences between students who have parents who are self-employed and those who are employed concerning the variables achievement, innovation, locus of control and self-esteem. The chi-square test did not show any significant difference between the two groups concerning the variables examined. Hypothesis 7 was not supported.

Table 7: Comparison between Parents of Students who are Entrepreneurs' employed parents, Chi-Square Tests

	Value	Df	Asymp. Significance (two-sided)
Achievement	42.884	32	0.95
Innovation	35.123	36	0.510
Locus of control	23.776	24	0.474
Self esteem	25.360	23	0.332

P<0.05 P<0.01***

Discussion: The objective of this research was to investigate how constructs relating to entrepreneurial orientation can be changed through EE at a University Entrepreneurship education. The results indicate that through EE program it is possible to influence achievement, innovation and self-esteem of University students. In terms of the HYTTI model the program was successful as they learnt about Entrepreneurship as well as becoming more entrepreneurial. The participants in the program learnt about Entrepreneurship as the awareness of the discipline was created. In addition, the participants also learnt entrepreneurial skills as well as becoming more entrepreneurial. The findings in this study support similar findings (Gielniek et al., 2015) where action-based entrepreneurship training impacts on action principles and entrepreneurial intentions. The findings also support previous research studies suggesting that Entrepreneurship can be taught and that EE can enhance entrepreneurial skills, aptitudes and attitudes (Ronstadt, 1987; Hisrich, Peters & Shepherd, 2002; Timmons & Spinelli, 2004; Siteman, 2004; Green, Katz & Johannison, 2004). In the application of the Hytti model it is evident that certain variables of entrepreneurial orientation can be increased through an Entrepreneurship training module at a University. Based on the evidence it is possible to improve achievement orientation, innovation and self-esteem of the students. Participants did not only acquire business skills on starting and managing a business (learning about entrepreneurship) but also improved their entrepreneurial orientation (learning about action principles and to become more entrepreneurial) compared to the control group. The training showed an increase of achievement orientation which supports previous research with different groups of entrepreneurs (McClelland, 1986). Hypothesis 6 relates to locus of control was not supported and emphasises the difficulty in changing mind-sets with an intervention.

This also signifies that locus of control being an attitudinal factor, cannot be changed in a relatively short period of time. Hypothesis 5 relates to innovation emphasises that the training was successful and builds onto previous research (see Friedrich & Visser, 2006) in which innovation was improved through a three day training intervention. Hypothesis 4 relating to self-esteem is significant in that the cost of education is very costly in South African. This finding indicates that the training program improved self-esteem of the students in starting and running a business successfully. The evidence also supports the theory relating to the fact that Entrepreneurship training has a positive impact on the targeted group in a University environment. Several

scholars have focussed on human capital and highlighted that Entrepreneurship training programs should incorporate action-based content in order to be more effective (Gielniek et al., 2015; Barr et al., 2009; Fiet, 2001; Gorman et al., 1997; Honig, 2004; Oosterbeek et al., 2010; Rasmussen & Sorheim, 2006). This suggests a shift in contemporary approaches where action knowledge becomes a central factor in curriculum development in entrepreneurship training.

A marked difference between the Hytti and similar models (Gielniek et al., 2015) is the fact that the students did not have a commerce background. The evidence from Gielniek et al. (2015) study suggests that action-regulatory factors are important mediators in the relationship between action-based training and entrepreneurial action. Over the past decade Entrepreneurship research has focused on the role of action and therefore contributes towards the existing literature. Previous studies on drivers of entrepreneurial action have more or less explicitly referred to expectancy-value models to explain entrepreneurial action. For example, theoretical and empirical studies have investigated the role of uncertainty by suggesting that assessments of feasibility and desirability influence entrepreneurial action (McKelvie, Haynie, & Gustavsson, 2011; McMullen & Shepherd, 2006). Similarly, scholars have examined value and expectations in the form of images (Mitchell & Shepherd, 2010), perceptions (Edelman & Yli-Renko, 2010), or outcome and ability expectations (Cassar, 2010; Koellinger, Minniti, & Schade, 2007; Townsend et al., 2010). The line of reasoning underlying this research is that more positive values and expectations translate into stronger entrepreneurial goal intentions and eventually lead to entrepreneurial actions (Ajzen, 1991; Kolvereid & Isaksen, 2006; Krueger, Reilly, & Carsrud, 2000).

EE using the HYTTI model and entrepreneurial action provide empirical evidence for consideration in future programs aiming at influencing entrepreneurial intention of University students. Other positive relationships were also established between entrepreneurial training and (a) goal setting, (b) action planning, (c), entrepreneurial self-efficacy, and (d) action knowledge. Other findings also suggest that at least with positive entrepreneurial goal intentions people are better motivated and willing to invest into a specific action; and how hard they are willing to perform the action (Ajzen, 1991). This finding is also supported by previous research that provides evidence for the positive effect of goal intentions on action and performance (Baum & Locke, 2004; Kolvereid & Isaksen, 2006; Locke & Latham, 2002). Furthermore, similar findings suggest that individuals who have documented their goals are more likely to start a business when they integrate goal setting with action plans (Frese & Zapf, 1994; Frese, 2009). Considering this approach, notably the concept of business plans is distinctly different to action plans. Business plans are formal documented plans describing multiple components of the of a business concept (Honig & Karlsson, 2004). Action plans are mental recreations of typical entrepreneurial actions that specify the what, and how the entrepreneur does things in the business. By specifying the sub-steps and operational details, action plans control and direct the effort that is captured by goal intentions. Action plans thus help to initiate and maintain goal-directed actions (Frese & Zapf, 1994; Frese, 2009). The concept of action knowledge relates to know-how in the business. Furthermore, action knowledge comprises information about the principles and causal processes involved, and information about anticipated outcomes and consequences of one's actions. Action knowledge influences the efficiency of people's actions: the better and more sophisticated people's action knowledge, the more efficient their actions (Frese & Zapf, 1994). Believing to be capable of successfully performing entrepreneurial activities increases the likelihood that people will make the decision to engage in entrepreneurial actions (Boyd & Vozikis, 1994; Gist & Mitchell, 1992).

As mentioned above action plans are distinct from business plans and are mental simulation of actions. This finding builds onto action theory suggesting that action unfolds in a sequence of forming a goal, developing action plans and executing the action (Frese, 2009; Frese & Zaph, 1994). Action plans play a major role in the task sequence and has a direct impact on entrepreneurial success albeit that the literature indicates no direct relationship between goal setting and entrepreneurial action (Gollwitzer, 1999; Miller, Galanter & Pribram, 1960). Action plans bridge this gap and ensure that goals move into actions. Studies involving entrepreneurial orientation and action-regulatory variables (self-efficacy, goal setting, action planning, and action knowledge) have additive effects on the training – entrepreneurial intention relationship (Frese & Zapf, 1994; Frese, 2009).

Implication: University education in Africa is costly and allows a small number of enrolments each year. A significant number of graduates from these Universities remain unemployed raising questions about the cost, effectiveness and relevance of University education. To this end governments introduced regulatory reforms and more focus on Entrepreneurship courses to encourage graduates to start their own businesses; but the question remains as to whether these interventions are effective. Even with the introduction of EE at the Universities the rate of start-up activity remains low. Are Universities doing enough in order to bring about improvements in current EE? The studies have demonstrated through a longitudinal design that the training programs in HEIs in South Africa can be effective Entrepreneurship.

The EE programs implemented in this study demonstrate the importance of achieving three outcomes. Firstly, the purpose was to raise awareness levels of Entrepreneurship. Secondly, the purpose was to impart entrepreneurial skills and thirdly, to facilitate the process of becoming entrepreneurial. Similar approaches demonstrate that an action-based approach must entail practical components in order to influence prevailing mind-sets of students sufficiently for them to see Entrepreneurship as a viable career path. It is a fact that education alone cannot completely prepare individuals to become entrepreneurs but must be complemented by experiential factors discussed in this paper. On the basis of the findings in this study we build a case to consider EE to be an integral part of the curriculum for final year students and emphasise the need to improve the current perceptions that students have on Entrepreneurship. In addition to developing entrepreneurial skills, particularly final year students must consider Entrepreneurship as a viable career through EE. More importantly, as demonstrated in Gielniek et al's (2015) model proved to be highly successful regarding students with non-commerce backgrounds. Against this background and notwithstanding the fact that there are several challenges in the implementation of EE at HEIs, the leadership at HEIs have a key role to play to instil greater entrepreneurial characters amongst students. More effective integration is required between the South African education curriculum at school level and HEIs pertaining to Entrepreneurship. The curriculum in schooling and higher education systems must be realigned with greater focus on Entrepreneurship as a subject choice. The HYTTI model discussed in this paper should be considered as a means of improving current approaches in EE.

As the study suggests entrepreneurial skills should be distinguished from business management skills. This is clearly demonstrated through an action-based focus in Entrepreneurship training. Often business strategies and business plans are included in the content as the core elements in Entrepreneurship training and fail to impart entrepreneurial skills. EE should capacitate students sufficiently that would enable them to progress an idea, process or invention from start to a commercialisation. Course content should focus on entrepreneurial skills and knowledge. The importance of any Entrepreneurship program must be to influence entrepreneurial intentions and emphasise aspects such as self-reliance, creativity and autonomy. This perspective should ideally be developed at high school levels with the aim of influencing entrepreneurial intentions. Universities can play a greater proactive role in stimulating Entrepreneurship as successfully demonstrated in UWC's shop project. Often University graduates including Entrepreneurship graduates fail to convert their skills into a start-up and become job seekers. Therefore Universities need to collaborate with governmental agencies and other tertiary/private institutions in order to support practical training of existing programs that may be integrated in EE. The training model in this study evaluated the training over a period of 12 months and provided evidence that the training is effective in promoting Entrepreneurship. The training increased the level of entrepreneurial orientation.

5. Conclusion

EE is important for creating a positive entrepreneurial climate as well as practical skills required for successful Entrepreneurship. Continuous improvement in prevailing pedagogies has an important role in EE. Although current research has focused on pedagogies and curricula, few studies have been conducted on action-based training. Effectiveness of EE is to a large extent related to the facilitator's skills and contemporary working knowledge of effective pedagogies in Entrepreneurship. Considering business planning is one the major courses in EE, this study demonstrates consideration for entrepreneurial orientation constructs as a means of influencing entrepreneurial thinking of commerce students. Based on the study and the success of the approach the following can be concluded:

- Influencing the perspective of students by promoting Entrepreneurship as a viable option to becoming a job seeker;
- Presenting students with the necessary business skills to start and run an enterprise;
- Facilitating experiential learning by operating and managing their own businesses on campus;
- Subjecting students to real life examples of typical business problems, needs and constraints;
- Developing successful case studies based on the successful examples of similar student enterprises from previous years
- This program can be taught to students with non-commercial backgrounds (example, medical students, engineering students and science students).

Limitations and future research: Future research should consider longitudinal research designs as a means of determining the effectiveness of training interventions. Another highlight of the study is the fact that the questionnaire was designed for specific application in Africa. This module has been operating for more than four years and the longitudinal approach in assessing the program is unique. It would be useful to conduct follow up research to determine whether students who have attended the training are starting businesses more frequently than those of the control group. This is of particular interest since the students in both contexts come from diverse backgrounds and geographic locations. A limitation of the study is the small size, particularly in the case of UWC.

Recommendations: Future training in Entrepreneurship must be increasingly more practical and entail action-based approaches. The study provides evidence to suggest that achievement, innovation and self-esteem can be used as a starting point to in University EE curricula. In particular, the practical component of EE can include "shop projects" as a means of exposing students to numerous learning areas in Entrepreneurship. The 'shop project' was successfully operated during the second semester and the University recouped all the seed capital paid out to the various student groups. With greater involvement by the private sector, typically local banks and venture capital firms, it may be possible to increase the amount of seed capital to explore more diverse business opportunities. We suggest that Entrepreneurship become a specialised area of study, for example a diploma, degree and post graduate degree in Entrepreneurship. Due to significant drop-out rates in SA Universities we recommend as a minimum that Entrepreneurship be offered as core subjects at an undergraduate level to encourage students to value and to cultivate more appreciation for Entrepreneurship as a career. There should be closer cooperation between faculties and centres of excellence at Universities. For example, students with strong entrepreneurial orientation profiles should be developed further through centres of excellence. Furthermore, the findings in this study can be integrated into shorter EE programs such as vocational training operated through government funded agencies (see Sector Education and Training Authorities). Although the Global Entrepreneurship Monitor study is a very useful study, Africa needs an exclusive study with more direct focus where EE models, particularly in higher education can be compared and developed. Courses such as the ones described in this study should be considered for replication in HEIs in other parts of Africa.

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Responsiveness to Knowledge and Organisational Performance of Listed-Companies in the Construction Sector

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Abstract: In order to improve performance, the place of tangible and intangible resources deployed in operations has become critical. However, reliance on tangible resources as the bastion of better organisational performance seems to be waning; partly due to the ease with which these are copied. This implies that reliance on intangible resources, of which knowledge is a prime component, becomes inevitable. Rather than take on the titanic knowledge management construct holistically, the interest of this study is in the sub-construct of responsiveness to knowledge (RTK) largely because of its relevance in the construction sector in South Africa where client expectations, work methods and indeed, project employees are in a constant state of flux. Empirical in nature, the study uses a census of construction companies listed on the Johannesburg stock exchange (JSE) and focussed on the issue of responsiveness to knowledge and its association with the organisational performance (OP). Quantitative data collected from employees in a cross-sectional manner, were analysed. In terms of results, the study points to a positive association between RTK and OP in construction companies. Despite this finding, it would appear that companies undertake knowledge management on an ad-hoc and informal manner rather than by following a systematic process. Consequently, the study contends that attention, investment and institutionalisation of a mechanism for responding to knowledge as an integral part of the knowledge management bouquet, can enhance organisational performance.

Keywords: *Knowledge management, Responsiveness to knowledge, Construction companies, JSE, South Africa*

1. Introduction

In the current business environment, where survival and growth have become a prime challenge owing to, among others, the intense level of competition between businesses, the hunt for improved organisational performance has become an ever-present concern. The complexity and distinctiveness of intangible resources over tangible resources make them more difficult to imitate and therefore a more likely basis for the generation of competitive edge (Aramburu, Sáenz, Buenechea, Vanhala & Ritala, 2014) that would arguably be sustained over time. Currently, due to the effect of globalisation, countries in the African continent find themselves in a situation where they must, out of necessity, compete with other organisations from across the globe. In many cases, construction companies from the developed world, are more equipped with tangible resources like equipment and the like, compared to their counterparts in developing parts of the world like Africa. This leaves the playing field substantially uneven and the only route to survival and continued success in an intensely competitive business environment appears to be the usage and management of intangible resources, of which knowledge is critical part. In the African context, sound knowledge of the local terrain, business climate and social dynamics can generate a competitive edge. This is a position corroborated by Marr (2006), who opines that sustainable strategic edge appears to be more and more embedded in intangible resources such as knowledge. Consequently, the value of knowledge in modern business can therefore hardly be over-emphasised. This may be why many organisations are invariably turning to knowledge management for leverage so as to derive competitive edge (Stevens, 2010).

Eftekharzadeh (2008:45) suggests that effective knowledge management heralds an organisation's ability to remain competitive in the long run. Knowledge management can be an important ingredient of the success of organisations as it allows for knowledge to be retained within the organisation rather than be resident only among employees (Eresia-Eke & Makore, 2015:481). In a labour-rich African continent, reliance on a human-related resource like knowledge rather than dependence on machines and equipment that are generally expensive to acquire and nevertheless easy to imitate seems a reasonable prospect. In the specific case of the South African construction industry, the all-important role of knowledge becomes truly evident as major construction initiatives are government-driven and the securing of such jobs largely depends on the extent to

which the organisation demonstrates its competence; which are precursors to the awarding of construction contracts. To signal competence, the knowledge base of the organisation becomes the major resource. So, it would seem compelling for organisations to properly manage their knowledge assets as they invariably form the basis for the development of a sustainable advantage. To do this effectively, however, organisations may need to focus on specifically selected factors or practices that enable improved knowledge management. Chauvel and Despres (2002:210) define knowledge management enablers (or barriers) as the structural or functional conditions in an organisation that are responsible for the success or failure of a knowledge management initiative. Wong and Aspinwall (2005:68) view knowledge management enablers as those activities and practices that need to be attended to in order to ensure successful knowledge management implementation. These practices are reflected by the company's ability to organise, combine, integrate, structure and coordinate knowledge. If this is indeed the case, then such practices would need to either be nurtured or be developed if they are non-existent in the organisation. It is from this perspective that the study examines the issue of the organisation's responsiveness to knowledge, as an important factor of knowledge management that may then invariably relate to organisational performance.

2. Literature Review

Responsiveness to knowledge (RTK): The actions taken in response to the knowledge gathered and filtered characterises the responsiveness to knowledge of an organisation (Liao, Welsch & Stoica, 2003). Darroch (2003:42) defines responsiveness to knowledge as when the organisation reacts to the various types of knowledge it has access to. The timing and quality of the response mirrors the agility of the organisation (Dove, 1999). The organisational perspective of being responsive to knowledge proposes that a knowledge infrastructure made up of a knowledge process architecture comprising acquisition, conversion, application and protection are vital organisational competencies or pre-conditions for effective responsiveness to knowledge. The structural infrastructure entails the presence of norms and trust mechanisms (Schoenherr, Griffith & Chandra, and 2014:11). In order to acquire, convert, apply, store and protect organisational knowledge and leverage on the infrastructure, knowledge processes must be available. These processes would empower the organisation to better undertake knowledge management activities in an effective and efficient manner. Gold, Malhotra and Segars (2001:190) argue that the more frequently an organisation carries out its knowledge responsiveness processes, the more routine the norms become and the more efficient the integration process becomes. In contrast, the more erratic the usage of responsiveness to knowledge processes is, the less the efficiency of knowledge integration efforts. Due to this, the organisation will find itself in a position where it would have to deal with more knowledge integration exceptions (Kim, Lin, Chun & Benbasat, 2014:402).

The main objective of an organisation's use of the responsiveness to knowledge component is to "gain an awareness of its knowledge, individually and collectively, and to shape itself in a way that enables the most effective and efficient use of the knowledge the firm has or is able to obtain" (Donate & Sanchez de Pablo, 2015: 361).Conversion-inclined responsiveness to knowledge practices are the ones that are oriented towards making existing knowledge useful. These knowledge conversion processes are anchored in the company's ability to organise, combine, integrate, structure, coordinate and distribute knowledge (Gold et al., 2001:210).Developing processes and practices for structuring or organising knowledge is critical to the organisation because without them, there would be no consistency or common dialogue of knowledge and this would make the asset very difficult to manage (Kruger & Johnson, 2013). Knowledge management practices are conceptualised as organisational routines whereby knowledge is acquired and then responded to immediately or disseminated and then responded to (Darroch, 2003:41). Theory generally alludes to the fact that some common practices in organisations include having a formal knowledge management programme in place, having time for random & open discussions (breaks, coffee session discussions etc),valuing the knowledge/experience/contacts of employees(Schoenherr et al., 2014), having sufficient infrastructure and good spaces at work for formal or informal meetings, identifying and protecting strategic knowledge in the organisation and recognising the importance of human capital among others (Gold et al., 2001).

Responsiveness to knowledge is also interpreted through the social perspective of knowledge management practices whereby recognition is given to the manifestation of human and social dimensions as its major components, with the leadership style and technology still having a part to play (Donate & Sanchez de Pablo,

2015). Thomas, Kellogg and Erickson (2001) propose that managing knowledge is deeply social in nature and therefore must be approached by taking cognisance of human and social factors. Sometimes referred to as the social ecology of an organisation, emphasis is placed on social discourse such as personal communication, construction of individual meaning and cultures of sharing and trust (Kruger & Johnson, 2013; Martin, 2000; Southon & Todd, 1999).The social ecology defines the social system in which people operate and so in an organisational context, it would be linked to the company's formal and informal associations of employees and the type of people who will fit into it. Freedom of individuals to pursue actions without prior approval is also shaped by the social ecology in responsiveness to knowledge and knowledge management. Also included in the social ecology framework would be how employees interact with parties inside and outside of the firm. These variables would have great implications on the management style and systems, organisational structure in terms of networks, and alliances and communities of practice (Donate & Sanchez de Pablo, 2015).

All of these knowledge management practices are embedded in the organisational structure, culture and a knowledge process architecture comprising acquisition, conversion, application and protection (Appolloni, Mavisu & Ozeren, 2014:172).Combining or integrating knowledge reduces redundancy thereby enabling the firm to replace out-dated knowledge through these processes. The frequently-named mechanisms for facilitating integration are routines, sequencing, rules and directives, group problem-solving and decision-making. Application-based responsiveness to knowledge processes is inclined towards actual use of the knowledge. Effective application is presumed or implied once knowledge has been created (Nonaka & Takeuchi, 1995; Ajmal, Helo & Kekale, 2010). Here, process elements that are associated with responsiveness to knowledge are linked to storage, retrieval, sharing and contribution. Protection processes that characterise an organisation's responsiveness to knowledge are security-oriented and are designed to safeguard the knowledge in an organisation from unlawful use or theft. For competitive advantage to be sustained, it is critical that knowledge is protected. Protection measures can be built into the technology infrastructure or measures that govern the conduct and behaviour of employees can be established (Gold et al., 2001; Grandori & Soda, 2006; Massey & Montoya-Weiss, 2006). Instructively, ensuring the validity and relevance of knowledge and the protection of knowledge assets from unauthorised exposure or theft comes through a designed process that is fit for the purpose (Wong & Aspinwall, 2005). To cap, responsiveness to knowledge (RTK) entails developing processes and practices for creating new ideas and knowledge, documenting key knowledge and efficient processes for classifying and storing knowledge, creating efficient processes for finding the required knowledge, and sharing knowledge using electronic and face to face channels (Kruger & Johnson, 2013). For the organisation's products or services to be reflective of its knowledge, it is imperative, through the organisation's responsiveness to knowledge, to develop processes for applying the best knowledge to it (Schoenherr et al., 2014).

Responsiveness to knowledge and organisational performance: Knowledge is recognised as a resource and knowledge management as a dynamic capability and competence that can possibly contribute to high organizational performance (Alavi & Leidner, 2001:108). A review of knowledge management literature that concentrates on the knowledge-based theory (KBT) affords discernments and basis for exploring the relationship between responsiveness to knowledge and the performance of an organisation. The knowledge based theory (KBT) proposes that the ability of an organisation to deploy resources efficaciously is a function of interrelated knowledge across organisational structures, with organisational routines and processes as instruments that determine the organisational responsiveness to knowledge and knowledge integration (Grant & Shahsavarani, 2006; Eresia-Eke & Makore, 2015:478). However, the key knowledge-based question that the manager faces is not how to organize so as to exploit already developed knowledge or capability but rather how to organize to efficiently generate knowledge and capability for organisational performance (Kianto, Ritala, Spender & Vanhala, 2014; Nickerson & Zenger, 2004).

Covey (2004) argues that managers still apply industrial age control models to knowledge-workers and this constrains optimisation of the expertise of knowledge workers. In a study that explored the organisation design elements and competencies that contribute to optimising the expertise of knowledge workers, Ramsey and Barkhuizen (2011) found that to be sustainable, an organisational design must allow an organisation to recognise, create, transform and distribute knowledge. The same study also revealed that the respondent organisations were not designed in a manner that allows structure, culture and codifying systems to optimise the expertise of knowledge workers. Perhaps the belief of Thomas et al. (2001) in a knowledge community as

one of the most vital aspects of a knowledge responsiveness puzzle could also be considered when designing organisations: a place in which people discover, use and manipulate knowledge whilst interacting and having encounters with others who are doing the same. The essential characteristic of a knowledge community is the presence of conversation and other forms of narrative, such as stories and informal discussions among people who know each other, share professional interests and understand the contexts under which the conversation is taking place (Kruger & Johnson, 2013).

Thomas et al. (2001) offer a variety of techniques that could effectively contribute to knowledge responsiveness in this regard, such as supporting new forms of group interaction, using metaphors so as to enhance creativity and supporting expressive communication. The incorporation of such techniques into knowledge communities, results in organisational opportunities for building social capital that includes trust and cooperation (Schoenherr et al., 2014). It is always challenging for organisations and system designers to have a truly trusted place as a knowledge management environment. The eventual aim of acquiring and sharing knowledge, in the equation of responsiveness to knowledge, is to transform all individual know-how and experiences into organisational competencies (Mwila, 2013). The strength of organisational competencies and their effectiveness in organisational performance would increase if more of the personal intellectual capital is transmitted to, and converted into organisational assets. Alhammad, Al Faori and Suleiman (2009) argue that the appropriate transfer of individual knowledge would result in knowledge appreciation, and consequently, improve the results of organisational learning and organisational effectiveness. This may be seen as suggestive of a relationship between responsiveness to knowledge and organisational performance. It is from this inference that the study derives impetus to empirically determine whether there is indeed a relationship between the independent responsiveness to knowledge (RTK) variable and the dependent variable of organisational performance in the specific context of construction companies that are listed on the Johannesburg stock exchange. .

3. Methodology

The research is focussed on JSE-listed construction companies in South Africa with the aim of examining the relationship between responsiveness to knowledge and organisational performance. The underlying criterion for the choice of this type of industry and companies is that they have a variety of operations requiring various skills. Given the diverse skills and knowledge-workers involved and required in the construction companies, this seemed to present a fertile area for investigation. All of the ten construction companies that were JSE-listed were selected to participate in the study. The study was executed from a positivist philosophical standpoint. The approach allows the researcher to make an observation about a condition of interest without allowing personal value judgements to interfere in the process. It lends itself to an unbiased finding about the situation. In keeping with the positivist approach, empirical data of a quantitative nature was collected from study respondents. The use of quantitative data coupled with the reality that the study does not set out to build new theory but to test a scientific position that suggests that knowledge management adds value to an organisation, provide evidence that in terms of a research approach, the study has elected to travel the deductive reasoning as opposed to the inductive reasoning route.

The data to be utilised for the study was collected from employees of JSE-listed construction companies. Since the population of employees was substantial, it was decided that the data be collected through the use of self-administered questionnaires. Invariably, this choice meant that a survey research strategy was suited for the study. In executing the study, data was collected only at a point in time rather than over a time period, indicating that the preferred time horizon for data collection was cross sectional. Given the reality that it would be improbable to reach all members of the respondent population, it was imperative for the study to use a sampling method to create a group of respondents that would make data collection a more feasibly effort. Consequently, purposive sampling, a non-probability sampling technique, was used for selecting respondents in the study. The technique is suitable when small samples are drawn from the target population in order to gather data for the purpose of identifying themes that emerge (Davies, 2007:57; Saunders, Lewis & Thornhill, 2007:230). Furthermore, this sampling technique was chosen as it had been utilised by previous researchers studying knowledge management (see Wong & Aspinwall, 2005:67; Eftekharzadeh, 2008:50). The use of the method helped to ensure that the questionnaire reached targeted knowledge-workers.

Through purposive sampling, the knowledge workers defined by Tobin and Magenuka (2007) as professional workers from such specialist fields as civil engineers, mechanical engineers, architects, surveyors, designers, technicians, electrical engineers and project managers were identified in the respective organisations and then replicated at each level for the various companies. Snowball sampling was also used when a respondent identified other potential respondents who could be targeted. So in some instances, management contacts in the various companies were used as key informants to identify potential candidates who could become study respondents. The instrument to be utilised for the study was shared with some management experts, whose comments were taken into consideration before the instrument was finalised and a pilot study conducted. Lessons from the pilot study especially related to getting the respondents at the right time, as well as condensing the questionnaire to fewer pages were useful in the context of the real data collection process. The research instrument for measuring RTK was adapted from an instrument originally developed and tested by Darroch (2003; 2005). The responsiveness to knowledge scale (RTK) comprised four sections based on the knowledge responsiveness factors (KRF1 to KRF4). Each factor and its component questions were meant to test the organisations' capacity on responsiveness to knowledge in particular business areas. These areas gauge how an organisation:

- responds to competitors
- responds to customers
- responds to technology
- is flexible & opportunistic

The responsiveness to knowledge scale was a 13-item 5-point Likert-type instrument. The organisational performance scale was also based upon 5-point Likert questions. Both scales were tested for reliability and validity. The Cronbach's alpha which is a commonly used to test for internal reliability and indicates the extent to which items/elements within a scale are correlated or homogenous (Wong & Aspinwall, 2005) was determined. Table 1summarises the reliability analysis for each scale. The results show that both scales have Cronbach's alpha in excess of 0.9, which is higher than the acceptable standard coefficient of 0.7, and this indicates that the questions combined in the scale are measuring the same thing.

Table 1: Outcome of reliability analysis

Cronbach's coefficient alpha Scales	No. of items	Raw alpha value	Standardised alpha value
Responsiveness to knowledge (RTK)	13	0.915519	0.905934
Organisational performance	7	0.950784	0.951231

Out of the 500 questionnaires distributed to the listed construction companies, 191 completed questionnaires were returned, yielding a return rate of 38,2%. Of these, 130 questionnaires were used representing 26% of the intended respondent population.

Discussion of findings: To ensure anonymity and confidentiality, the names of the participating organisations are not shown but are represented by letters ranging from A to J which are nominal labels. The universe of Johannesburg Stock Exchange-listed (JSE-listed) construction companies was the population of interest and this comprised ten organisations. The score-range on the RTK scale was between 13 and 65. The scores obtained from respondents in each organisation for the RTK scale were aggregated (on a question-to-question basis) and related averages were determined and assigned as the company's RTK score for the specific question. These RTK scores per question as well as the total RTK scores for the ten surveyed construction companies are presented in Table2.

Results presented in Table 2 show that, across the board, the companies studied, obtained low scores as it relates to actions concomitant with responsiveness to knowledge. In particular, low scores were collateral with actions that showed that the companies were not:

- responding to concerns raised by employees (RTK 4)
- quickly sharing information on competitor activity (RTK 5).
- being flexible and opportunistic by not often changing procedures of doing things (RTK 8)
- responding quickly to technological changes that have customer service implications (RTK 13)

Conversely, high scores obtained on the scale served an indication that companies were performing well as it pertains to:

- responding quickly to customers that were dissatisfied with product or service quality (RTK 1)
- speedily responding to customer complaints (RTK 3).
- frequently changing marketing strategies (RTK 10)
- staying abreast with technological advances that could affect the business (RTK 11)

Table 2: RTK scores of surveyed companies

RESPONSIVENESS TO KNOWLEDGE	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**Average item-score**
RTK 1	3.8	3.8	2.5	3.7	3.7	3.8	3.7	4.3	4.2	4.5	**3.8**
RTK 2	2.3	1.8	1.2	2.3	2.1	3.5	3.9	4.2	4.3	4.2	**3.0**
RTK 3	3.4	3.5	2.5	3.6	3.7	3.7	3.6	3.9	4.1	4.4	**3.6**
RTK 4	1.6	1.0	1.2	2.1	1.8	3.2	3.6	4.0	4.0	4.3	**2.7**
RTK 5	1.8	1.9	1.5	2.0	2.2	2.9	3.2	3.5	4.0	3.9	**2.7**
RTK 6	2.0	1.2	1.3	2.3	2.0	3.5	3.6	3.8	4.2	4.4	**2.8**
RTK 7	2.6	1.3	1.3	3.1	2.1	3.0	3.3	3.7	4.2	4.3	**2.9**
RTK 8	2.2	1.9	1.8	3.0	2.3	2.9	2.9	2.5	2.9	3.8	**2.6**
RTK 9	3.0	3.0	2.5	3.5	3.4	3.2	3.6	3.7	3.6	4.1	**3.4**
RTK 10	3.2	3.9	3.4	3.9	3.8	3.4	3.4	3.6	3.7	4.3	**3.7**
RTK 11	1.9	2.9	3.4	3.4	3.6	3.9	3.8	4.2	4.1	4.6	**3.6**
RTK 12	1.7	1.6	1.6	1.6	2.1	3.3	3.2	3.9	4.2	4.4	**2.8**
RTK 13	1.7	1.7	1.4	1.2	1.9	3.5	3.4	4.0	4.2	4.3	**2.7**
Total Company Score	**31.2**	**29.5**	**25.6**	**35.7**	**34.7**	**43.8**	**45.2**	**49.3**	**51.7**	**55.5**	

Based upon overall scores obtained on the RTK scale, companies were categorised as having a low, medium or high responsiveness to knowledge. Companies with overall scores between 30 and 48 were in the medium category. Companies which scored higher than 48 or lower than 30 were placed in the high RTK and low RTK categories, respectively. As shown in Table 3, this meant that companies C (25.6) and B(29.5) were in the low RTK group while companies A(31.2), D(35.7), E(34.7), F(43.8) and G(45.2) belonged in the medium RTK range. Companies J(55.5), I(51.7), H(49.3) belonged in the high RTK group.

Table 3: Categorisation according to RTK performance

	High	**Medium**	**Low**
Responsiveness to knowledge ability	H; I; J	A; D; E; F; G;	B; C

The organisational performance scale was such that the scores ranged from seven on the minimum side to thirty-five on the maximum side. A summary of the findings on the organisational performance (OP) scale for the ten surveyed construction companies is presented in Table 4.The table shows that companies performed differently. 4 of the 10 companies had OP scores that were less than 20 out of possible 35-points. The same number of companies (4) also had OP scores above 20 bu below 30. 2 of the 10 surveyed companies had OP scores above 30.

Table 4: Summary findings on organisational performance

ORGANISATIONAL PERFORMANCE (Scores on the OP scale)	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**Average item-score**
OP1	1.6	1.3	1.9	3.0	2.5	3.6	4.0	4.2	4.4	4.5	**3.1**
OP2	1.6	1.8	2.8	2.7	2.6	3.6	4.3	4.4	4.4	4.4	**3.3**
OP3	2.0	1.5	2.0	4.3	2.6	4.3	4.1	4.5	4.5	4.2	**3.4**
OP4	3.6	1.6	1.7	4.1	3.1	4.2	4.4	4.4	4.3	4.6	**3.6**
OP5	3.2	1.8	1.6	3.3	3.1	4.1	4.5	4.3	4.5	4.5	**3.5**
OP6	2.3	1.8	1.8	2.9	3.0	4.1	4.2	3.8	4.0	4.7	**3.3**
OP7	2.3	1.3	1.7	2.8	2.8	3.7	4.4	4.1	4.4	4.5	**3.2**
Total Company Score	**16.6**	**11.1**	**13.5**	**23.1**	**19.7**	**27.6**	**29.9**	**29.7**	**30.5**	**31.4**	

Categorical scales of low, medium and high organisational performance were created. Companies that scored less than 16, between 16 and 25, and above 25 were placed in the low, medium and high organisational performance bands (see Table 5). On the overall organisational performance (OP) scale, companies B and C were perceived by their employees that responded to the study to be of low organisational performance as reflected in the low performance scores obtained on the scale. Conversely, scores obtained on the scale by companies F, G, H, I and J, placed them in the high performance category. In the range of medium performers were companies A, D and E.

Table 5: Categorisation of perceived organisational performance

	High	**Medium**	**Low**
Organisational performance	F; G; H; I; J	A; D; E;	B; C

The cross tabulation of a company's responsiveness to knowledge against organisational performance, as shown in Table 6, indicates that those companies that returned low scores in the RTK scale also obtained low scores when it came to the issue of organisational performance. These were companies B and C. The scores of companies A, D and E on the RTK scale placed them in the medium category and this was consistent with the medium category placement when the organisational performance scale was considered. At the upper end, the table shows that companies H, I and J that obtained high RTK scores also fell within the category of high performers in the OP category.

Table 6: Cross-tabulation of RTK and OP categories

		Organisational performance		
		Low	**Medium**	**High**
	Low	B; C		
Responsiveness to knowledge	Medium		A, D; E	F; G;
	High			H; I; J

The synchrony of company positions in categories across both scales was however violated by two of the ten companies and these were F and G. While both companies were found in the medium RTK category, employees perceived that they were of a high organisational performance. It is instructive to highlight the fact that both companies scores were however, at the high end of the medium RTK category, implying that they were almost tending to high performers in terms of RTK. This could explain why they transited into the high category of organisational performance.

5. Conclusion and Recommendations

An examination of the cross-tabulation suggests some kind of positive association between responsiveness to knowledge (RTK) and organisational performance (OP), particularly at the two extreme ends of performance. Essentially, a high rating for responsiveness to knowledge appears to be linked to high organisational performance; and a low score in responsiveness to knowledge is associated with poor organisational performance. This is true for companies H, I, and J that are in the high bracket for both responsiveness to knowledge and organisational performance. The same is applicable to companies B and C, whose poor organisational performance is related to poor performance on responsiveness to knowledge. Darroch (2003) posits that the main activity of responsiveness to knowledge is the use and development of an organisation's knowledge resources in order to meet organisational goals. The study established that JSE-listed construction companies are not being flexible and opportunistic due to reluctance to change work procedures and this is characteristic of rigid organisational structures that are the norm in the construction industry. The responsiveness to knowledge structure of an organisation is supposed to be multi-dimensional, while allowing for sufficient flexibility and possible adaptation to the ever changing environmental scenarios. Further, in a bid to foster better knowledge management, organisational structures need to encourage rather than inhibit interactions among employees, which according to Gold et al (2001:188) is critical for responsiveness to knowledge. Unfortunately it would seem that this is a position that generally holds scant appeal to the JSE-listed construction companies.

There is no gainsaying the fact that the studied construction companies need to find ways to enhance the systemic aspects of their projects in a bid to improve the responsiveness to knowledge processes in their organisations. Possible areas that deserve consideration include knowledge mapping, the introduction of knowledge teams, cross-functional working, business process refinement and investment in collaborative initiatives. It is pertinent to highlight that in the light of the findings of this study, there seems to be a need for an empirical investigation of relationships between disaggregated knowledge management components and organisational performance in order to draw the attention of managers to particular knowledge management components that deserve priority attention.

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African Stock Markets and Return Predictability

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Abstract: This article re-examines the return predictability of eight African stock markets. When returns of stocks are predictable, arbitrageurs make abnormal gains from analyzing prices. The study uses a non-parametric Generalised Spectral (GS) test in a rolling window approach. The rolling window approach tracts the periods of efficiency over time. The GS test is robust to conditional heteroscedasticity and it detects the presence of linear and nonlinear dependencies in a stationary time series. Our results support the Adaptive Market Hypothesis (AMH). This is because, indices whose returns were observed to be predictable by analyzing them in absolute form and therefore weak - form inefficient showed trends of unpredictability in a rolling window.

Keywords: *Generalised Spectral Test, Martingale, Relative efficiency, rolling window, African stock markets*

1. Introduction and Literature Review

The Efficient Market Hypothesis (EMH) postulated by Fama (1970) states that available information on a particular market is reflected in setting current security prices. This means that it is difficult to make abnormal profits by studying information on the market. The EMH was classified into three by Fama (1970) as weak-form efficiency, semi-strong form efficiency and strong form efficiency. Analysis of studies on stock return predictability on the African continent has mainly relied on using the whole sample of a particular index which seeks to find absolute efficiency. In finding absolute efficiency, the conclusion of a particular market is either weak - form efficient or weak - form inefficient when the analysis is done using past price information. This has resulted in mixed conclusions about the weak-form Efficient Market Hypothesis (EMH) on African stock markets. Studies on the weak-form type of the EMH on African stock markets that have been reported in the literature are that of Jammine & Hawkins (1974), Affleck-Graves & Money (1975), Dickinson & Muragu(1994), Osei(1998), Olowe(1999), Bundoo(2000), Magnusson & Wydick (2002), Smith et al. (2002), Appiah-Kusi & Menyah (2003), Simons & Laryea (2005), Jefferis & Smith (2005), Smith (2008), Mollah & Vitali (2011), Ntim et al. (2011b) and Gyamfi et al. (2016a, 2016b). These studies have ended with mixed conclusions. The mixed conclusions on the markets which are as a result of the absolute efficiency approach employed in the analysis are problematic because it makes the markets risky. But according to Cajueiro and Tabak (2004), stock markets are believed to become efficient with time because of the improvements in the quality of information processing and reforms on the markets, Hall and Urga (2002). Therefore drawing conclusions over a whole sample does not take into account time frames for lower or higher efficiency, Afego (2015). This work employs the relative efficiency reasoning which is consistent with the Adaptive Markets Hypothesis (AMH) of Lo (2004, 2005).

The AMH states that market efficiency is not an all-or-none condition but a feature that varies continuously with time. In the literature, relative market efficiency is achieved using a rolling window or time-varying approach. For example, Cajueiro and Tabak (2004) estimated Hurst exponents in each window to test for long-term linear dependence and use the median as a statistical measure when ranking the markets. Lim (2007) and Lim and Brooks (2010) used the rolling bicorrelation test statistic that focuses on nonlinear dependence, arguing that a more appropriate indicator for relative efficiency would be the percentage of time windows in which the market exhibited significant nonlinear dependence. On the African continent, studies on relative efficiency of stock markets have been few with only that of Jefferis & Smith (2005) and Smith & Dyakova (2014). This article therefore contributes to the extant literature on relative efficiency of African stock markets. We extend the work of Smith and Dyakova (2014) by analyzing returns of indices from eight African stock markets using the Generalised spectral test of Escanciano and Velasco (2006). The Generalised spectral test (GST) is a non-parametric test which does not depend on distributional assumptions. It is able to detect a wide range of linear and non-linear dependencies in conditional mean, hence having more power

than other competing tests such as the automatic portmanteau Box-Pierce test and the wild-bootstrapped automatic variance ratio test (Charles et al., 2010).

Our work analyzes past prices hence we will be finding out if the markets under study are weak-form efficient or not. This is achieved if our results from using the non-parametric GST show whether a market is predictable or not. In using the GST method, a p-value is obtained. If the p-value is less than 0.05, the market is predictable and hence weak-form inefficient else the market is weak-form efficient. If a market is predictable, arbitrageurs can study past prices and predict the future prices on the market. Therefore, the importance of this study is to find out if there were periods where the markets were efficient. The rolling window approach will let us tract the efficiency of the markets through time. The study will add on to the extant literature on market efficiency of African stock markets and also get investors well informed on the dynamics of African stock markets. The rest of the article is as follows: Section 2 describes the data; the source and the indices representing each of the eight countries. Section 3 briefly describes the Generalised spectral test of Escanciano and Velasco (2006). Section 4 presents summary statistics of the data as well as the empirical results. Section 5 discusses the results and we conclude the article in section six.

2. Data & Methodology

Eight indices were selected from DataStream representing eight countries which were denominated in their respective local currency units for the sample period from 28/8/2000 to 28/8/2015. Table 1 is from Gyamfi, et al. (2016b).

Table 1: Countries and their corresponding stock index

Country	Representative Index
Botswana	S&P Botswana BMI
Egypt	EGX 30
Kenya	NSE 20
Mauritius	SE Semdex
Morocco	Morocco All Share (MASI)
Nigeria	Nigeria All Share
South Africa	FTSE/JSE All Share
Tunisia	Tunindex

Closing prices from these indices were transformed into returns which were calculated by
$Y_t = \ln(P_t/P_{t-1})$ Where P_t and P_{t-1} are the daily closing prices of the index on two consecutive trading days.

The Generalised Spectral Test: The Generalised spectral (GS) test of Escanciano and Velasco (2006) is a non-parametric test designed to detect the presence of linear and nonlinear dependencies in a stationary time series. The GS test considers dependence at all lags; it is robust to conditional heteroscedasticity and it is consistent against a class of uncorrelated non-martingale sequences. Monte-Carlo tests done by researchers such as Charles et al. (2010) to study comparison between small sample properties of other tests for martingale difference hypothesis (MDH) conclude that the GS test has better power under nonlinear dependence and have more empirical power than other tests. The GS test proceeds as followed in Todea and Lazar (2012):

Let $\{Y_t\}_{t=1}^{n}$ be a stationary return time series. The null hypothesis of a martingale difference sequence of the return series is tested against the alternative hypothesis using a pairwise approach.

Thus: $H_0: m_j(y) = 0; j \geq 1$ almost surely where $m_j(y) = E[Y_t - \mu | Y_t - j = y]$ and μ is the mean against $H_1: P\left(m_j\left(Y_{t-j}\right)\right) \neq 0 > 0$ for some $j \geq 1$.

Let $\gamma_j(x) = E\left[(Y_t - \mu)e^{ixT_{t-j}}\right]$ be a nonlinear measure of dependence where $x \in \mathbb{R}$.

The exponential weighting function is used to measure the conditional mean dependence in a nonlinear time series. The null hypothesis above is therefore consistent with $\gamma_j(x) = o$ for all j ≥ 1 almost everywhere.

Escanciano and Velasco (2006) used the generalised spectral distribution function:

$$H(\lambda, x) = \gamma_0(x)\lambda + 2\sum_{j=1}^{\infty}\gamma_j(x)[\sin(j\pi\lambda)/j\pi] \qquad (1)$$

Where $\lambda \in [0,1]$. The sample estimate of H becomes

$$\hat{H}(\lambda, x) = \gamma_0(x)\lambda + 2\sum_{j=1}^{\infty}(1-j/n)^{1/2}\hat{\gamma}_j(x)\frac{\sin(j\pi\lambda)}{j\pi} \qquad (2)$$

Where $(1-j/n)^{1/2}$

is a Sample finite correction factor, $\hat{\gamma}_j(x) = (n-j)^{-1}\sum_{t=1+j}^{n}(Y_t - Y^{-}{}_{n-j})e^{ixY_{t-j}}$

And $(n-j)^{-1}\sum_{t=1+j}^{n}Y_t$. The generalised spectral distribution function under the null of martigale difference hypothesis (MDH) therefore becomes $H(\lambda, x) = \gamma_0(x)\lambda$. The test is based on the difference between $\hat{H}(\lambda, x)$ and $\hat{H}_0(\lambda, x) = \gamma_0(x)\lambda$ as following:

$$S_n(\lambda, x) = \left(\frac{n}{2}\right)^{1/2}[\hat{H}(\lambda, x) - \hat{H}_0(\lambda, x)] = \sum_{j=1}^{\infty}(1-j/n)^{1/2}\hat{\gamma}_j(x)\frac{\sqrt{2}\sin(j\pi\lambda)}{j\pi} \qquad (3)$$

We use the Cramer-von Mises norm in equation (4) below to evaluate the distance of $S_n(\lambda, x)$ to zero for all possible values of λ and x

$$D_n^2 = \int_R\int_0^1 |S_n(\lambda, x)|^2 W(dx)d\lambda = \sum_{j=1}^{n-1}(n-j)\frac{1}{(j\pi)^2}\int_R |\hat{\gamma}(x)|^2 W(dx) \qquad (4)$$

Where the weighing function W (.) satisfies some mild conditions. If the standard normal cumulative distribution functions is settled as weighting function, the following statistics results:

$$D_n^2 = \sum_{j=1}^{n-1}\frac{(n-j)}{(j\pi)^2}\sum_{t=j+1}^{n}\sum_{s=j+1}^{n}(Y_t - Y_{n-j}{}^{-})(Y_s - Y_{n-j}^{-})\exp[-0.5(Y_{t-j} - Y_{s-j})^2] \qquad (5)$$

The null hypothesis of martingale difference hypothesis is rejected when values of D_n^2 are large. Because the asymptotic distribution of the test depends on the data generating process in a complicated way, the authors propose implementing the test using the wild bootstrap procedure. The validity of the bootstrap procedure was proved, allowing approximating the critical values. The p-values for the test statistic D_n^2 are obtained by the following steps as outlined in Escanciano and Velasco (2006).

- Compute the statistics D_n^2 for the stationary return time series, $\{Y_t\}_{t=1}^n$
- Simulate a sequence $\{w_t\}_{t=1}^n$ of independent random variables with zero mean, unit variance and bounded support independent of the observed sequence
- Compute $\hat{\gamma}_0^*(x) = (n-j)^{-1}\sum_{t=1+j}^{n}(Y_t - Y_{n-j}^{-}\hat{\Phi}_{t-j}(x)w_t$ then S_n^* and D_n^*2 where $\hat{\Phi}_{t-j}(x) = e^{ixY_{t-j}} - (n-j)\sum_{t=j+1}^{n}e^{ixY_{t-j}}$
- Repeat step 2 and 3 many times to obtain a bootstrap distribution of the test statistics.

The p—value of the test statistics is thus estimated as the proportion of D_n^*2 greater than D_n^2

A p-value is first computed for the first 500 observations, the first observation is then dropped and the sample rolled one point forward to re-estimate the next p-value. In this study, a window length of 500 observations lead to 3416 rolling windows for each of the return series. Also, a statistical indicator of relative efficiency proposed by Lim (2007) which determines the percentage of time windows for which a p-value is less than 0.05 is used.

3. Empirical Results

We first begin with preliminary analysis to determine the time series properties of the return of the indices under study. We then apply the Generalised spectral test to compute the p-values on the full sample. We divide the sample into two and compute p-values for the period from 2000 to 2007 and from 2008 to 2015 before we finally compute the p-value for each rolling window in order to observe the time variation in predictability for the indices.

Preliminary Analysis: Table 2 provides the descriptive statistics of the return series for the eight indices. It is observed that the return series are non - Gaussian. The kurtosis coefficients are large and mostly skewed negatively. The Jarque - Bera test statistic null hypothesis is rejected at the 1% level of significance. The Augmented Dickey - Fuller test shows that the return series are stationary. Table 3 reports the p-values for the generalised spectral test for the full sample and the two sub-samples.

Table 2: Descriptive Statistics for returns

Market	Number of observations	Mean	Std. Deviation	Skewness	Kurtosis	Jarque-Bera	ADF
Botswana	3915	0.0006	0.0078	5.8172	124.9661	2572200	-14.823
Egypt	3915	0.0006	0.0169	-0.4309	10.1907	17084	-14.491
Kenya	3915	0.0002	0.0093	0.3047	31.6902	164070	-13.932
Mauritius	3915	0.0004	0.0067	0.2802	22.7257	84396	-13.543
Morocco	3915	0.0003	0.0077	-0.4954	7.1333	7712	-14.117
Nigeria	3915	0.0003	0.0133	-0.6872	368.4107	22164000	-14.862
South Africa	3915	0.0005	0.0121	-0.1164	3.6536	2190.4	-15.743
Tunisia	3915	0.0003	0.0053	-0.4453	11.2584	20833	-14.500

Table 3: The p-values for Generalised Spectral test

Market	Full sample	2000-2007	2008-2015
Botswana	0.3167	0.3800	0.0433
Egypt	0.0000	0.0000	0.0000
Kenya	0.0000	0.0067	0.0300
Mauritius	0.0000	0.0000	0.0300
Morocco	0.0000	0.0000	0.1000
Nigeria	0.9100	0.3133	0.0000
South Africa	0.5100	0.3933	0.4533
Tunisia	0.0000	0.0033	0.0200

Plots of P-values using Rolling Window approach

Fig1 : Plot of p-values for Botswana and Egypt

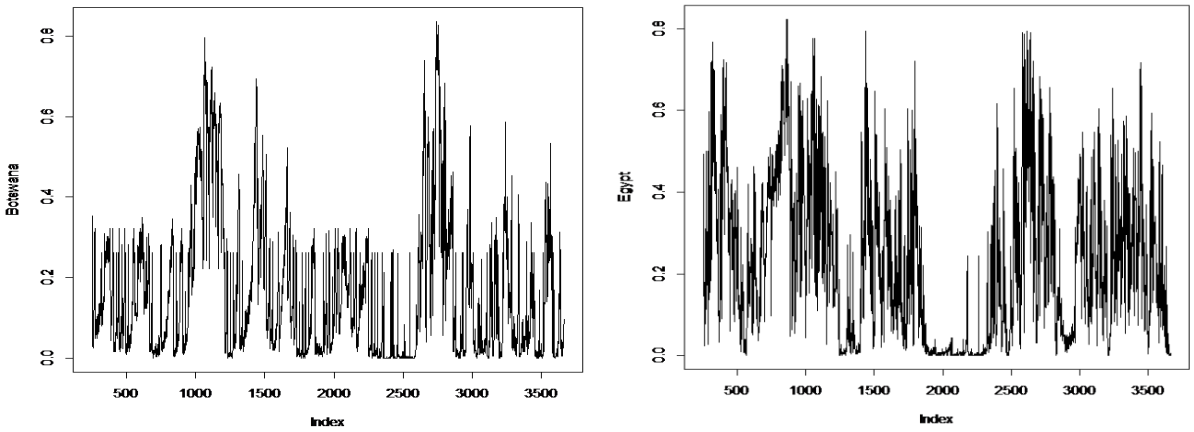

Fig 2: Plot of p-values for Kenya and Mauritius

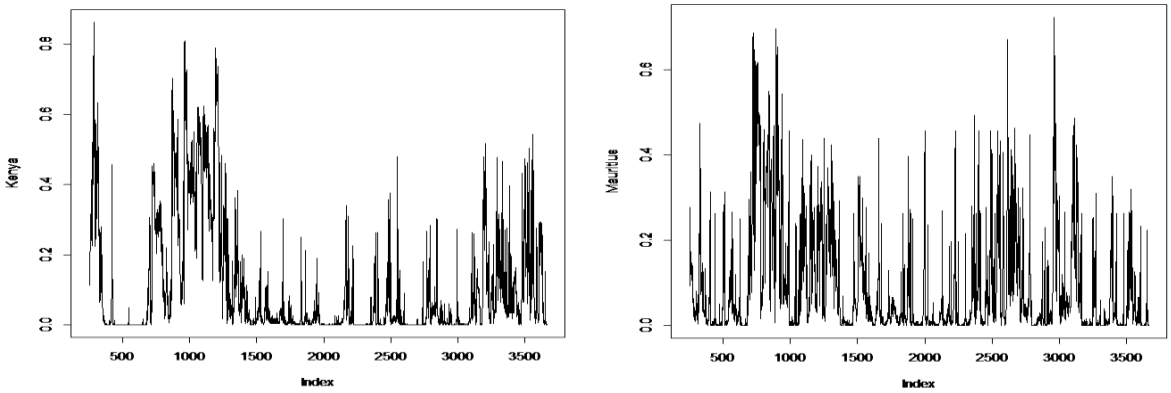

Fig 3: Plot of p-values for Morocco and Nigeria

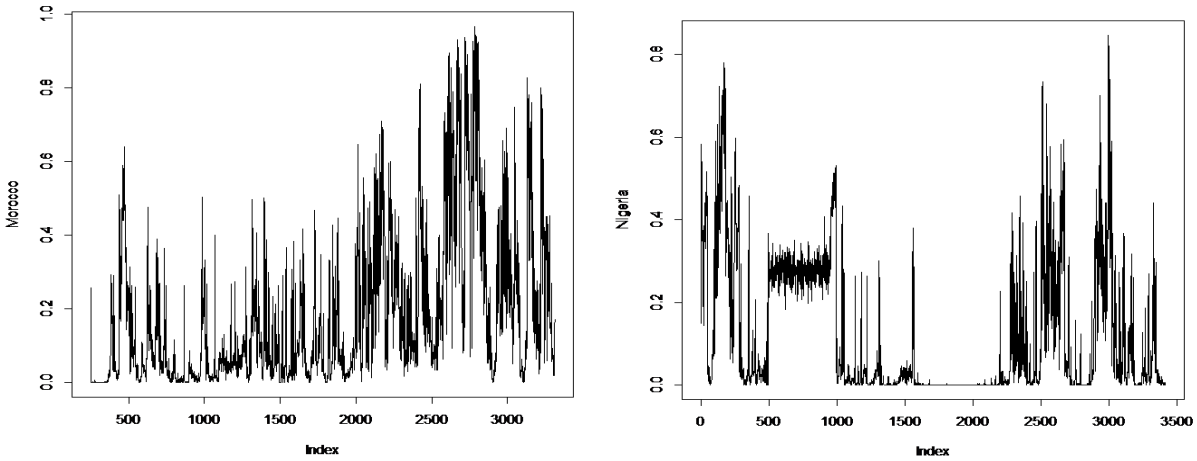

Fig4: Plot of p-values for South Africa and Tunisia

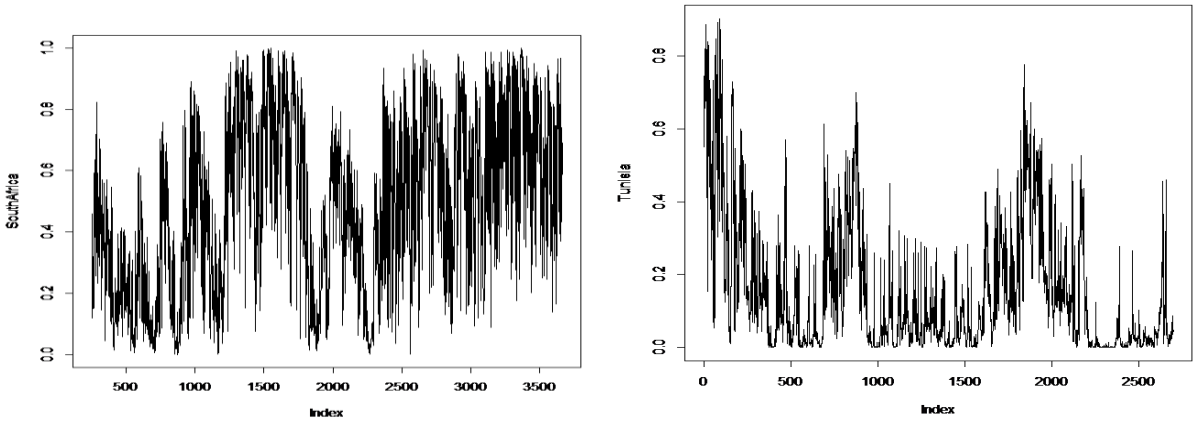

Table 4: Percentage of p-values < 0.05

Market	Full sample	2000-2007	2008-2015	
Botswana	36.27	18.61	53.92	
Egypt	24.18	9.19	39.16	1.
Kenya	61.21	38.70	83.72	2.
Mauritius	59.66	38.70	80.62	3.
Morocco	32.99	51.63	14.36	4.
Nigeria	58.25	36.59	79.91	5.
South Africa	3.48	4.80	2.17	6.
Tunisia	40.32	39.91	40.73	7.
				8.

Discussion: We discuss the results of this work with respect to each of the countries under study. The plots of the p - values from the rolling window approach in Figures 1 - 4 are numerically discussed.

Botswana: It is observed in Table 3 which contains the p - values using the Generalised Spectral Test (GST) in absolute form that the full sample and the sample for the period between 2000 and 2007 are not predictable. (i.e. 0.3167 > 0.05). The sample becomes predictable for the period between 2008 and 2015 (0.0433 < 0.05). The rolling window results in Table 4 establish that about 36.27% of the windows for the full sample had a p - value less than 0.05. This number decreases to 18.61% for the sample between 2000 and 2007 but increases to 53.92% for the sample between 2008 and 2015. The results show that, the stock market in Botswana was highly predictable between 2008 to 2015. This observation shows a contradiction of the position by Cajueiro and Tabak (2004b) on stock market efficiency. They posit that markets become efficient with time but our results for Botswana show otherwise. This means arbitrageurs can make abnormal returns on this market by studying past price information.

Egypt: The p - values as reported in Table 3 shows that the index is predictable. The full sample and the two subs - samples have a p - value of 0.0000 which is less than 0.05. This makes the index weak - form inefficient, a conclusion which contradicts that of Appiah - Kusi and Menyah (2003) but conforms to the results of Simons and Laryea (2005). The results for the rolling windows show only 24.18%, 9.19% and 39.16% of the windows for the full sample and the sub - samples are predictable. Therefore, it will be statistically incorrect to label the whole sample as rejecting the null hypothesis of return predictability as reported in Table 3. This conforms to the work of Smith and Dyakova (2014) who concluded that the Egyptian market is least predictable in a rolling window.

Kenya: The index is predictable and hence weak - form inefficient as evidenced by results in Table 3. More than half of the windows for the full sample have a p -value less than 0.05 and it is more predictable for the period between 2008 and 2015 as 83.72% of the windows had a p - value less than 0.05. This predictability conclusion contradicts the results by Dickinson and Muragu (1994) that used serial correlations and the runs test to analyze the Kenyan market for the period between 1979 to 1989. However, the return predictability

conclusion is in conformity with the results of Jefferis and Smith (2005) and that of Smith and Dyakova (2014).

Mauritius: The index is predictable as reported in Table 3 with respect to the full sample and the two sub-samples. This conforms to the results in the literature on Mauritius by Bundoo (2000) and Simons & Laryea (2005). The full sample has almost 60% of the windows being predictable. This number goes up to 80.62%of the windows being predictable for the sub - sample between 2008 and 2015 contradicting the assertion that markets and for that matter indices become efficient with time.

Morocco: The full sample has a p - value of 0.00 in Table 3 hence predictable but the index is not predictable for the period between 2008 and 2015. About 15% of the windows for the sample between 2008 and 2015 are predictable. This means the index is becoming efficient with time as the number of windows that are predictable reduces from 51.63% for the 2000 to 2007 period to about 15% for the period between 2008 and 2015.

Nigeria: The p - value from Table 3 shows the index is not predictable for the full sample and the period between 2000 and 2007 but becomes predictable for the period between 2008 and 2015. This shows the index is not becoming efficient with time. In absolute form, the index would have been concluded as weak - form efficient. This conclusion will thus conform to Olowe (1999) and Jefferis and Smith (2005) but contradicts that of Magnusson& Wydick (2002), Smith et al. (2002), Smith (2008) and Mollah & Vitalli (2011). Results from the rolling window in Table 4 shows that almost 60% of the windows are predictable for the full sample and about 80% windows predictable for the period between 2008 and 2015. These results show that Nigerian market is becoming predictable with time which contradicts Cajueiro and Tabak (2004b) but conforms to the results obtained by Smith and Dyakova (2014).

South Africa: The most weak - form efficient index of all the indices under study based on results from Table 3. It is not predictable as the p - values for the full sample and that of the sub - samples are greater than 0.05. This result is in conformity with the results obtained by Affleck-Graves & Money (1975), Magnusson & Wydick (2002), Smith et al. (2002), Simons & Laryea (2005), Jefferis & Smith (2005), McMillan & Thupayagale (2008) and Mollah & Vitalli (2011) but not in conformity with the results of Jammie & Hawkins (1974) and that of Smith (2008). The results from the rolling window approach in Table 4 shows that less than 4% of the windows had a p - value less than 0.05 in the full sample and the sub - samples. This makes the South African market the least predictable, a conclusion that resonates with that of Smith & Dyakova (2014).

Tunisia: Results in Table 3 concludes that the index is predictable but the rolling window results show that less than 50% of the windows of the full sample and the sub - samples have a p - value less than 0.05. We cannot therefore conclude the Tunindex is predictable as there are about 60% of periods of unpredictability. The index is thus least predictable as concluded in Smith and Dyakova (2014).

4. Conclusion and Recommendations

This study re-examined and extended the work of Smith and Dyakova (2014) by analyzing the return predictability of eight African stock markets. We analyzed the data using the non-parametric Generalised Spectral Test of Escanciano and Velasco (2006) in a rolling window approach. Our results favour the Adaptive Market Hypothesis (AMH) of Lo (2004, 2005). This is because each of the return series showed trends in the time variation of return predictability. For example, Egypt, one of the oldest markets in Africa was found to be highly predictable and therefore weak-form inefficient when the analysis was done in absolute form. The p-values were 0.0000 for the full sample and the two subs – samples. This observation violates the assertion that markets become efficient with time as posited by Cajueiro and Tabak (2004b). However, in the rolling window approach, results for Egypt showed that it was not highly predictable as observed earlier using the full sample because it had one of the lowest percentages of the windows that had a p-value less than 0.05 after South Africa. It is thus recommended from our results that researchers must be cautious in concluding whether a market is predictable and hence weak- form inefficient. This is because investors aim to make profit and hence look out for some of this information before investing in a particular market. Therefore, the

rolling window approach must be employed in analyzing the data to tract periods of predictability so that concrete decisions on weak-form efficiency or otherwise can be made.

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Modeling South African Accounting Academic Staff Teaching Rationalism Factors for the Preservation of Indigenous Knowledge

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Abstract: South African universities are under pressure to maximize the amount of accounting students, with specific reference to expand the number of qualified black African accountants, especially the Chartered Global Management Accountants (CGMA). Accountants are at the center of countries' economy and act as lecturers in the academic institutions. Therefore, the issue of inadequate production of a new brand black qualified accountants may have something to do with accounting academic staff teaching rationalism, and this study seeks to address that subject. Literature has been used to investigate factors influencing accounting academic staff teaching rationalism and to propose a suitable model for accounting academic staff teaching rationalism factors for the preservation of South African indigenous knowledge. The proposed model forms the basis of the study results and is grounded on sound perception theories: bottom-up theory and top-down theory. The significance of a proposed model is subject to experiments by other scholars within the boundaries of the republic of South Africa or even outside.

Keywords: *Accounting theories, teaching accounting rationalism factors, history of accounting*

1. Introduction

South African universities' Act No. 84 of 1996, maintains that proper education is … necessary to transform the society for the better and to contest racialism, sexism and other forms of prejudiced judgement. In this regard, the Constitution of South Africa, Act No. 108 of 1996 spots out central values that has to be taken into account in the manner that universities should function (Unerman & O'Dwyer, 2010). This means that South Africa is in need of good academic staff that is willing to carryout great teaching and learning assignments for the better. Lubbe (2013: 110) this need is most evident in the accounting discipline since there are shortages of qualified accountants than expected. These include CGMA, Professional Accountants of South Africa (PASA), Chartered Accountants of South Africa (CASA), Association of Chartered Certified Accountants (ACCA) and many more. Even though these are professional bodies operating independently of the universities, but the fact is that universities are the first institutions to academically qualify individuals whom are willing to pursue any of these above mentioned professions. The shortage of qualified accountants in the country can therefore be a question of accounting academics in the universities. In support of this, preceding scholars (Lubbe, 2013: 110; Pouris, 2012: 30; ICAA, 2011; Unerman & O'Dwyer, 2010; Albrecht and Sack, 2000) have highlighted common factors that are crippling the process of teaching and learning in accounting such as the notion that new accounting knowledge is not created in the university, but rather in businesses or professional bodies; it is hard to accurately describe the occupational work of accountants in the corporate world; accounting communities believe that several real matters of accounting do not require new knowledge; accountants perceive themselves as meek, impersonal, boring, unattractive, independent, conservative, meticulous and unimaginative.

As a result, the study by Pouris (2012: 30) found that accounting academics, most of whom have accounting degrees, indicated to not major with accounting if pursuing their education over again. The author also found that academic accountants are influenced by the long term earnings, job market conditions than a genuine interest in teaching and learning. This study will however not focus on the learning aspect but on accounting academic teaching rationalism. This is because literature that seeks to explore accounting academic teaching rationalism have not been explored yet there is evidence of poor quality of accounting graduates being produced by the universities. Due to limited resources, this study seeks to fill this gap by modeling a theoretical framework for accounting academic staff teaching rationalism factors for the preservation of indigenous knowledge, with specific reference South Africa. According to Ngcobo & Eyono Obono (2013: 223), indigenous knowledge speaks of interpretations, theories, regulations, norms, and language, which are instinctive to a local community, and are entrenched in the minds of local accounting users. Preservation of

indigenous knowledge in accounting carries a lot of benefits such as to recover understanding of basic lost concepts; increase awareness to users and practitioners; building on local experiences, and retain sense of ownership.

Aim and objectives: The aim of this study is to design a South African accounting academic staff teaching rationalism factors model for the preservation of indigenous knowledge. The two main objectives of this research are to investigate the factors influencing accounting academic staff teaching rationalism and to develop a South African model for accounting academic staff teaching rationalism factors. The proposed model will be only applicable to the South African universities.

Theoretical framework: Accounting academic staff teaching rationalism is influenced by the perception that they have about accounting as a career. In a process of acquiring and processing of information, literature reveals two available theories of explanations of perception according to the direction of information flow. The first one is bottom–up direct perception theories which represent processes that begin at the deepest sensory levels and then they slowly lead to more intricate and complex processes. The second theories are top-down indirect perception theories. Top-down theories favor direct perception without involvement of knowledge and previous experience … perception is likely only by means of computation of rational picture of a given reality. Top-down theories include constructivist theories, Gregory's theory, computational theories such as Marr's model of perception, and Synthesizing theories such as Neisser's analysis–by–synthesis model (Demath, 2013: 23-33). In constructivist theories, perception serves as the end point and cornerstone of the interface between motivation and internal assumptions. Perception is thus prejudiced by extensive array of separable factors that can lead to an inadequate elucidation (Eysenck & Keane, 2008: 74). In order to achieve a primary objective of the study, the researcher used both the Gibson's theory of direct perception and Gregory's theory. This is because Gibson's theory believes that rational apparatus of accounting academic staff is created and formed by long evolutionary impacts of external environment which is misleading in its approach. Gregory's theory on the other hand believes that the perception of accounting academic staff is based on their previous experiences, which makes it possible for them to be thinking about the future while still thinking about the past (Gregory, 1990: 219). The combination of these two theories helped to consider both the internal and external issues when modeling the South African accounting academic staff teaching rationalism factors for the preservation of indigenous knowledge.

2. Literature Review

Accounting definition: For the purpose of this study, it is important that we start by defining the term 'accounting'. This study will use existing accounting definitions on the basis of acceptance by the accounting scholars. It is not the intention of this study to critique any of these definitions but the study seeks to model accounting academic staff teaching rationalism factors. The American Institute of Certified Public Accountants (AICPA) defines accounting as "the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are in part at least, of a financial character, and interpreting the results thereof" (Belkaoui, 1992: 22). Lodewyckx, Lotter, Rhodes & Seedat (2013: 2) define accounting as a systematic way of recoding and explaining a situation which involves money. Accounting can also be regarded as a language used by accountants to communicate amongst them including any other interested parties called 'users'. However, accounting language is used depending on which country the information is shared. This is because other countries would require that the accounting information is shared using their respective general accepted accounting practice (GAAP), whereas others would require that it is shared in international GAAP called 'International Financial Reporting Standards (IFRS) (Service, 2016: 4).

Historical development of accounting

International development: Accounting development played a big in the world economy including numbers and money and it has come up with a double entry bookkeeping system that can be traced back in the Italian history (Anderson-Gough, Grey & Robinson, 1998). Furthermore, historians are of the opinion that the first accounting institution was established in 1581 in Boudqua city, and that the second profound historical development of accounting (double entries, trading and evolutions) were discovered in 1495 to 1800. The first discovery record of a broad double-entry system remains the Italian Messari accounts of the Republic of

Genoa in 1340 (Schroeder, Clark & Cathey, 2001). As the result, many businesses like the investors and merchants of Florence, Genoa, Venice and Lubeck they started using the double-entry bookkeeping system widely. Another earliest profound evidence of full double-entry bookkeeping is the Farolfi ledger of 1801-1955. Literature reveals that the double entry system was pioneered and remains to be the work of an Italian Monk, and a Franciscan friar, in 1494, and was further developed by Luca Pacioli. Pacioli's first printed work was on algebra, titled: "Summa de Arithmatica, Geometrica, Proportioni et proportionality (i.e. everything about Mathematics, geometry, and proportions)". The double entry system seeks to balance the two sides of the accounting equation (Mike and Fred, 1983). The work contained a section on book keeping entitled "De computis or Scripturis (i.e.computations and records) which was separately published in 1504 and translated into many languages". Pacioli in his articles was not the originator of double entry but he seeks to describe what Italian Merchants were using for over 200 years (Paton & Littleton, 1940 as cited by Angus, 2014: 4).

Other historians of accounting history like Keistar (1965) & Chatfield (1977) divulge that Mesopotamia is the historical source of most ancient cities that had developed accounting, and is known as a home of number between 450 and 500 BC. In about 630 BC, Greece and Rome cities invented coinage to be used instead of exchanging goods for goods. China on the other hand, was concerned with the recording of merchant, temples, and estates (Angus, 2014: 3). The early Greeks and Rome accounts were kept on the basis of "charge" and "discharge" principle which is known as receipt and payment account today (James, 1955). Even though the notion of income and return on capital invested were missing under these principles, but the charge and discharge syndrome had been used for a long period of time, lasting from 12th to 19th centuries. Another memorable and profound work performed by Italian Monk-Luca Pacioli from England was that of linking the double entry bookkeeping system for merchants with the charge and discharge systems (James, 1955 as cited by Angus, 2014: 4). According to Oldroyd & Dobie (1917: 99), prior 1801 to 1955, before Queen Elizabeth II reigns, the British East India Company had no legal right to trade with countries in the east of the Cape of Good Hope. Most United Kingdom (UK) corporations were in essence reliant on the British navy's capacity to governor trade paths with its robust auditing and accounting. In the case of Colonial America prior to 1890s, the terms bookkeeping and accounting were not used consistently because their computation system was central to chronological transactions, and the accounting records were very basic for that matter (Mohamud & Hikmat, 2013: 98-99).

Accounting in South Africa: Following the South African mines discovery on the Witwatersrand in 1886 by the British society from England and Wales, the British established the first organized institute of chartered accountants which was officially launched in 1894 in Johannesburg with 65 foreign members (SAICA history, 2015). The institute was officially given name "South African Institute of Chartered Accountants" (SAICA). During which time, the society of SAICA and auditors in South Africa had many colonial and foreign members and has always been a leading profession in accountancy around the world (Lubbe, 2013: 110).

International accounting standards: Accounting standards are the composites of assumptions, doctrines, principles, rules, laws, and theories for practicing accounting. June 1973, marks as the historical development of the accounting standards by International Accounting Standards Committee (IASC) and it was afforded to be officially released in year 2000 when the International Accounting Standards (IASs) gained full recognition by various Stock Exchanges around the world (ICAEW, 2011). IASC had developed not more than 41 global accounting standards. In 2001, IASC was replaced by the International Accounting Standards Board (IASB). At that time, IASB announced a new number of series for the accounting standards. The International Accounting Standards is now known as International Financial Reporting Standards (IFRS) and there are 13 of them developed recently by IASB in exchange of 12 of the older standards (IAS's). This means that, as at 2016, there are 29 accounting older standards in operation plus 13 new standards, totaling to 42 IFRSs (Service, 2016: 7). Accounting standards is looked after by four accounting structures namely, the standing interpretations committee (SIC), exposure drafts (ED) and letter of intent (LOI), monitoring board, and IFRS advisory council. SIC provides authoritative guidance over interpretations of standards. ED and LOI allow accounting communities all over the world to first conduct their respective studies on how accounting is being used and ultimately come up with collective findings on how accounting should be improved (Mootze, 1970: 155). Monitoring board's objectives and responsibilities as defined in its cheater is to ensure that the trustees perform their duties of the IFRS foundation as prescribed in the IFRS foundation constitution and to

approve the appointment of trustees (IFRS, 2011). IFRS advisory council is involved in developing standards and to advise the IASB on various matters (Deloitte Touche Tohmastu Limited, 2011).

Accounting theories: Most accounting practitioners they are at variance with accounting scholars if whether the basis of accounting are both application and theory or is only application not theory or either way. As the results, research has not gained a momentum in the accounting field. Nevertheless, there are a lot of theories that have been developed in accounting for both practitioners and academic use. Following are some of these theories.

Descriptive accounting theory:Descriptive accounting theory is concerned with judging whether accountants make rational or irrational decisions. These theories are, for example, regret theory and prospect theory for they can predict how an event will be treated in accounting from the start to the end. Descriptive regret theory was simultaneously pioneered by Bell, Fishburn, Loomes & Sugden. According to Schroeder, Clark & Cathey (2001), it uniqueness remains that it omits the assumption of preferences transitivity. Prospect theory on the other hand which is also called cumulative prospect theory was first put forward by Daniel Kahneman & Amos Tversky in 1979. The theory is deliberated for decision making under risk from the point of view of traditional behavioral sciences (Glautier & Underdown, 1991).

Normative accounting theory: Normative accounting theory is an advice in nature. Its purpose is to express, how accountants should act when they are confronting a challenge of taking a risky decisions. Basically, it is mainly focused in advancing the future with the present available resources (Belkaoui, 1992).

Evaluative accounting theory: Evaluative accounting theory quantifies the qualitative quantity of the accounting event concerned and seeks to inform the accounting users about the quantity and quality of any event (Mootze, 1970:156).

Communicative accounting theory: Communicative accounting theory puts up with the future forecast of accounting events. The theory is messaging in nature so that accountants can get ready for any future event if they have the knowledge of communicative theory (Mootze, 1970: 149).

Inductive accounting theory: Inductive accounting theory helps accountants to critically analyze the happenings of past accounting events. In other words, it is based on frequent accounting events and informs accountants that once beaten twice shy (Singmann & Klauer, 2011: 283).

Deductive accounting theory: Deductive accounting theory is equipped by following the method of reasoning. The theory is meant to show accountants the way in which they must behave. For example, if all accountants are human beings, all human beings make mistakes; therefore all accountants ought to make mistakes (Mootze, 1970: 149-156 and Singmann & Klauer, 2011: 283).

Generally accepted accounting theories: All of the above mentioned approaches are regarded as philosophical theories in accounting. Besides the above mentioned theories, there are other theories (too many to mention) which are also in existence and can be applied equally in all cases as shown above and are generally adopted by accountants, and therefore are called generally accepted accounting theories (Singmann & Klauer, 2011: 283).

Primary responsibility of accounting academics: The primary tasks of accounting academic by van der Schyf (2008: 11) can be described in terms of three Worlds (W): W1, W2 and W3. W1 consists of wise sayings; common sense; practicality; how to do; or what may termed rational knowledge. It consists of the "social", "physical" and symbol words in which accounting academics operate. W2 is the result of W1 observation. This phenomena can be political, economic, social, physical or in any other form. In short, W2 represents the "World of accounting as a social science and scientific research in accounting", including academic activity in accounting. The main rudiments of W2 are the, theoretical foundations of accounting, accountancy concepts and definitions, and research. W3 represent the "World of meta-science" where critical reflection and assignment occurs. It is a position where the accounting academics reflect on the knowledge in W2 (scientific world). In W3, the accounting academics collectively examine the presentations within the

scientific world and place these in congruent, comprehensible wholes which are also referred to as epistemology and ontology. The three worlds are a critical role players in accounting education re-curriculation, teaching pedagogy, modernization, and in innovation of all parts of accounting (Pouris, 2012: 2-6).

What is meant by accounting teaching? Accounting teaching can be defined as a way that embraces various techniques used to convey accounting knowledge from one person to another. Authors are of the view that teaching should relate to pedagogic approach that promotes active learning (Kalpana, 2014: 28; as cited by Carla & Phillip, 2014: 52). Effective teaching of accounting should balance between theory and practice. Like in science, accounting can be proved as write or wrong. For example, a debit and a credit principle in accounting result to total assets = owners' equity + liabilities. This equation is applied consistently by both the academics and practitioners. This advocates that accounting teachers must be able to construct students' knowledge out of their capabilities.

Common teaching methods in accounting: The commonly used teaching methods in accounting are broadly explained below:

Videotapes/computer: This is an automated video technique and is commonly used in classrooms for teaching accounting. This method looks professional and it helps to keep groups' attention and can inspires groups' dialog after a lecture (University of Mexico School of medicine, 2014: 1).

Brainstorming: This method requires that audience should pay full attention and listen attentively so as to exercise creativity thinking thereafter. The success of this method demands that a teacher must have new ideas for the students' in order to stimulate their thinking capacity otherwise students may fail to acquire new knowledge (University of Mexico School of medicine, 2014: 1).

Discussions: This kind of learning may take place after lecture when seeking for clarify or challenging what was taught in class (Hill, 2002: 8-10). The method also pools ideas and experiences from groups that are formed by a maximum of 20 students per group. Even though the method allows for a consensus, but the larger the number of individuals per group, the difficulty it is for everyone to participate in the group. Due to time constraint, this method may not be effective as it was intended. (HEC, 2012: 14)

Panel of experts: This method allows more than one experts to voice their opinions. The method can provoke a group discussion than a one on one discussion. The success of this method demands that the panel must have good speakers in order to have innovative discussion (HEC, 2012: 7).

Worksheets: Worksheets method can be also referred to as surveys. This type of a teaching method allows students to work independently but is also flexible for sharing information (HEC, 2012: 17).

Lecture presentation: Lecturing is a type of a higher leaning teaching method that is presented in a logical manner. Experience is used in balancing the theory with reality (University of Mexico School of medicine, 2014: 3).

Case studies: Case studies can be used to advance students logical thinking and ultimately problem solving expertise. It allows for examination of responses for intricate subjects, and permits students to relate new knowledge and expertise. The impact of this method to students depends on the relevance of the situations used in the case study scenario (University of Mexico School of medicine, 2014: 1).

Role playing: Role playing method presents difficult position vividly and offers students the prospect to exercise the subject skills (Hill, 2002: 19-20).

Report-back sessions: This method permits for big group debates and small group debates by giving those equal chances to replicate on past experiences (University of Mexico School of medicine, 2014: 7).

Factors affecting teaching accounting in the classrooms

Known reality: Little is known about the ways in which accounting academic staff as individual professionals develop and sustain their own personal and professional knowledge (Unerman & O'Dwyer, 2010). But in generally, accountants consider that universities are unable to invent new accounting knowledge, rather in commercial sectors or professional bodies (Lubbe, 2013: 110). Carla & Phillip (2014: 49-50) the attitude of accountants either practitioners or academics is influenced by factors like long term earnings and job market conditions. They also perceive themselves as meek, impersonal, boring, unattractive, independent, conservative, meticulous and unimaginative (Albrecht & Sack, 2000). Their personality is closely linked to the 20th centuries where most people from commercial sectors including public sector organizations were referred to as accountants' regardless of accounting qualifications. This was merely because there were not many developments in accounting and, after all, those who pretended to have good accounting knowledge had found it difficult as there were less information and other related resources. Basically, their education levels of that time had no broad accounting knowledge (Unerman & O'Dwyer, 2010).

Educational facilities: Existing facilities in the classroom like teaching media, teaching aids or any other useful facility affect teaching in the classroom. With the existence of adequate facilities, it will be very easy for teachers to provide an innovative learning system (Carla & Phillip, 2014: 51-52).

Teaching method: When teaching accounting subjects, lectures should use relevant methods that can provide the opportunity for students to solve given problems. In this way, a lecturer's attitude towards teaching accounting will be positive because of a kind of students produced who are active and critical thinkers. If the lecturer's psychology is good, and then his teaching rationalism is going to get maximum results (Unerman & O'Dwyer, 2010).

Context of culture and syllabi: Accounting culture has a resilient impact on individual lecturers teaching rationalism. Accounting culture may include its historical development, theories, and standards interpretation. The relevance of accounting to the needs of the society is also influential on the lectures teaching rationalism (Mohamud & Hikmat, 2013: 99).

3. Methodology

The research design of this study is largely grounded on the primary findings and has assisted to identify accounting academic staff teaching rationalism factors in both private and public universities.

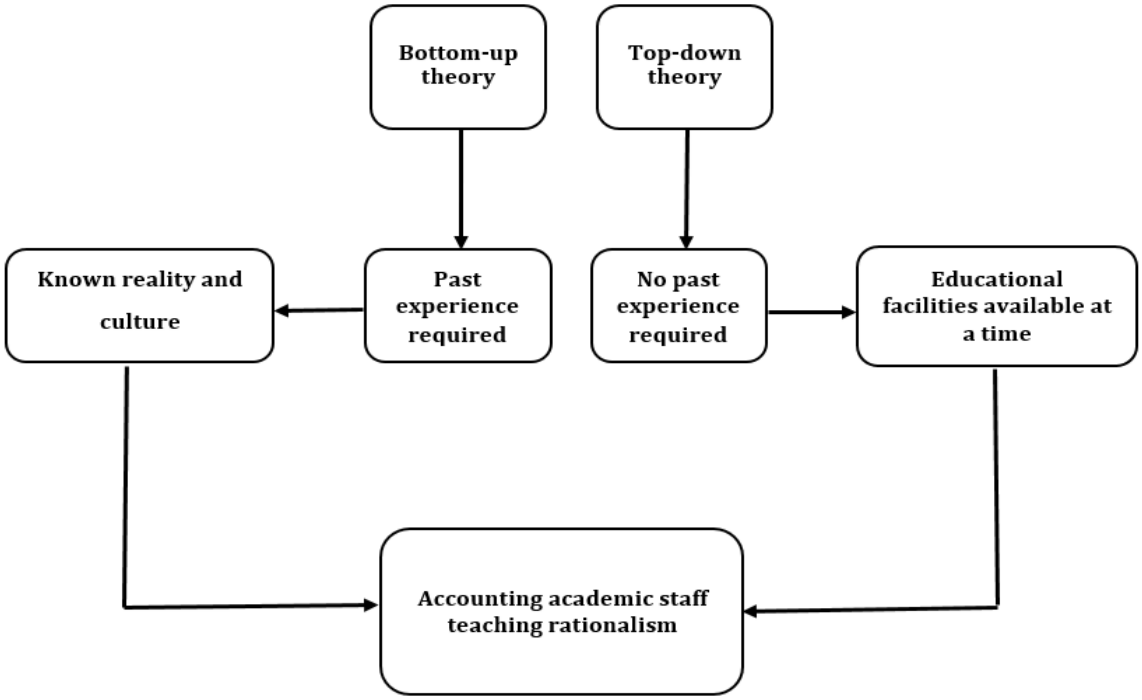
Limitations of the study: Even though the researcher used all available literature, but a proposed model is only applicable to the South African universities and cannot be generalized to other universities outside the country.

4. Results

This section presents the suitability of the above cited variables in the accounting academic staff teaching rationalism framework.

Modelling accounting academic staff teaching rationalism factors: When using both the Gibson's theory of direct perception and Gregory's theory for modelling the accounting academic staff teaching rationalism factors, it became clear that accounting academics are strongly influenced by the bottom-up and top-down factors in teaching accounting aspects. This means that teaching accounting is solemnly driven by the lecturer's known reality/perception, educational facilities, accounting culture, and professional body requirements. The results of this study are displayed in figure 1.

Figure 1: Proposed accounting academic staff teaching rationalism factors model



Source: Self-developed

Known reality – Believe that accounting academics are aware that their teaching models cannot change accounting principles or make any amendments since accounting is an international focused subject.
Accounting culture - Believe that accounting academics are aware that accounting has theories, principles, interpretations and standards that are internationally recognized and that no one can change or adjust expect by the international bodies.
Educational facilities - Believe that accounting academics are convinced by what they see at a given time. For example, their present moment is influenced by teaching facilities and type of audience that they are dealing with at a given time.

5. Discussion, conclusion and recommendations

The reviews of existing accounting theories and teaching theories were conducted followed by a review of accounting academic staff teaching rationalism factors. The accounting academic staff teaching rationalism factors were then matched to identify the best model. As far as the findings of this study are concern, the bottom-up theory and top-down theory are the best two phenomena for modelling accounting academic staff teaching rationalism factors. This research provided sub-beliefs under each theory. For example, bottom-up theory (which requires pas experience) gave birth to known reality and culture factors which were then expanded with other three sub-beliefs: (1) cannot change accounting principles, (2) difficulty to make amendments, (3) and is international focused. Top-down theory (which requires no experience) gave birth to a factor called 'educational facility' which was also expanded with two other sub-beliefs: (1) teaching facilities, (2), and type of audience. The main contribution of this paper resides in the fact that it provides literature based model of the factors influencing accounting academic staff teaching rationalism. Future researches are encouraged to empirically validate a theoretical model proposed by this paper.

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Factors Affecting Consumer Resistance to Innovation Diffusion of E-Cigarettes

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Abstract: With increasing concern over the harmful effects of smoking tobacco cigarettes, the use of alternate smoking devices such as the e-cigarette has grown. Although gaining popularity globally, consumer resistance has slowed the diffusion of e-cigarettes in emerging markets, especially in South Africa. The aim of this paper is to explore how consumer resistance affects the diffusion of e-cigarettes among university students in Johannesburg. The study predicts consumer resistance through exploring relative advantage, compatibility, complexity, trialability, observability, and perceived risk. By means of a quantitative methodology, self-administered questionnaires were completed by 400 students from the University of the Witwatersrand. The data analysis was conducted using SPSS 22 and AMOS for structural equation modelling, which yielded results indicative of support for three of the six hypotheses proposed. This indicates that although marketers should apply relative advantage (β=0.03) and complexity (β=0.16) to marketing strategies, the focus should be on perceived risk (β=0.88) in order to increase the diffusion of e-cigarettes in the youth market. The results further provide marketing practitioners with a better understanding on how to limit consumer resistance and how to improve product diffusion of e-cigarettes. This study contributes to existing literature on innovation diffusion, and contextually to buying behaviour among the youth in South Africa. By gaining insight into this, marketers will positively influence behavioural change among smokers and so contribute to the reduction in smoking-related deaths.

Keywords: *e-Cigarette, Consumer Resistance, Diffusion, Adoption, Innovation*

1. Introduction

Globally, it is estimated that six million people die prematurely from smoking each year, and of that number, 600 000 are the result of exposure to second hand smoke (World Health Organisation, 2015). Due to this concern, there is need for safer smoking alternatives (Polosa, Caponnetto, Morjaria, Papale, Campagna, & Russo, 2011). As a result, the e-cigarette was introduced (Odum, O'Dell, & Schepers, 2012). The e-cigarette, also known as an electronic cigarette, is a hand-held, battery-powered device that allows the user to inhale recreationally vaporised nicotine (Barbeau, Burda & Siegel, 2013; Goniewicz, Lingas & Hajek, 2013; Schripp, Markewitz, Udhe & Salthammer, 2013; Sutfin, McCoy, Morrell, Hoeppner & Wolfson, 2013). Although researchers have identified the e-cigarette as a potentially successful smoking reduction device that aids in smoking cessation, it is perceived as a controversial product for two reasons: firstly, users still inhale the addictive substance, nicotine and, secondly, the health implications of any bi-products created during the process of heating e-liquid into vapour are still unconfirmed (Borland, 2011; Goniewicz, Knysak, Kosmider, Sobczak, Kurek, Prokopowiz, Jablonska-Czapla, Rosik-Dulewska, Havel, Jacob & Benowitz, 2013; Health New Zealand, 2009; Heavner, Dunworth, Bergen, Nissen & Phillips, 2009). Besides these concerns surrounding the use of e-cigarettes, there remains a level of consumer resistance towards adopting this product as a healthier, smoking alternative.

With consumer resistance affecting innovation diffusion, there are underlying economic and social consequences, such as the high rate of new product failures faced by many corporations (Claudy, 2011). These failures equate not only to economic losses of profitability but also to social boycotts that insinuate brand incompetence and lead to consumers switching to competitor brands (Abzakh, Ling, and Alkilani, 2013; Dwivedi, 2005). However, consumer resistance is necessary in creating market value by co-developing new market ideas and altering the market, which ultimately affects the rate of adoption (Cova & Dalli, 2008; Denegri-Knott, Zwick & Schroeder, 2006). Understanding the effects of consumer resistance to innovation diffusion can then avoid these negative consequences (Gourville, 2006). Although a number of studies have been conducted on this topic (Haghirian, Madlberger & Inoue, 2008; MacVaugh & Schiavone, 2010; Abzakh et al., 2013; Moraes, Szmigin & Carrigan, 2008), a lack of research on the factors influencing e-cigarette resistance remains. The present study aims to fill this gap in literature by investigating the factors that cause

consumer resistance to e-cigarette adoption (Claudy, O'Driscoll, Garcia & Mullen, 2010). By means of a proposed conceptual model grounded in Dwivedi's (2005) model of innovation diffusion, the predictor variables for the present study are relative advantage, compatibility, complexity, trialability, observability and perceived risk, while the outcome variable is consumer resistance. This study provides marketing practitioners with a better understanding of factors that influence e-cigarette resistance among South African youth. Consequently, it provides insight into how practitioners can better position the e-cigarette among the youth in Johannesburg to encourage non-smoking behaviour. Furthermore, it adds to existing literature on innovation diffusion and resistance.

2. Literature Review

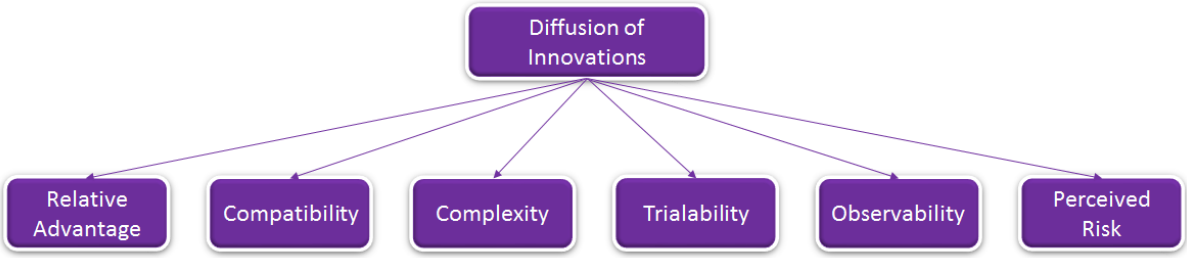
The Diffusion of Innovations Model: The Innovations Diffusion Model and consumer resistance has been of significant interest to researchers and as a result, a considerate amount of research on this topic has been conducted, as presented in Table 1.

Table 1: Previous Research on Innovation Diffusion and Consumer Resistance

Construct	Topical Previous Research
Relative Advantage	Al-Jabri & Sohail, 2012; Claudy, 2011; Claudy et al., 2010; Chinman et al., 2008; Demoulin & Zidda, 2009; Dwivedi, 2005; Lichtenstein & Williamson, 2006; Schwarz & Ernst, 2008.
Compatibility	Claudy, 2011; Kleijnen et al., 2009; Lichtenstein & Williamson, 2006
Complexity	Claudy, 2011; Claudy et al., 2010; Demoulin & Zidda, 2009; Korhonen & Kaarela, 2011; MacVaugh & Schiavone, 2010.
Trialability	Chinman et al., 2008; Claudy et al., 2010; Demoulin & Zidda, 2009; Lichtenstein & Williamson, 2006; Schwarz & Ernst, 2008.
Observability	Fetscherin & Lattemann's, 2008; Kleijnen et al., 2009; Lichtenstein & Williamson, 2006.
Perceived Risk	Abzakh et al., 2013; Dwivedi, 2005; Kleijnen et al., 2009; Talke et al., 2009; Schwarz & Ernst, 2008; Talke et al., 2009.
Consumer Resistance	Abzakh et al., 2013; Cova & Dalli, 2008; Galvagno, 2010; Kleijnen et al., 2009; Moraes et al., 2008.

The Diffusion of Innovations Model relates adoption and behaviour to innovations by explaining how the process occurs over a certain period of time (Haghirian et al., 2008; Kumar, Kukerji, Butt & Persaud, 2007). Marketers find this model useful as it critically describes the adoption or non-adoption of innovations by consumers (MacVaugh & Schiavone, 2010). Within this model, there are five constructs that influence innovation diffusion, namely, relative advantage, compatibility, complexity, trialability, and observability (Dwivedi, 2005; Kleijnen, Lee & Wetzels, 2009). However, in later studies conducted by Rogers (2003),it was found that perceived risk is also an influential construct in innovation diffusion, therefore it was added as a construct to the model (Dwivedi, 2005).

Figure 1: The Diffusion of Innovations Model



Source: Dwivedi (2005)

Relative Advantage: The first construct, relative advantage, refers to the superiority or the added benefit that an innovation provides over the already existing product that supersedes it (Dwivedi, 2005; Claudy et al.,

2010; Lichtenstein & Williamson, 2006). This would affect the consumer's decision to adopt the product as it offers an additional benefit to the consumer (Chinman, Lucksted, Gresen, Davis, Losonczy, Sussner & Martone, 2008). However, the superiority or added benefit of the innovation is subjective since it is based on the consumer's perception and not on factual evidence (Demoulin & Zidda, 2009).

Compatibility: The second construct, compatibility, refers to how well the innovation fits into the existing consumer routines, values, experiences, beliefs, behaviours, and needs of the consumer whom it is intended to target (Claudy, 2011; Lichtenstein & Williamson, 2006). Familiarity with the features or any other attributes of the innovation is likely to affect how compatible the innovation is with the consumer (Kleijnen et al., 2009).

Complexity: The third construct, complexity, is the scale of difficulty associated with understanding and using a new innovation (Demoulin & Zidda, 2009). The more difficult an innovation is perceived to be in terms of understanding and use, the less likely it is that the innovation will be adopted by a consumer (Claudy, 2011; MacVaugh & Schiavone, 2010).

Trialability: The fourth construct, trialability, refers to the opportunity given to experiment with a new, innovative product, with the idea that it will aid a potential customer in deciding whether or not to adopt the product (Claudy et al., 2010; Lichtenstein & Williamson, 2006). Trials typically span over a limited amount of time before adoption takes place and are used as mechanisms to reduce the consumer's perceived risk of adopting the innovation (Chinman et al., 2008).

Observability: Fifthly, observability is the visibility rate of successfully using an innovation in front of other individuals within a specific social group, and how communicable the innovation is among that group (Kleijnen et al., 2009). When there is low visibility of successful use of an innovation, the rate of adoption slows (Lichtenstein & Williamson, 2006).

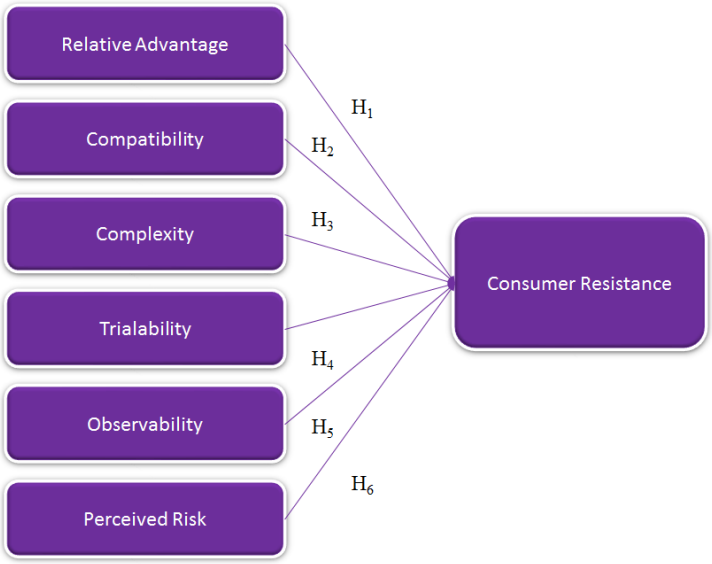
Perceived Risk: The sixth construct, perceived risk, is the level of uncertainty surrounding an innovation and has been divided into five types of risk, namely physical, psychological, social, financial, and functional risk (Kleijnen et al., 2009). Consumers will search for information regarding the innovation's features that could possibly be beneficial in order to reduce the perceived level of risk associated with adopting an innovation (Dwivedi, 2005). However, certain consumers would rather purchase and pay a higher fee for a product that has familiarity and, therefore they experience less uncertainty (Talke, Saloma, Weiringa, & Lutz, 2009). Based on previous research conducted, which is summarised in Table 1, it can be seen that overall, each of the six constructs aids in the understanding of the Diffusion of Innovations Model, each contributing uniquely towards relating adoption and behaviour to innovations, and explaining how this process occurs over a period of time, so defining the rate of adoption of an innovative product (Demoulin & Zidda, 2009; Haghirian et al., 2008; Kumar et al., 2007).

Consumer Resistance: Today's consumer displays more dominance over the choice to consume and the ability to resist marketing efforts, such as ignoring or adapting even the most lustrous marketing campaigns: this defines the expression, consumer resistance (Abzakh et al., 2013; Moraes et al., 2008). Consumer resistance refers to consumers' efforts to reject a particular product or service, whether it is innovative in nature or not (Galvagno, 2010). Consumer resistance is a behaviour that is exhibited by consumers concerning a particular general motivation or group action and can include behaviours such as rejection, postponement, or opposition (Cova & Dalli, 2008; Kleijnen et al., 2009).

Problem Investigated: The application of Dwivedi's (2005) Diffusion of Innovations Model has been examined and applied in several studies (Bartells & Reinders, 2011; Chinman et al., 2008; Claudy, 2011; Demoulin & Zidda, 2009; Haghirian et al., 2008; Kumar et al., 2007; Lichtenstein & Williamson, 2006). Furthermore, the e-cigarette field has witnessed an expansion of knowledge through works that have explored different facets. For example, e-cigarette awareness (Cho, Shin & Moon, 2011; Regan, Promoff, Dube & Arrazola, 2013), e-cigarette users and behaviour (Bullen, McRobbie, Thornley, Glover, Lin & Laugesen, 2010; Dawkins, Turner, Hasna & Soar, 2012), the side-effects of using e-cigarettes (Schripp et al., 2013; Vansickel, Cobb, Weaver & Eissenberg, 2010), and e-cigarette diffusion (Bitton & Bates, 2010). Despite a vast

amount of literature in this field, a lack of research remains on e-cigarette resistance. Therefore, by means of a proposed conceptual model, the present article aims to fill the gap in literature by investigating the factors that affect consumer resistance to e-cigarette diffusion among students in Johannesburg. Figure 2 presents the conceptual model.

Figure 2: Conceptual Model



Source: Compiled by Researcher

The conceptual model (Figure 2) proposes that the independent variables are relative advantage, compatibility, complexity, trialability, observability, and perceived risk, with the dependent variable being consumer resistance. In other words, it is proposed that the aforementioned independent variables have a direct effect on consumer resistance. The following section discusses the hypotheses development.

Hypotheses Development

Relative Advantage and Consumer Resistance: The relationship between relative advantage and consumer resistance has been explored in prior literature with generally consistent findings: the higher the relative advantage of adopting a new product, the lower the level of consumer resistance. In a study conducted by Schwarz and Ernst (2008), findings revealed that consumers are more likely to associate with innovations that have a high relative advantage, in comparison with a lower, or nor relative advantage. This notion was supported in a number of related studies (Al-Jabri & Sohail, 2012; Claudy, 2011; Lichtenstein & Williamson, 2006). This article proposes that a negative relationship exists between relative advantage and consumer resistance.
H_1: There is a negative relationship between relative advantage and consumer resistance.

Compatibility and Consumer Resistance: The second hypothesis, the relationship between compatibility and consumer resistance, has proved to be negative in previous studies. For example, Kleijnen et al. (2009) conducted a meta-analysis of resistance drivers and found that low compatibility leads to the postponement of innovation adoption, indicating consumer resistance. Furthermore, in a study by Claudy (2011) on consumer resistance toward green innovations, results reflect a negative relationship. In other words, the higher the level of compatibility with an innovation, the lower the level of consumer resistance. Therefore, the present study proposes that there is a negative relationship between compatibility and consumer resistance.
H_2: There is a negative relationship between compatibility and consumer resistance.

Complexity and Consumer Resistance: Derived from previous literature (Claudy et al., 2010; Korhonen & Kaarela, 2011; MacVaugh & Schiavone, 2010), the relationship between complexity and consumer resistance

has been found to be positive. This means that the more complex a product innovation, the higher the possibility of consumer resistance. In Claudy's et al. (2010) study on green innovations, complexity is stated to be a major driver of resistance towards the adoption of green products. Furthermore, in Korhonen and Kaarela's (2011) study indicated that complexity is positively related to resistance in the industrial services industry. Similarly, MacVaugh and Schiavone's (2010) findings indicated that the more difficult an innovation is perceived to be in terms of understanding and usage, the less likely it is that the innovation will be adopted by the consumer. Thus, it is posited that there is a positive relationship between complexity and consumer resistance.
H_3: There is a positive relationship between complexity and consumer resistance.

Trialability and Consumer Resistance: The fourth hypothesis proposes a negative relationship between trialability and consumer resistance. This proposition is supported by prior literature. For example, Demoulin and Zidda (2009) found that trialability decreases consumer resistance with the adoption of grocery retail loyalty cards. In a study by Claudy et al. (2010), findings revealed that trialability has a negative effect on consumer resistance. Furthermore, Schwarz and Ernst (2008) investigated water-saving devices and observed a positive relationship between trialability and adoption. Derived from the conceptions considered above, the present study proposes a negative relationship between trialability and consumer resistance.
H_4: There is a negative relationship between trialability and consumer resistance

Observability and Consumer Resistance: The relationship between observability and consumer resistance has previously been explored in Fetscherin and Lattemann's (2008) research, which concluded that observability positively affects user intention and acceptance in Virtual Worlds. Observability can also be represented as a negatively related variable to consumer resistance because of the fact that teens are more open to the adoption of e-cigarettes once it has been observed in a favourable setting (for example family and friends using the product) (Mail & Guardian, 2015). These results were supported in a study by Lichtenstein and Williamson (2006), in which the findings revealed that low visibility decreases the rate of adoption. This suggests that there is a negative relationship between observability and consumer resistance ofe-cigarettes
H_5: There is a negative relationship between observability and consumer resistance.

Perceived Risk and Consumer Resistance: The last hypothesis tests the relationship between perceived risk and consumer resistance. Most previous literature indicates a positive relationship between these two variables. For example, Abzakh et al. (2013) identified perceived risk as a factor that influences potential consumers' resistance towards the use of generic drugs. In a study conducted by Schwarz and Ernst (2008), findings revealed a significantly positive relationship between perceived risk and adoption intention. In other words, the higher the perceived risk in adopting a new product, the lower the possibility of adoption intention. Talke et al. (2009) supported these findings that a negative relationship exists between perceived risk and consumer resistance. It suggests that there is a positive relationship between perceived risk and consumer resistance.
H_6: There is a positive relationship between perceived risk and consumer resistance.

Research Objectives: The primary objective of the present article is to investigate the influence of an innovation's characteristics (relative advantage, compatibility, complexity, trialability, observability and perceived risk) on consumer resistance of e-cigarettes among university students in Johannesburg.

3. Methodology

Research Philosophy: The research philosophy is expressed in terms of research design, typology and methodology. This study follows a non-experimental research design since there is no manipulation of the independent variable, there is only one sample with no control group, and there is no randomisation (Creswell, 2014; Mackey & Gass, 2005; Murphy & Davidshofer, 2005). This type of design was selected because it is easy to implement and it is cost and time efficient (Saunders et al, 2012). Because the study examines the relationship between variables, it follows a correlational typology (Heppner et al, 2008, Malhotra, 2010). Furthermore, using a quantitative methodology means that the research has followed a positivistic paradigm, which implies that the study followed a stable reality, investigated through a scientific

method such as hypothesis testing and that the researcher remained objective throughout the study (Creswell, 2014; Mackey & Gass, 2005).

Ethical Considerations: Confidentiality and anonymity were ensured by undergoing a rigorous procedure to obtain ethical clearance allowing for the continuation of the research. Furthermore, ethics was incorporated into the study by ensuring that each participant signed a letter of consent which informed them that their protection and welfare were considered, no deception was used in the study, and that they had the right to withdraw at any stage during the completion.

Sampling: The sample comprised of 400 students from the University of the Witwatersrand, both male and female between the ages of 18 and 25, classifying them as the youth market. University students were chosen as the sample since it has been concluded that this age group is renowned for initiating change, especially with novelty items, such as the e-cigarette (Sutfin et al., 2013; Trumbo & Harper, 2013). By means of non-probability convenience sampling, the respondents were randomly selected on campus and invited to complete the self-administered surveys. This type of sampling was chosen because it conforms to the objectives of the study and it is convenient and economical (Biaxter et al., 2010; Creswell, 2014).

Data Collection and Questionnaire Design: The data was gathered through the completion of a questionnaire targeted specifically at university students who smoke either tobacco cigarettes or the e-cigarette or are non-smokers who may provide insight into consumer resistance. A questionnaire was chosen as the method of data-gathering because of its many advantages, namely that it can be administered to large numbers of people, it is time-efficient and cost-efficient, it provides anonymity, and it can yield valuable descriptive information about trends (Saunders et al., 2012). The questionnaires took approximately 10 to 15 minutes to complete with the constructs of the model operationalised through the use of preapproved marketing scales. Therefore, it is a multi-item scaled questionnaire, consisting of Likert-type scale questions, with the range of 1-strongly disagree to 7-strongly agree.

Measurement Instrument Development: The measurement scales that were used for the present study were a modification of existing scales. Scales were selected based on their reliability and validity. For the first construct, relative advantage, a combination of Jung, Chan-Olmsted, Park & Kim's (2011) and Forsythe, Liu, Shannon & Gardner's (2006) scales were used. A combination of scales was adopted in order to more accurately assess the construct of interest. The second construct, compatibility, was measured using a modification of Jung's et al. (2011), and Wu and Wang's (2005) scales. Complexity was measured by an adaptation of Schreier, Oberhauser and Prügl's (2006) scale. Both trialability and observability were measured by modifications of Jung's et al (2011) scales. The sixth construct, perceived risk, was measured by adapting Abzakh's et al. (2013) scale. Lastly, consumer resistance was measured by a modified version of Abzakh et al. (2013) and Claudy's (2011) measurement scales.

4. Findings

Data analysis was completed using SPSS 22 for the descriptive statistics, while the model fit and path modelling was conducted using AMOS 22.

Descriptive Statistics: From the respondents, who were students from the University of the Witwatersrand, the majority of the them were female (59%), between 18 and 25 years of age (99%), had, at most, a high school level education (60%), and were non-smokers (84%).

Structural Equation Modelling: Structural equation modelling (SEM) is used for the data analysis of the present article. SEM is a commonly used statistical technique for testing theory by means of proposed hypotheses (Liao & Hsieh, 2013). One of the major advantages of using SEM is that it tests relationships between observed and latent variables that constitute the conceptual model (Qureshi & Kang, 2014). SEM was also chosen because it is used more as a confirmatory technique, by which validity of the model, based on theory, is established. Therefore, the technique confirms the validity and reliability of the preapproved scales, which is called confirmatory factor analysis (CFA) (Murphy & Davidshofer, 2005). In this article, six

hypotheses are proposed and tested by means of a conceptual model. The analysis will be conducted by means of a model fit assessment, correlation matrix, scale accuracy analysis and hypotheses testing.

Model Fit: Model fit assessment was conducted using the following indices: CMIN/DF (Chi-Square Index), CFI (Comparative Fit Index), GFI (Goodness-of-Fit Index), IFI (Incremental Fit Index), NFI (Normed Fit Index), TLI (Tucker Lewis Index), and RMSEA (Root Mean Square Error of Approximation). The results depicted an acceptable model fit with the chi-square ratio being well below the recommended threshold of 3 with a value of 1.658 (Chinomona, 2011), the CFI (0.970), GFI (0.916), IFI (0.970), NFI (0.928), and TLI (0.959) were all accepted at a value above 0.8 (Hooper, Coughlan & Mullen, 2008). Similarly, the RMSEA was accepted at 0.041 as it meets the recommended threshold of less than 3 (Chinomona, 2011). The model fit results are presented in Table 2.

Table 2: Model Fit

Fit Measures	CFA	Structural
CMIN/DF	1.658	2.638
CFI	0.970	0.933
GFI	0.916	0.876
IFI	0.970	0.937
NFI	0.928	0.898
TLI	0.959	0.898
RMSEA	0.041	0.064

*Note: CMIN/DF – Chi-Squared Index; CFI – Comparative Fit Index; GFI – Goodness-of-fit Index; IFI – Incremental Fit Index; NFI – Normed Fit Index; TLI – Tucker Lewis Index; RMSEA – Root Mean Square Error of Approximation.

Derived from the above mentioned results, it is evident that the proposed conceptual model is satisfactory inpresenting the underlying empirical data structure of the present study. An overall acceptable model fit was achieved with indice values meeting the requirements for deducing such conclusions.

Inter-Construct Correlation Matrix: An inter-construct correlation matrix was conducted to confirm discriminant validity of the constructs underlying the present study by indicating the correlations between all conceivable combinations of the constructs. The inter-construct correlation matrix was also utilised to indicate whether or not factor analysis would be appropriate. To ensure validity, values below 1.0 were aimed for (Chinomona, Lin, Wang & Cheng, 2010).As indicated in Table 3, the inter-correlation values were all below 1 of which the majority yielded weaker relationships. For example, perceived risk (PR) and relative advantage (RA) (0.003), complexity (CE) and compatibility (CA) (0.031), and trialability (TR) and complexity (CE) (0.108) indicated positive relationships exist. Negative correlations were identified between consumer resistance (COR) and a number of constructs such as relative advantage (RA) (-0.377), trialability (TR) (-0.144), and observability (OB) (-0.275) indicated negative relationships exist between the constructs.

Table 3: Inter-Construct Correlation Matrix

Research Constructs	RA	CA	CE	TR	OB	PR	COR
Relative Advantage (RA)	1						
Compatibility (CA)	0.307	1					
Complexity (CE)	-0.044	0.031	1				
Trialability (TR)	0.301	0.421	0.108	1			
Observability (OB)	0.233	0.445	-0.047	0.478	1		
Perceived Risk (PR)	0.003	-0.228	0.249	-0.038	-0.170	1	
Consumer Resistance (COR)	-0.066	-0.377	0.217	-0.144	-0.275	0.700	1

*Note: RA – Relative Advantage; CA – Compatibility; CE – Complexity; TR – Trialability; OB – Observability; PR – Perceived Risk; COR – Consumer Resistance.

Scale Accuracy Analysis: Table 4 presents the accuracy analysis statistics which combines the Cronbach's alpha coefficients, composite reliability, average variance extracted, highest shared variance, and factor loadings of each of the constructs. These values indicate the reliability of the overall study. As evident from the results, the majority of the item-to-total values are above 0.7, while Cronbach's alpha coefficients (α), and composite reliability (CR) indexes range from 0.721 to 0.896, and 0.706 to 0.888 respectively. These values meet the estimate requirements suggested for scale reliability.

Table 4: Scale Accuracy Analysis

Research Construct		Mean	Standard Deviation	Cronbach Alpha	CR	AVE	Highest Shared Variance	Factor Loadings
RA	RA2							0.694
	RA3							0.849
	RA4	4.332	1.521	0.826	0.809	0.698	0.091	0.643
	RA5							0.674
CA	CA1							0.716
	CA2							0.615
	CA3	3.198	1.670	0.851	0.849	0.658	0.198	0.547
	CA4							0.887
	CA5							0.841
CE	CE1							0.534
	CE2	3.719	1.280	0.835	0.851	0.711	0.062	0.919
	CE3							0.863
	CE4							0.715
TR	TR1							0.675
	TR2	4.019	1.476	0.896	0.858	0.786	0.228	0.731
	TR3							0.916
	TR4							0.941
OB	OB1	3.483	1.619	0.721	0.706	0.676	0.228	0.751
	OB3							0.726
PR	PR1							0.55
	PR3							0.629
	PR4							0.436
	PR5							0.521
	PR6	4.474	1.373	0.838	0.792	0.396	0.062	0.492
	PR11							0.578
	PR12							0.635
	PR14							0.461
	PR15							0.589
COR	COR1							0.830
	COR2	4.645	1.688	0.895	0.888	0.666	0.490	0.701
	COR3							0.828
	COR4							0.894

As prevalent in Table 4, the average variance extracted (AVE) values were above 0.4, with the majority approaching 0.5. Thus, indicates acceptable levels of scale reliability (Fraering& Minor 2006). The AVE values for all the constructs were also greater than the highest shared variance which indicates discriminant validity is present, inferring that the results are valid.

Path Modelling and Hypothesis Testing: The results from the path modelling and hypotheses testing are presented in Table 5 followed by a discussion of these.

Discussion of the Results: From Table 5, the findings reveal that three of the six hypotheses (H1, H3 and H6) are supported at a 95% confidence interval, with a p-value of less than 0.05. Proving that relative advantage, complexity and perceived risk influence consumer resistance. A negative relationship was found between

relative advantage and consumer resistance (H1), indicating that if the e-cigarette is perceived as having added benefits, consumers will be less resistant toward adopting it. The results from H3 revealed a positive relationship between complexity and consumer resistance. This implies that the more complex the e-cigarette is, the more likely that the consumer will not adopt it. Hypothesis 6 is also supported, providing evidence that there is a positive relationship between perceived risk and consumer resistance. This means that the higher the perceived risk of using an e-cigarette, the bigger the possibility of consumer resistance. Overall, the strongest relationship was between perceived risk and consumer resistance, with a regression estimate of 0.88.Therefore, the strongest predictor of e-cigarette resistance is perceived risk, followed by complexity (0.16) and relative advantage (0.03), respectively. On the other hand, H2, H4 and H5 are not supported at a 95% confidence interval, inferring that compatibility, trialability and observability do not have an influence on consumer resistance ($p>0.05$).These results provide the implications that regardless of how compatible consumers regard the e-cigarette to be with their lifestyle, their decision to resist will not be influenced by this variable. Similarly, if consumers can try the e-cigarette prior to purchase, their decision to resist will not be affected. Lastly, the observability of the e-cigarette will not influence consumer resistance.

Table 5: Summary of Hypotheses Results

Hypo-thesis	Proposed hypothesised relationship	Regression Weights	P-value	Result
H1	There is a negative relationship between relative advantage and consumer resistance.	0.03	0.489	Supported and insignificant
H2	There is a negative relationship between compatibility and consumer resistance.	-0.31	***	Unsupported and significant*
H3	There is a positive relationship between complexity and consumer resistance	0.16	0.022	Supported and significant*
H4	There is a negative relationship between trialability and consumer resistance	0.00	0.978	Unsupported and insignificant
H5	There is a negative relationship between observability and consumer resistance.	-0.07	0.195	Unsupported and insignificant
H6	There is a positive relationship between perceived risk and consumer resistance.	0.88	***	Supported and significant*

*Note: RA – Relative Advantage; CA – Compatibility; CE – Complexity; TR – Trialability; OB – Observability; PR – Perceived Risk; COR – Consumer Resistance.

Managerial Implications: The present study provides marketers of the e-cigarette with a clearer understanding of the factors that influence e-cigarette rejection. As a result, marketers are able to manage more successfully the diffusion process of e-cigarettes and, subsequently to improve the adoption rate. For example, it is crucial for e-cigarette marketers to concentrate their efforts on clearly communicating the relative advantage of the e-cigarette. Further, it is evident that respondents fail to understand how they will benefit from using such an innovation. Marketers should, as a result, formulate educational campaigns by emphasising that e-cigarettes are healthier, more cost-effective in the long run, and can be used anywhere and at any time since it does not release fumes that affect people in their vicinity. Furthermore, the results indicate that respondents perceive the e-cigarette to be a complicated product to use. Marketers can address this issue by promoting 'ease of use' and providing consumers with a step-by-step guide on how to use and service the e-cigarette. Manufacturers can also improve on the design of the product by increasing the lifespan of the filters, or by making the refilling of the e-liquid more convenient via an injector system that reduces the likelihood of spills. Another suggestion is to increase the longevity of the battery life so that consumers do not have to recharge the product as often, or have the inconvenience of the battery depleting in situations where it is difficult to recharge. Lastly, manufacturers can utilise economy packs in their sales strategies. An economy pack offers more than a so-called bulk item that comes with the offer of a discount. These economy packs are likely to work well with the use of larger e-liquid refills, such that the e-liquid would cut down on the inconvenience of having to visit an e-cigarette retailer or shop online for refills: with an economy pack, the offer of a discount for buying more products could incentivise sales and reduce the

perceived complexity of the e-cigarette. Lastly, the results indicated that respondents associated the e-cigarette with a perceived risk, of possible harm. This can be due to a lack of information available on the possible health effects of using an e-cigarette. Marketers should focus on educating consumers on the health benefits of using the e-cigarette in comparison to normal cigarettes. By showing the consumer that long-term use is in fact a healthier option with no unwanted long-term effects, the consumer's perceived risk will be reduced. This will lead to a decrease in consumer resistance.

5. Conclusion, Limitations and Future Research

In conclusion, an evaluation of the predictors of the Diffusion of Innovations Model in relation to consumer resistance among university students in Johannesburg was researched by means of a quantitative study. Through the analysis of the data collected, it was discovered that relative advantage, complexity and perceived risk positively influence consumer resistance of e-cigarettes. Marketers need to employ strategies that emphasise the advantage and simplicity of using the e-cigarette, and should also educate consumers on the health benefits of using the e-cigarette. Although this study makes a significant contribution to the theory and practice of the e-cigarette market, it is not without its limitations. Firstly, there is a risk of bias since the sample does not employ randomisation, and therefore a lack of equal opportunity might have yielded systematic errors in the sample group. Future research should employ a sampling technique that can incorporate randomisation effectively, and if possible, the manipulation of the independent variable. By including these two characteristics, causality can be observed, which provides for a stronger research result. A second limitation is the demographic profile of the respondents, being only students from the University of the Witwatersrand. Future studies can focus on Generation Y individuals from other universities nationwide, or other segments of the market. This will ensure a valid representation of the research results.

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Board Member Age Diversity and Financial Performance of Manufacturing Firms: A Developing Economy Perspective

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Abstract: This paper examines the relationship between board member age diversity and financial performance of manufacturing firms in Uganda. A cross section survey research design was employed using 78 manufacturing firms across the country. Data was analysed using descriptive statistics, chi-square analysis and point bi-serial correlation. The results showed that majority of the boards had members with an average age of 35-44years, followed by 25-34 years. In addition, boards comprising of majorly young board members registered low performance level, compared to the boards comprising of majorly older members. Further, the results indicated that board member age diversity is significantly associated with financial performance of manufacturing firms. Like any other research study, this study is limited in the following ways. Since only a single research methodological approach was employed, future research could undertake a mixed approach and triangulate to validate the current findings. Further, a longitudinal approach should be employed to study financial performance trends among manufacturing firms over years. Finally, board member age diversity was studied and by virtual of the results, there are other factors that explain the financial performance of the Uganda's manufacturing sector that were not part of this study.

Keywords: *Age diversity, financial performance, manufacturing firms, board member*

1. Introduction

In this study, we investigate the relationship between board member age diversity and financial performance of manufacturing firms in a developing economy where literature is currently scarce. Precisely, we principally report on the differences of the board member age composition and the effect that it has on financial performance. While good financial performance is a target of every rational business enterprise, many enterprises both in developing and developed economies have had challenges of poor financial performance (Nkundabanyanga, 2012; Kamukama, 2011; Baisi, 2008). Financial performance is seen in different contexts but generally, it can be measured in terms of liquidity, capital growth, asset base, return on assets and return on investment (Martin, 2013; Hofmann & Lampe, 2013). Dagsson (2011) argue that board age diversity is among the factors that explain financial performance of any kind of organisation.

Effective execution of board duties and the consequent financial performance depends on how well the board is composed in terms of age distribution (Dagsson, 2011; Nyirenda, (2010). While well constituted boards are important for successful financial performance (Al-Saidi & Al-Shammari, 2013), there is scanty literature about what constitutes an effective age diverse board and how this fosters the financial performance of manufacturing enterprise. Most of the research in the context of board age diversity has been conducted in government parastatals and listed companies, leaving non-listed companies and other private sector firms unstudied. And yet, these firms have been, and still remains the main Engine of the structural transformation of their host economies (Mutambi et al., 2010). For example; the Ugandan industrial manufacturing sector is one of the economic pillars of the economy and contributes 24% of the country's GDP, (UBOS, 2011; World Bank, 2013). However, the sector is still small and slow growing compared to the other economies in the region where the sector's GDP contribution reaches a peak at 30-40 percent (Ishengoma & Kapel, 2008). The low GDP contribution of the sector is attributed to slow growth that is as a result of poor financial performance (Mutambi, 2011). One key area that has attracted debate is the issue of corporate boards especially; how these boards are composed in terms of board age diversity, (Bathula, 2008; Khan and Awan, 2012). And yet, there is need for a broader understanding of boards and their effect on the financial performance in a multispectral context to avoid the assumption of a "one size fits all" phenomenon (Davies & Schlitzer, 2008; Fu & Yu, 2008). Notably, age diversity has been cited in most debates as influential in predicting the financial performance of most companies (Dagsson, 2011; Nyirenda, 2010). However, most of

these debates have produced conflicting results. Even then, most studies mainly tested listed firms in a developed economy context thus side lining the private manufacturing sector in a developing economy perspective. As a result, poor financial performance has largely remained unexplained in the context of the developing economies especially in the Ugandan manufacturing sector (Nkundabanyanga, 2012; Mutambi, 2011). Most firms in the manufacturing sector have registered a low return on investment, low return on assets and some of them fail to maintain adequate liquidity levels (Ishengoma & Kapel, 2008). In an attempt to fill this evident gap, there is need to investigate the central challenge of poor financial performance focusing on the context specifics.

Most of the studies related to board age diversity and financial performance borrow ideologies from the developed economies, leaving the developing economies to rely on unlocalised ideologies. Yet, business firms in developing countries operate in unique environments and face different board challenges. The study contributes to the existing academic research by providing empirical evidence in the examination of these theories in the context of a developing economy. More so, earlier studies in the area of financial performance have over looked the paramount importance of board age diversity as predictor. This study therefore contextualises the debate in the a private sector setting by employing a multi theoretical approach as well as establishing the best model for effective board age diversity as a predictor to effective financial performance. At a managerial and policy level, manufacturing firms especially in developing economies will use study findings to improve their boards especially with the way they are constituted in terms of their age diversity. This will provide guidelines about the key success factors of age diverse board as a tool to improve financial performance. The rest of the paper proceeds as follows: the next section presents literature review and hypotheses development. This is followed by the research methodology. The results and discussion are presented next while the final section covers the conclusion and implication.

2. Literature Review

The Agency Theory: According to this theory, there are two parties in a firm; the principal and the agent. The principal owns the firm and the agent controls the operations of that firm (Berle & Means, 1932). The theory postulates that the agent is expected to act on behalf of the principal with control and consent (Jensen & Meckling, 1976; Freeman, 1984; Muneer et al., 2013). The principals invest capital in the company and design mechanisms or governance systems to maximize their returns as represented by the board (Clarke, 2004; Brown, 2008). This implies that a well composed board with a significant diversity may be in a better position to provide controls as well as ensuring effective performance (Pastoriza & Miguel, 2008). Because of this, a diverse board with the relevant expertise and experience may be required in the provision of such controls. Perhaps, this is achieved if a board is composed of different age groups with such diverse expertise and experience. In the perspective of a private sector, the board plays an important internal mechanism role of resolving the agency problems (Clarke, 2004). This equally calls for proactive and innovative board members to execute such roles. Of which, young board members can best serve the purpose (Nkundabanyanda, 2012; Clarke, 2004). Similarly, older board members use their experience to advice management as well as performing other oversight function (Brown, 2008). In a summary, monitoring management on behalf of the corporation's shareholders, making decisions regarding the selection, compensation and evaluation of a well qualified and ethical CEO is the single most important function of the board (Berle & Means, 1932; Brown, 2008). However, the agency theory has also been criticised for its narrow focus on large and listed companies and yet, private entrepreneurial firms also equally suffer from agency problems. Thus, the current study adds to the existing literature by testing the theory to explain governance practices in the private sector setting.

Stakeholder Theory: This theory assumes that firms should recognise the responsibility to all those affected by their operations (Freeman, 1984). Principally, the theory is articulated in the purpose of the firm and what brings its core stakeholders together (Donaldson & Preston, 1995; Freeman, 1984a; Freeman et al., 2004). The assumption here is that, a company exists to serve all the stakeholders who have an interest in it or who in some way may benefit from its operations (Freeman, 1984). Additionally, Bathula (2008) contends that the stake holder theory is an extension of the agency view which expects the board to take care of the interests of the shareholder and that shareholders have undergone change. Thus, the boards are now expected to take into account the interest of many stakeholder groups. In a practical sense, the various decisions taken by an

age diverse board may take into account the many stakeholders of different age groups. This is because age diverse boards help to influence management on the type of product lines to adapt so as to cater for customer needs of different age categories in a more sensitive manner, and this may in the long run boost the firm's revenues, something that propels the firm forward and allows it to generate outstanding financial performance (Daggson, 2011).

Resource Dependence Theory: The theory views boards as boundary spanners who pull intellectual resources courtesy of their experience and skills to increase the competitive advantage for the firm (Pfeffer & Salanick, 1978; Pfeffer, 1972; Huse, 2005). And because age is seen to be an "indirect resource" (Huse, 2005; Pfeffer, 1972). It implies that an age diverse board provides diverse knowledge, skill and experience while executing their duties. The theory brings insights that an age diverse board creates a "cobweb" of knowledge exchange from the different age groups (Nkundabayanga, 2012; Pfeffer & Salanick, 1978). It is therefore arguably explicit that if a board is composed of older board members, they are expected to come along with diverse experience (business or otherwise) which they use to guide the management team in propelling the firm forward (Pfeffer, 1972; Pfeffer & Salanick, 1978). Similarly, young board members are resourceful because they are proactive and innovative and thus are able to bring in a new outlook and create value on the board (Pfeffer, 1972; Abaho, 2014). Thus, in the perspective of the private manufacturing firms that have entrepreneurial attributes, age diverse boards are expected to have different entrepreneurial ideas and skills that help to boost firm performance. This calls for the inclusion of both young and old board members as long as they are resourceful in achieving good performance (Pfeffer, 1972; Pfeffer & Salanick, 1978). Therefore, seeing the board as a pool of resources for a company helps to consider significant age diversity and opens up a very different way to think about the board's role in creating value through financial performance.

Manufacturing Sector in Uganda: The manufacturing sector consists of MSMEs which account for 95% of the entire sector and employ more that 2.5 million people (UBOS, 2015). The UBOS (2015) report indicates that these MSMEs constitute 90% of the private sector contributing more than 20% of the GDP. The sector GDP contribution improved by 11% in the FY, 2015 much better than 2.2% in the FY2013/14. Most of these manufacturing firms are located in urban and pre urban areas country wide and are involved in trade, agro-processing and small scale manufacturing (GoU, 2000). Most importantly, the sector has been, and still remains the main Engine of the Uganda's structural transformation (MoFPED, 2012; Mutambi et al., 2010). Unfortunately, the sector still faces challenges of poor financial performance and slow growth something that undermines the countries ambition to industrialize the sector (Ishengoma & Karpel, 2008). However, the basis of Uganda's future prosperity and competitive growth depends on the existing and future entrepreneurial firms; manufacturing industries inclusive (Orobia et al., 2013; Ahimbisibwe et al., 2016). With the establishment of the East African community, it is expected that the Ugandan manufacturing sector will greatly benefit from access to the markets of the member states as well as internationally (NPA, 2010).

Besides, because the Ugandan Government has a vision of transforming the economy from a low developing to a middle income economy under the "Vision 2040" (NPA, 2010; UNIDO, 2013), the main focus is a private sector driven economy and the government has embarked on the aggressive promotion of the private sector by encouraging value addition through industrialization to a level associated with middle income economies (NPA, 2010; World Bank, 2013; Mutambi et al., 2010). Unfortunately, the sector is still faced with challenges of survival as a result of poor financial performance. For example, more than 30% of the manufacturing firms have not able to witness their fifth birth day (Ocici, 2006; Orobia et al., 2013).Uganda being a developing economy; it is disadvantaged in terms of low level industrial manufacturing position (UBOS, 2015). Thus, efforts to understand the financial performance of the manufacturing sector are paramount for the growth of the private sector which is essential in ensuring the overall economic growth. Lest, any attempt to expand the sector would be fruitless if not matched with the way their governing boards are composed with diverse age groups.

Firm Financial Performance: Although there are different perspectives of looking at firm performance, this study focused on financial performance. Financial performance of a firm can be assessed differently including turn over and liquidity which measures the ability of a business to meet financial obligations as they come due, without disrupting the normal, ongoing operations of the business (Kamukama, 2011; Abdelmohsen et al., 2013; Tumwine et al., 2015). Profitability is another dimension of financial performance which indicates the extent to which a business generates profit from the factors of production such as labor, management and

capital (Kreusel & Christian, 2008; Hofmann & Lampe, 2013). Profitability is seen in terms of rate of return on assets (ROA), return on equity (ROE), operating profit margin and net income (Pandey, 1997).

Different scholars view financial performance differently. For example; while establishing a borrowing cost model for effective performance of SMEs in Uganda, Tumwine et al. (2015) measured financial performance in terms of liquidity, sales level and Asset base. According to Ishengoma and Karpel (2008), growth over a period of time can be used as a measure of performance in manufacturing firms. Mutambi (2011) also describes key performance indicators among manufacturing firms in terms of investment in plant and machinery, output and other capital investments. Mutambi (2011) further argues that key performance indicators among manufacturing firms need to be understood because a new paradigm of performance measures has been adopted by many firms. The main reason for using these KPIs includes; telling how well the products are manufactured, product delivery performance and overall measurement of turnover level something that would in the long run increase the return on capital employed and profit margin (Kasekende & Opondo, 2003). On the contrary, Nkundabanyanga (2012) while analysing the perceived performance among the Ugandan service firms concluded that good financial performance indicators include; good equity returns, controlled expenditure and profitable investments as well as happy shareholders in terms of dividends received. Notwithstanding the different schools of thought about financial performance, the current study operationalises firm performance in terms of firm's revenues, asset base, return on assets, return on investment and profit after tax as measures of financial performance.

Board member age diversity and financial performance: It has been argued that the average board member age varies depending on the economic setting of different countries and the average employee age (Dagsson, 2011). In Britain for example, some 30% of the UK working-age population is over 50, in the United States census data (2008-2010) shows that age group of board members was between 45- to 54 years (Catalyst, 2011). In China, research indicates that three age groups of employees, namely, 45- to 59-year-olds, 60- to 64-year-olds, and over 65-year-olds, are increasing rapidly (Liu & Michelle, 2010). It was also found out that the average age of a director in Hong Kong 2011 is over 58 (Catalyst, 2011). However, when addressing age as an element of diversity, there are many facets to consider; Khan and Awan (2012) emphasized that older board members bring more experience and skills in the board room. Wellalage and Locke (2013) contend that younger board members bring more energy and new outlook. Similarly, Nyirenda (2010) argues that younger board members come along with morale and productivity to boost firm performance. Li et al. (2011) in their study of cross cultural antecedents of firm performance, found a significant and positive effect of age diversity and a significant interactive effect between age diversity and firm strategy on profitability. The same study found a significant relationship between board age diversity and firm profitability. Dagsson (2011) found that age diversity significantly affects firm financial performance and argued that board age heterogeneity improves the ability of groups to solve tasks with high complexity which in turn indicates that groups of diverse age should be utilized particularly for innovation or solving complex problems. Drawing from the above discussion, we derive the following hypotheses:
H1: *Boards with majorly young age groups are more likely to register better financial performance than the older age group in manufacturing firms in Uganda.*
H2: *There is a positive and significant relationship between board member age group and financial performance of manufacturing firms in Uganda.*

3. Methodology

This study employed a cross-sectional survey design in that the phenomenon in question was studied at a particular period in time. The population consisted of 146 manufacturing firms that had boards and are registered members of the Uganda Manufacturers Association. Accordingly, a sample size of 108 was determined using the Krejcie and Morgan (1970)'s table of sample size determination. The sample elements were selected the Ms Excel random selector. A self-administered questionnaire approach was utilized to collect the field data. This was done alongside a documentary review on financial performance of the firms. However, only 78 firms responded (72 percent response rate). It is worth noting that five copies of the questionnaire were distributed to each selected firm to be filled by the board chairman, and four other board members. Nonetheless, the usable ones in this study were an average of three per firm.

Sample characteristics

Table 1: Descriptive Statistics – Respondents' Demographics

Variables	Freq	%
Education levels		
UACE	29	12
Diploma	19	8
Degree	102	43
Masters	54	23
PhD	31	13
Total	*235*	*100*
Age groups		
26-33	6	3
34-41	51	22
42-49	48	20
50-57	85	36
58+	45	19
Total	*235*	*100*
Marital status		
Single	29	12
Married	201	86
Divorced	5	2
Total	*235*	*100*
Gender		
Male	162	69
Female	73	31
Total	*235*	*100*

Results in table 1 clearly show that, majority of the board members that participated in this study had a bachelor's degree as their highest education level (43%); belonged to the 50-57 years age group (36%); were married (86%) and were males (69%). Considering the nature of boards, the results are presented in table 2 below.

Table 2: Nature of Board Directors

	Frequency	Percent
Number of directors on the board		
3 – 6	14	17.9
6 – 9	59	75.6
Over 9	5	6.4
Total	*78*	*100.0*
How many female directors do you have on the board?		
Less than 2	1	1.3
2 – 5	75	96.2
5 – 10	2	2.6
Total	*78*	*100.0*
How many male directors do you have on the board?		
2 – 5	60	76.9
5 – 10	18	23.1
Total	*78*	*100.0*
Gender of the board chairperson		
Male	72	92.3

Female	6	7.7
Total	*78*	*100.0*
Is the CEO the same as Board chairman?		
Yes	43	55.1
No	35	44.9
Total	*78*	*100.0*

Most boards had 6-9 directors (42.6%) while the least number is represented by board members less than 3 (1.7%). This would imply that most the boards of manufacturing firms in Uganda are composed of board members who are at the same time directors or owner of the same firms.

Operationalisation and Measurement of Variables

Board member age diversity: Board member age diversity in this study was considered as a categorical variable. It was measured differently, due to the numerical value of age. Board member age diversity was measured by composing age groups and then measuring the percentage of board members in each age group. This was done by dividing per age group the amount of people in all sample companies in that group by the total amount of board members in all sample companies. This method is also used by Siciliano (1996).

Financial performance: The dependent variable, firm financial performance was considered as a continuous variable and measured in terms of firm revenue, return on assets, return on equity, return on investment and profit after tax. The financial performance data were captured by reviewing the financial reports from the registry of companies. For firms whose data was not in the archives of the registry, reference was made to the finance directors or accountants to provide financial information which was later anchored to a 5 point likert scale (**1=** "Less than 2%", **2 =** "2 - 5%", **3=** "5 - 8%", **4=** "8 - 11%", **5=** "Over 11"). This approach has been successfully employed by previous scholars like Kamukama (2011).

Data Analysis: Descriptive statistics analysis was used to describe the demographic characteristics of the study participants. A point-biserial correlation analysis was performed to measure the strength and direction of the association that exists between board member age diversity and financial performance. Chi-square analysis was performed to test the relationship between board member age diversity and financial performance. Specifically, the objective was to test if financial performance was the same for both the board members comprising of young and old age groups. In others words to test if the boards with the young age groups more than the old age group likely to register better financial performance. This was necessary to form an opinion on board composition in terms of age group. In performing the chi-square analysis, financial performance was coded using the visual binning function in SPSS: 1 = *"low"*, 2 = *"middle"* and 3 = *"high performance".*

4. Empirical Results

Information was sought on the average board member age across the manufacturing firms. The results are presented in table 3.

Table 3: Distribution of Board Member Age

Age group	Frequency	Percent
25-34yrs	27	34.6
35-44yrs	31	39.7
45-54yrs	13	16.7
55+yrs	7	9.0
Total	78	100.0

On the assessment of the average age group of the board members, the results show that majority of the respondents lie in the age group of 35 -44 years represented by 39.7%, followed by those in the age group of 25 -34- years (34.6%) while the least represented group was above 55 years at the time this data was collected. This implies that most boards of manufacturing firms in Uganda are composed of middle age board members.

Table 4: Descriptive Statistics of Financial Performance

Item	Min.	Max.	Mean	Std. Dev
Firm Revenue	1.00	5.00	2.432	0.613
Asset Base	1.00	5.00	2.637	0.730
Return On Investment	1.00	5.00	2.462	0.584
Return On Assets	1.00	5.00	2.179	0.684
Profits After Tax	1.00	5.00	3.158	0.729
Financial Performance	1.00	5.00	2.574	0.482

The results show that on average the improvement of the overall financial performance of the manufacturing firm under the survey ranged between 5% - 8%. Considering the indicators of financial performance, the results show that on average the firms surveyed registered higher increase in profits after tax followed by the asset base. The least performance indicator was return on assets.

Chi-Square Analysis: Information was sought on the relationship between board member age diversity and financial performance using chi-square analysis. Specifically, the analysis was to test if financial performance was the same for both the board members comprising of young and old age groups. In other words to test if the boards with the young age groups more than the old age group were likely to register better financial performance. The results are presented in table 5 below.

Table 5: Financial Performance * Board Age Diversity Cross Tabulation

		Board Age Diversity		Total
		Young	Old	
Performance	Low	23	2	25
		39.7%	10.0%	32.1%
	Middle	21	5	26
		36.2%	25.0%	33.3%
	High	14	13	27
		24.1%	**65.0%**	34.6%
		58	20	78
		100.0%	100.0%	100.0%

Pearson chi-square =11.81; df = 2; Asymp sig = .003

In table 5, the percentage downward result show that majority (39.7%) of the boards comprising of young board members registered the low performance level. This was contrary to the older age group. The percentage downward results of the older age group showed that such boards registered high performance level (65%). Comparing the two columns (young versus old age groups), an initial conclusion can be drawn that there was a big difference in financial performance levels between the young and old age groups. The difference is more vivid at low and high performance levels. Looking at the significance levels, the results reveal a significant relationship between age diversity and financial performance in the current study. Further information was sought on how financial performance varied across the detailed age groups, for a more enriched position. The results are presented in table 6.

Table 6: Financial Performance * Detailed Board Age Diversity Cross Tabulation

		Board Age Diversity				Total
		25-34yrs	**35-44yrs**	**45-54yrs**	**55+yrs**	
Performance	Low	12	11	2	0	25
		44.4%	35.5%	15.4%	0.0%	32.1%
	Middle	9	12	3	2	26
		33.3%	**38.7%**	23.1%	28.6%	33.3%
	High	6	8	8	5	27
		22.2%	25.8%	**61.5%**	**71.4%**	34.6%
		27	31	13	7	78
		100.0%	100.0%	100.0%	100.0%	100.0%

Pearson chi-square =12.86; df = 6; Asymp sig = .045

The percentage downward result show that majority of the boards had an average age group of 35 -44 years (31/78*100 = 39.7%); followed by the 25 – 44years age group. Further, the percentage downward results show that majority of the firms that registered low performance levels had boards in age bracket of 25 – 34 years. More still, majority of the firms that registered middle performance levels had boards in age bracket of 35 – 44years; while majority of the older age categories registered high performance levels.

Correlation Analysis: Information was also sought on the relationship between board age diversity and financial performance using point biserial correlation. The results are presented in table 7 below.

Table 7: Correlation Analysis

	1	**2**	**3**	**4**	**5**	**6**	**7**
Board member age diversity -1	1.000						
Firm Revenue -2	.269*	1.000					
Asset Base -3	.211	.517**	1.000				
Return On Investment -4	.220	.485**	.631**	1.000			
Return On Assets -5	.430**	.475**	.379**	.496**	1.000		
Profits After Tax -6	.350**	.296**	.136	.231*	.433**	1.000	
Financial Performance -7	.413**	.753**	.736**	.767**	.771**	.598**	1.000

**. Correlation is significant at the 0.05 level (2-tailed).*
***. Correlation is significant at the 0.01 level (2-tailed).*

The results in table 7 show that there is a positive and significant relationship between board member age diversity and financial performance of manufacturing firms (r_{pb}=.413, p< *.01*). This can be interpreted as a positive change in board member age diversity of the board is associated with a positive change in financial performance. Considering the relationship between the separate indicators of financial performance, the results reveal that board member age diversity is significantly associated with firm revenue (r_{pb} =.269, p<*.05*), return on assets (r_{pb} =.430, p<*.01*) and profit after tax (r_{pb} =.350, p<.01). While the relationships between board member age diversity and asset base and return on investment were insignificant (r_{pb} =.211, p<*.01;* r=.211, *p<.01* respectively). This implies that asset base and return on investment are inconsequential in the association with board member age diversity in the case of manufacturing firms in Uganda.

Regression Analysis: Information was sought on the predictive power of the model specified in this study. The results are presented in table 8.

Table 8: **Regression Results**

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
(Constant)	1.358	.229		5.935	.000					
Experience Diversity	.369	.108	.346	3.411	.001	.432	.366	.334	.929	1.076
Board Age Diversity	.279	.088	.321	3.167	.002	.413	.343	.310	.929	1.076

R= .531; R^2 = .282; Adj R^2 =.263; F-Statistic = 14.7; Sig = .000

The results show that a predictive power of 26.3% (Adj R^2 = .263). In addition, the results confirm the correlation results which revealed a positive and significant relationship between board member age diversity and financial performance (β = .342, $p < .05$). Board member experience diversity was used in the model as a confounding variable, and relationship was found to be significant (β = .346, $p < .05$). These results are discussed in the next section.

Discussion: The results on the relationship between board member age diversity and financial performance indicate a significant and positive relationship. This implies that, positive variations in board member age diversity are associated with positive variations in financial performance of manufacturing firms in Uganda. Considering the variable board member age diversity, existing literature indicates that young board members are proactive and innovative and thus are able to bring in a new outlook and create value on the board. In addition, the young stars are considered ambitious and risk takers. Ideally, being proactive and innovative should be associated with high performance, given that such attributes are meant to improve efficiency. The results in this study revealed that boards with majorly young age group were associated with low performance. This is true because most Ugandan young stars have less business experience and so cannot on their own offer valuable management advise to drive performance. In addition, they are very volatile and as such, they tend to make hasty investment decisions without thorough calculations as well as evaluating the consequences. In fact, such decisions often turn into huge expenses that consequently erode the companies' profits and finances (Daggson, 2011). The younger age group are technology savvy and given that they are high risk takers, they tend to take their chances in investing in high technology as well as acquiring assets to improve efficiency. All this cannot be said of the older age group. The older age group are considered calculative and risk averse and this has an impact on their decision making process (Abaho, 2014). The older age group are considered to be more experienced and perhaps provide more critical advice in the decision making process (Bathula, 2008). Therefore, firms need to have a mix of the young and the old members to neutralize age effects (Daggason, 2011; Nkundabanyaga, 2012; Abaho, 2014)

From the stake holders theory perspective, finding also offer reasonable support to the theory which views diversity to be beneficial to the firm (Freeman et al., 2004; Clarke, 2004). This is because various decisions taken by an age diverse board may take into account the many stakeholders of different age groups. This study argues that age diverse boards help to influence management on the type of product lines to adapt so as to cater for customer needs of different age categories in a more sensitive manner, something that may boost the firm's revenues (Daggson, 2011). Considering the resource dependency theory, the theory posits that age is an "indirect resource" (Huse, 2005; Pfeffer, 1972; Pfeffer & Salanick, 1978). The theory postulates that board members with diverse age groups are expected to come along with different perspectives of viewing issues on the board courtesy of their age calibre. Previous studies have established that age diversity provides diverse knowledge, skill and experience required to improve performance. For instance, Khan and Awan (2012) in their study report that, whereas younger board members are innovative, older board members bring more experience and skills in the board room. The findings are in line with those of Abaho (2014) who contends that younger cadres are perceived to be proactive and quick in their decision making processes. For example, while analysing age as an antecedent to entrepreneurial values among university students in Uganda, Abaho observed that different age groups have different entrepreneurial values and noted that people between 25 and 34 are more entrepreneurial. The researcher argued that even when young people make mistakes, they believe they have an ample time to fix them unlike the older ones.

Further findings by Wellalage and Locke (2013) show that younger board members bring more energy and new outlook to the organisation. Even then, older board members have tendency of being rigid in decision making with fear to haunt their reputation and corporate image of the firms they represent (Nyirenda, 2010; Khan & Awan, 2012). This would confirm that having the right mix of both young and old board members would add value to the financial performance of the firm. Interestingly, Nyirenda (2010) adds that age diversity significantly affects firm financial performance and because age heterogeneity improves the ability of groups to solve tasks with high complexity which in turn indicates that groups of diverse age should be utilized particularly for innovation or solving complex problems. Dagsson (2011) in a study of 258 firms listed on the OMX stock exchange established a significant relationship between age diversity and financial performance of the firms. Surprisingly, an observation made is that age is not fundamentally considered while selecting board members in some private sector firms but rather; proprietors of these manufacturing firms were observed to prefer choosing family members and friends courtesy of their corporate status as long as they have the will to undertake the duties. Additionally, Kunze et al. (2013), while investigating organizational performance consequences of age diversity among 147 companies in Switzerland observed related views like those of the current study. The researchers found out that age diversity is a paramount predictor of age organizational performance and further suggest that for companies to achieve sustainable performance, they need to always consider age diversity on their top management teams. Drawing from the above discussion, the current study findings therefore imply that with a right mix of age groups, there is a high possibility of improving the firm's financial performance.

5. Conclusion and Implications

The findings and discussion above lead to the conclusion that, age diversity is strongly and positively related with the financial performance of manufacturing firms in Uganda. From the theoretical perspective, the study findings provide support for the stakeholder theory, by providing evidence indicating that stakeholder differences in terms of age diversity is associated with financial performance of manufacturing firms. Looking at the resource dependency theory perspective, this paper also provides a partial confirmation that age is indeed an indirect resource since it was confirmed that, whereas older age group come along with experience and perhaps provide more critical advice in the decision making process, young board members are proactive and innovative and thus are able to bring in a new outlook and create value on the board. The study therefore adds to the existing body of theoretical knowledge by contending that; other than external board members who are seen as a resource courtesy of their networks and experience, age diversity on the board is also a significant resource that must be considered. Thus, if firms are to make strategic and effective use of their respective boards to improve their financial performance, they need to pay attention to board member age diversity and ensure that there is a proper mix of the age groups among the board members. This paper therefore provides insights on why firms should prefer age diverse boards and indeed confirms that having the right age mix on the board will help to guide manufacturing firms in improving their performance. The current study therefore sets to add a significant body of knowledge to the on-going debate in the area of firm financial performance. The study also brings a lime light to the debate of board member age diversity a new perspective of manufacturing firms. For managerial implications, study highlights the magnitude of ability for the private manufacturing firms to constitute reasonable board by specifically focusing on the age diversity among board members as a means of boosting performance levels. The current study therefore appeals to the proprietors and/or share holders of manufacturing firms to continuously have the right mix of the individuals they select at the point of constituting their board. This would fundamentally improve manner in which decisions are made regarding the strategic approach and choice of the different product lines as well as the business acumen to adapt while considering the different age groups of clients, something that would in destiny influence the financial performance of firms.

Additionally, given the paramount contribution of the manufacturing sector to the Economy to a tune of over 24%, of Gross Domestic Product, there is fundamental need for the government and other respective stakeholders to develop an enthusiastic interest in the extent to which age diverse boards of these firms are effectively constituted in a bid to harness financial performance. This would help to reduce challenges of "homogeneous boards" (Nkundabanyanga, 2016). Moreover, given the competitive, dynamic and turbulent business environment in which manufacturing firms operate in the 21st Century, manufacturing entrepreneurs must appreciate that a "modern-day" company changes so rapidly, that everything is reliant on

the proactiveness of top echelons as well as experience and strength of networks from board members. Thus, such antecedents must be put at the fore front while selecting board members especially with diverse age groups. Lastly, manufacturing entrepreneurs and their management teams should attempt to put on top of their priority agenda list the most appropriate age mix that fits the operational needs of their firms. This is because of the new technological developments, new product lines and other firm strategic activities that could easily require the intervention of age diverse boards. Like any other research study, this study is limited in the following ways. A single research methodological approach was employed; future research could undertake a mixed approach and triangulate to validate the current findings. Further, a longitudinal approach could be employed to study financial performance trends among manufacturing firms over years. Finally, board member age diversity was studied and by virtual of the results, there are other factors that explain the financial performance of the Uganda's manufacturing sector that were not part of this study.

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The Factors of Residents' Support for Sustainable Tourism Development

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Abstract: In this paper we examined the factors of residents' support for sustainable tourism development in Mardin city-Turkey, in the context of gender as social structure. We found that people are sensitive about positive and negative effects of tourism, in association with society attachment and involvement, with bigger role for the later. And the perceptions of positive effects reduce their evaluation of the negative effects. Also we found that women are less active in transforming their attitude toward the effects of tourism to behavior toward sustainable tourism. But they are ready, more than men, to support sustainable tourism and ignore its negative effects, in spite of their higher sensitivity for the negative effects. So we recommend raising the role of local community and giving women more chances in the different levels of tourism activities.

Keywords: *Sustainable tourism development, residents' attitude, community attachment, community involvement, gender*

1. Introduction

Economic activities use the natural and human resources to make profit, or satisfy human needs. But the human needs are infinite and resources are limited, this raises the issue of sustainable use of resources or sustainable development. Tourism also is an economic activity and raises the same problem (Amir et al., 2015). In addition, tourism is resource-intensive, so it needs a special attention as it may cause social and environmental problems (Lu and Nepal, 2009). At the same time, compared to other sectors, tourism has a high potentiality in providing (and distributing) income and creating job opportunities for women and marginalized groups, so it may be a positive factor in sustainable development (Liu et al., 2012; Zolfani et al., 2015). The concept of sustainable tourism appeared partially as a reaction to the negative effects of tourism activity and as a way to reduce those effects; it later became an appropriate approach for tourism development (Bramwell and Lane, 1993; Bramwell and Lane, 2012; Zolfani et al., 2015). In its broader term, sustainable tourism is a directive philosophy or a set of principles transferred from sustainable development into tourism (Hardy et al., 2002; Mihalic, 2014; Ruhanen, 2008). The transferring followed the publication of the Brundtland Commission's report (Our Common Future) in 1987 (Saarinen, 2006). According to this report the sustainable development is: "a development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, P. 43). So the World Tourism Organization defined sustainable tourism as:
"Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems". (WTO, 2001, cited in Liu, 2003, P.460)

There are many different understanding of sustainability, the most important three among them are: resource based, activity based and community based. While the limits of activity are not reached yet, there is a problem in the limits of resources, to overcome this, different types of negotiation and participation of stakeholders and interested groups were used. This approach is called community approach. It "stresses the wider involvement and empowerment of various actors, especially host communities, in development by emphasizing the elements of social capital in a local context" (Saarinen, 2006, p.1130). So the stakeholders, especially host community, determine the limits of sustainable development of tourism through the negotiations and participation (Liu, 2003; Saarinen, 2006). In the community based approach the sustainable tourism is not an objective concept, but it is defined in the context of social structures where we have conflict interests, power relations, and different levels of knowledge among stakeholders (Tosun, 2000). For a successful sustainable development of tourism, and a continual successful functioning of this sector, one of the essential factors is the continual support of host community (Kuvan and Akan, 2005). So understanding

the precedents of this support is very important (Lee, 2013). In this context the researchers refer to the importance of local factors for a successful planning and management of sustainable development of tourism, but the majority of studies about the resident attitude conducted in developed countries and developed destinations, as many researchers noted (Mason and Cheyne, 2000; Nepal, 2008; Nunkoo and Ramkissoon, 2010; Nunkoo & Gursoy, 2012; Teye et al., 2002). Therefore it is important to study this topic in the context of developing countries and less developed destinations, to make unique characteristics and common characteristics between developed and developing countries, relating to our issue, clearest. Accordingly, choosing a tourism destination in Turkey for our study provides an important case study. In the year of 2012 Turkey was at the eleventh position by international tourism receipts (Turkish Hotelier Federation, 2013). While Turkey is considered a developing country, Mardin is less developed area relative to Turkey's general level. This represents economic and social dimensions deserve studying the factors of sustainable tourism support in their contexts. Our paper is ordered as follow: we start by introduction, followed by literature review, methodology is the third part, the fourth part is the empirical results, and at the end of it we have conclusion and implications.

2. Literature Review

Researchers have tried to understand the relationship between community residents' perceptions (attitude) of tourism and its impact, their support for tourism development, and the antecedents of these perceptions and support (Nunkoo and Ramkissoon, 2010; Teye et al., 2002), using many conceptual models and theories. These models include the Irridex, the Tourism Area Life Cycle TALC, social representation theory SRT, social exchange theory SET, growth machine theory, dependency theory (Choi and Murray, 2010), identity theory, and the theory of planned behavior TPB. By studying 140 articles issued between 1984-2010 on residents' attitudes to tourism Nunkoo et al. (2013) found that (56,3%) used SET, 18.8%, TALC 11%, Irridix 6.3%, Theory of reasoned action (developed to the theory of planed behavior TPB), and 4.7% Social representation theory. Irridix tried to explain the negative attitude of residents toward tourism by the increasing number of tourists with the development of the destination. However, many researchers questioned the validity of Irridix and showed results contradicted this model (García et al., 2015). For TALC model, which explained the negative attitude by the advanced stage of life cycle of the destination, its applications gave different results (García et al., 2015). These two frames may not be beneficial for our paper, as our case study is less developed destination.

The Social exchange theory SET suggests that the residents are likely to support tourism development as long as they perceive that its benefits will be more than its costs, individually and socially. These costs and benefits are economic, socio-cultural and environmental (Choi and Murray, 2010; Easterling, 2004; Harrill, 2004; Nunkoo and Ramkissoon, 2010). The majority of empirical studies supported SET (Chhabra, 2007; lee, 2013; Weaver and Lawton, 2013; Yoon et al., 2001) but some showed mixed results (Andereck et al., 2005). In addition, Sharpley (2014) questioned the applicability of the theory when there is no connection between tourists and residents. Also Nunkoo and Ramkissoon (2010, P. 246) considered that using attitudes to understand the support for tourism omit the "explicit reference to the self-identity". Thus some researchers suggest social representations theory as alternative (Sharpley, 2014) or complementary (Weaver and Lawton, 2013) for SET. This means that there is no consensus about this theory, though its dominance. Social representations theory SRT proposes that attitudes reflect underlying social representations of reality which are widely shared in society. They are shared perceptions of the nature of phenomena and the cause of events (Dickinson and Dickinson, 2006; Weaver and Lawton, 2013). This theory used and supported by some studies (Perez and Nadal, 2005; Weaver and Lawton, 2013), but the measures of social representations are neither clear nor unified. According to the theory of planed behavior TPB, which is an advanced version of the theory of reasoned action, which was used and supported by (Dyer et al., 2007); the internal factors such as an individual's attitude towards the behavior, subjective norms and perceived behavioral control are the determinant of support for tourism, but this theory is not widely tested in the area of tourism support (Nunkoo and Ramkissoon, 2010). However, in the view of traditional structuralism and post structuralism, the contextual factors or social structures shape the behavior of individuals and groups. These factors may be economic, as in the view of Marxist structuralism, culture, power, space and place (Davis, 2001). In this context, gender is one of the important social structures and its role deserves studying.

In post-modernism views of the world "we no longer have dominant paradigms that change through time as much as we have multiple paradigms juxtaposed at a given time" (Davis, 2001, p. 131). So we should not be informed only by one or two theories in tourism, especially, relating to residents' attitude toward tourism, rather we should be informed by many theories. Accordingly, based on a mix of previous theories as a background, we suggest a mixed model MM, as in the figure (1). Initially we assume that people are rational in their behavior and decision, using the available information to make the best decision. But as we know people have different rationalities, different ideas, different values, and different information; depending on differences in the natural abilities and social contexts, where they live and interact. So we expect that the attitude toward sustainable tourism is built starting from a different sensitivity of people to tourism effects, followed by the attitude toward these effects, and reaching to the behavior or decision of supporting tourism or opposing it. This process, as a whole proceeds in and conditioned by the social contexts. So we need to be informed by theoretical frameworks that link the variables and stages of this process (Moscardo, 2011; Nunkoo and Ramkissoon, 2010). Therefore, we need to mix socio-structural (socio-economic) and socio psychological (attitudes, beliefs and values) approaches (Dietz et al., 1998, cited in Dickinson and Dickinson, 2006).

The negative and positive effects, or costs and benefits, of tourism are divided into three groups: economic, socio-cultural and environmental (Andereck et al., 2005). Each group has its own positive and negative aspects. The majority of researchers studied the relationship between the general perceived effects as two groups, positive and negative, and support for tourism. They found a significant negative relationship for the negative perceived effects and a significant positive relationship for the positive perceived effects (Choi and Murray, 2010; Gursoy, 2004; Gursoy, 2006; Jurowski, 2004; Koa and Stewart, 2002; Lee, 2013; Sanchez et al., 2011). Only (Gursoy, 2006) found that the negative relationship between costs and support is not significant. Other researchers used the positive and negative impacts and their economic, socio-cultural and environmental aspects separately or used only some of them (Dyer et al., 2007; Gursoy, 2004; Yoon et al., 2001). The results were not supportive for all aspects. Therefore, in line with SET and TPB which refer to the importance of attitude (perceived negative and positive impacts) in forming the behavior (supporting tourism) (Nunkoo and Ramkissoon, 2010), we suggest the following two hypotheses:
H1: A positive relationship exists between perceived positive impacts of sustainable tourism (perceived benefits PB) and residents' support for sustainable tourism development (STD).
H2: A negative relationship exists between perceived negative impacts of sustainable tourism (perceived costs PC) and residents' support for sustainable tourism development (STD).

According to Gursoy (2006, p. 610) "the most salient impact is likely to influence the perception of all other impacts", however, he couldn't support this idea empirically. For Mardin, as tourism is a mean of economic development and improving the well-being of society, we expect that people perceiving of those positive impacts of tourism may reduce their evaluation of the negative impacts. Therefore, we propose the following hypothesis:
H3: A negative relationship exists between perceived positive impacts PB and perceived negative impacts PC of sustainable tourism development.

For McCool and Martin (1994) cited in (Harill, 2004) community attachment is "extent and pattern of social participation and integration into community life, and sentiment or affect toward the community", this may contain many elements of "emotion, affect, meaning, feeling, bonding, and value" (Nicholas et al., 2009, p. 395). In the view Kyle et al. (2004) cited in (Lee, 2013, p. 38), the residents' "attachment to their community is demonstrated through the concepts of community identity, community dependence, social bonding within a community, and affective responses to feelings regarding a community". Therefore, community attachment plays an important role in residents´ attitude toward society development (Nicholas et al., 2009), and then sustainable tourism development. This is in line with SRT which refers to the role of a stock of shared values, ideas, beliefs, and practices inside a society or group's member, in the attitude (Dickinson and Dickinson, 2006; Weaver and Lawton, 2013); and TPB, which says "if the individual perceives that his or her family, friends or members living in a community encourages such support for tourism, he or she will be more willing to support such development" (Nunkoo and Ramkissoon, 2010, p. 530). The Measures of community attachment and its relationship with tourism development deferred among researchers (Nicholas et al., 2009). Some researchers used the birth place and length of staying to measure the attachment (Davis et al.,

1988; Jurowski et al., 1997; Lankford and Howard, 1994; Liu and Var, 1986; McCool and Martin 1994; McGehee and Andereck 2004; Sheldon and Var, 1984; cited in Andereck et al., 2005 and García et al., 2015), though McCool and Martin (1994) cited in (Mason and Cheyne, 2000) did not find a clear relationship between community attachment and length of residence. Others used self-evaluation items in the questionnaire (Choi and Murray, 2010; Gursoy and Kendall, 2006; Gursoy and Rutherford, 2004; Lee, 2013; Nicholas et al., 2009). Some researchers studied the direct relationship between community attachment and support for tourism (Nicholas et al, 2009), others mediated the perceived costs and benefits between them (Choi and Murray, 2010; Gursoy and Kendall, 2006; Gursoy and Rutherford, 2004; Jurowski and Gursoy, 2004).

Liu and Var (1986), Sheldon and Var (1984), and Um and Crompton (1987) cited in (Mason and Cheyne, 2000) reported that a longer residency is associated with negative stance toward tourism development. On the other hand, while McCool and Martin (1994) cited in (Mason and Cheyne, 2000) found that more attachment means higher evaluation of positive and negative effects of tourism, Davis et al. (1988) cited in (Tosun, 2002) reported that the attached people are more positive about tourism than the less attached ones. However, Lankford and Howard (1994) cited in (Tosun, 2002) found no significant relationship between the two. According to Nicholas et al. (2009) results, there is a positive direct relationship between community attachment and support for tourism. Choi and Murray (2010) findings, referred to a direct and indirect positive relationships between community attachments and tourism. Gursoy & Rutherford (2004) reported that community attachment has a positive relationship with perceived positive economic and social impacts but has no relationships with perceived social and cultural negative impacts and perceived positive cultural impacts. Gursoy and Kendall (2006) and lee (2013) reported no significance relationships between community attachment and perceived cost, but they found a positive relationship between community attachment and perceived benefit of tourism development. So there is no consensus among researchers on this topic. But in recent studies they tend to show the existence of a positive relationship (directly or indirectly by perceived benefits) between community attachment and tourism development. In this context, as our case study is less developed and sustainable development represents an opportunity for developing the area, we suggest, using self-evaluation items to measure attachment, and in line with TSR and TPB, the following hypotheses:

H4: A positive relationship exists between community attachment CA and perceived positive impacts PB of sustainable tourism development.

H5: A negative relationship exists between community attachment CA and perceived negative impacts PC of sustainable tourism development.

H6: A positive direct relationship exists between community attachment CA and residents' support for sustainable tourism development STD.

By applying the TPB in the context of tourism Nunkoo and Ramkissoon (2010, p. 530) conclude that, as the power of residents affects their support for tourism development, "the greater the individual perceives that he or she has control over his or her behavior towards tourism, he or she would be more willing to support tourism development". According to Nelson (1993) cited in Choi and Murray (2010) the participation of residents in decision making is a basic signal for sustainable tourism. Nicholas et al. (2009, p. 396) referred to the same idea saying: "community involvement-in tourism planning and management - is considered to be the cornerstone of sustainable tourism development". Many researchers explored the relationship between community involvements and tourism. Choi and Murray (2010) studied the role of community participation, and found no direct relationship between community participation and support for tourism, but there was a negative relationship between community participation and positive impacts of tourism, and a positive relationship between community participation and negative impacts of tourism. But Nicholas et al., (2009) could not find a direct or indirect relationship. However, Lee (2013) studied the indirect relationship by mediating perceived benefits and costs, and assured the existence of indirect positive relationship between community involvement and sustainable tourism development through perceived benefits. As there are no clear cut results in this area we suggest the following hypotheses:

H7: A positive relationship exists between community involvement CI and perceived positive impacts PB of sustainable tourism development.

H8: A negative relationship exists between community involvement and perceived negative impacts PC of sustainable tourism development.

H9: A positive direct relationship exists between community involvement CI and residents' support for sustainable tourism development STD.

Gender as a social structure plays an important role, especially in the developing countries. The Marxist view says that class differences, in capitalism system of production, are the mechanism that enables men to restrict women from work, income and independence; and structures labor force hierarchically. Others say the patriarchal relations determined women access to occupations. Or we can say that the capitalist hierarchy and patriarchy both shape the gender role (Chhabra, 2007; Kinnaird and Hall, 2000), and affect the ideas, values and behavior of humans. Also Nunkoo and Ramkissoon (2010) say, in the context of TPB, that the inequality of power between men and women, and then the differences in their control over tourism may lead to differences in their support for tourism development (Alonso, 2015). In empirical studies, Mason and Cheyne (2000) found that the women are less supportive of tourism development. Also Nunkoo and Gursoy (2012) found no effect of gender on the attitudes of positive impacts but it affects the attitudes of negative impacts of tourism. And the women were more negative. However, they considered gender as one of socio-demographic factors, which may affect, but not general social structure that makes the context of the whole process. Relating to the role of gender, in line with structuralism and post structuralism, we consider gender as one of social structures that shapes the interaction between sustainable tourism development and local community, and suggests the following hypothesis;
H10: there are significant differences between men and women in their attitudes and behavior toward sustainable tourism development.

3. Methodology

Study Site and Context is Mardin city in Turkey. Mardin is located in Southeast Anatolia. It is one of the most important cities in Turkey with its natural beauties, cultural heritage and socio-cultural elements. It was added to a tentative list of Unesco World Heritage sites. It has a unique population diversity in Turkey. Kurds, Arabs, Turks, Assyrians, Christians, and Muslims live in the city. But there are many obstacles for tourism development, such as weak human resources and transport infrastructure, lack of diversified tourism products, non-availability of tourism information (Toprak et al., 2014, 114-137). Mardin is a less developed area, relative to Turkey in general, by economic and social measures. The social structure is characterized by large nuclei families composed of 8 members (Toprak et al., 2014, 114-137). According to an EU report in 2013 there are the following indications about the situation of gender equality in Turkey: The general employment rate of women in the Turkish labor market (28.7%) in 2012, the EU-27-average (58.6%). Tertiary education attainment of women in Turkey is 10.6% in 2012, the EU-27-average 25.8%. Gender pay gap is between 10% and 30% in favor of men. And the shares of women in the management positions are 7.0%, the EU-27 average 33.0%. And we expect the situation will be worse in Mardin, as it is less developed area in Turkey.

According to Turkey Tourism Strategy- 2023 (Ministry of Culture and Tourism- 2007, pp 11-13) Turkey will adopt a sustainable tourism approach and will aim at the same time to "leverage the rates of employment and regional development ……..To become a world brand in tourism and a major destination in the list of top five countries, receiving the highest number of tourism and highest tourism revenues by 2023". There is an important role for local community residents in facilitating the execution of this strategy, and raising the contribution of the tourism sector to the local economy, in the context of sustainable tourism development. So it is important to understand the attitude of Mardin resident toward sustainable tourism development; as it belongs to a developing country (Turkey), less developed as a tourism destination, and less developed by socio- economic measures, specially relating to gender. Therefore, it is a good case study for our paper. We used a questionnaire, previously used by Lee (2013). We feel that this questionnaire is suitable for our paper for two reasons. Firstly, to be able to make a reasonable comparison with Lee (2013), as this research conducted in a developing country. Secondly, this questionnaire covers the variables that we want to study. In addition, we discussed the questionnaire with five of teaching staff members of *High School of Tourism and Hotel Management- Artuklu University,* and they agreed that the questionnaire is suitable for this study. The questionnaire contains /32/ items in addition to socio-demographic characteristics. Five items to measure support for sustainable tourism development, three for perceived costs, ten for perceived benefits, four for community involvement and ten for community attachment.

The research was conducted in Mardin city between April and May 2015, by simple random sampling, and face to face questionnaire, by the authors. We tested the people understanding for the questionnaire by a sample of 50 people, and found a good understanding. Five strategic locations were chosen to conduct the questionnaire, as we expect that the majority of Mardin people should pass through these locations (the biggest mall in Mardin, the governorship gate, the government hospital yard, the old Mardin bus terminal and the biggest public garden in Mardin). About 20% of people, who were asked to fill the questionnaire, accepted to do, as they were busy or they did not like to do. We could get 900 filled questionnaire, 66 (or 7%) were not completed, and 834 (or 93%) were valid. We used SPSS 21 and AMOS and Structural Equation Model to analyze and test our hypotheses. "Structural equation modeling (SEM) is a technique for simultaneously estimating the relationships between observed and latent variables (the measurement model), and the relationships among the latent variables (the structural model). SEM is a method that has gained popularity because it combines confirmatory factor analysis and regression analysis to model the variety of psychological, sociological, and other relationships" (Lindberg and Johnson, 1997, cited in Koa and Stewart, 2002).

4. Results

Our population was Mardin city population, /383984/in the year of 2014, for Artuklu and Kiziltepe districts (Turkish Statistical Institute website). For demographic profile of the respondents, our sample size was /834/, among them 352 (42,2%) women and 482(57,8%) men, the ratio for Turkey as a whole was 49,8% and 50,2% relatively for the year of 2014(Turkish Statistical Institute website), the majority of them were single (51,3%) In terms of age (44,40%) were between 18-25, (24,90%) between 26-35, (17,70%) between 36-45, (9,60%) between 46-55 and (3,40%) 56 and more. Relating to education (27,1%) completed university level education. This means that the sample is balanced relative to Mardin society, as it is a young society with high fertility rates and the restricted activity for women outside home. Relating to the measurement model which relates the observed variables to latent variables, we conducted the confirmatory factor analysis CFA, and the results are shown in table (1). The loading of factors was between /0,74-0,93/ and /P<0,05/, which means the convergent validity, as they are more than /0,60/ (Nicolas, 2009). The Cronbach's alpha values refer to the internal consistency, as they are between (0,74 -0,96), and more than the threshold of (0.70) (Nunnally, 1978; cited in Nicolas, 2009). The average variance extracted AVE values ranged between /0,66-0,80/, also are more than the accepted value of /0.50/ (Fornell and Larcker, 1981; cited in Nicolas, 2009) these mean good validity and reliability. For the goodness of fit of the model we used the indices used by Nicolas, (2009), and got Chi-square = 1195,15, Degrees of freedom = 451 and Probability level = 0,000 which implies that the measurement did not fit the data well, but Chi square/df = 2,65 is good indicator as it is less than threshold 3, the comparative fit index (CFI) was 0.92 (more than 0.90) and the root mean square error of approximation (RMSEA) of 0.063 (less than 0.08) are also good indicators of fitness.

We estimated the structural model, using the whole sample. The table (2) is showing the results. The goodness of fit of the model is measured by the same indices as a measurement model. Chi-square = 1312,41, Degrees of freedom = 451, Probability level = 0,000, Chi-square /df = 2,91 the comparative fit index (CFI) of 0.93 and the root mean square error of approximation (RMSEA) of 0.067, which means acceptable level of fitness, though chi-square is not good. As we can see in the table /2/ our hypotheses 1, 2, 3,4,5,7, 9 are supported at the significant level of 0.05, the hypotheses 6 and 8 is refused at the significant level of 0.05. To test hypothesis10 we conducted the multi-group analysis, which is used in SEM to test whether the parameters are equivalent (or invariant) across groups, or whether the same theories is valid across groups in the same ways. According to Byrne, (2004, p272) "it is typically assumed that the instrument of measurement is operating in exactly the same way, and that the underlying construct being measured has the same theoretical structure for each group under study. As evidenced from reviews of the literature, however, these two critically important assumptions are rarely, if ever, tested statistically. One approach to addressing this issue of equivalence is to test for the invariance of both the items and the factorial structure across groups using the analysis of covariance ....structures. As such, one would test for the equivalence of all items designed to measure the construct underlying each subscale.., as well as relations among these underlying constructs". We grouped our sample by gender and estimated full constrained and unconstrained models, after omitting the insignificant path of community attachment to sustainable tourism support, compared the Chi-square and degrees of freedom, and made decision about existence of significant difference between the

two groups. As we can see in the table /3/panel (a), there is a significant difference, this allows us to go ahead and test the whole paths over the two groups. And there are significant differences between men and women for all paths. This supports hypothesis 10.

Our results about association of residents' perceptions for benefits and costs of sustainable tourism development and their support for sustainable tourism development, are correspond with the results of the majority of previous studies (Choi and Murray, 2010; Gursoy and Kendall, 2006; Gursoy and Rutherford, 2004; Lee, 2013, Nicholas et al., 2009; Nunkoo and Ramkissoon, 2010) that there is a negative association for costs and a positive association for benefits. These support Lee's, (2013, p.42) findings about the "international and multicultural perspectives on community-based sustainable tourism development". But as we can see in table /4/, which compares our results with those of Lee, (2013) as a study of developing country but developed destination with a sample of tourism involvement people, and Choi and Murray, (2010) as a study of developed country, the people in a developed country and developed destination are less supportive of tourism. We expect this to be, in line with Irridix and TALC, a result of the level of countries and destinations development. In addition the more involved people may be more aware of the positive and negative effects of tourism. The negative association between PB and PC, may be explained by the fact that people start thinking about tourism as beneficial economic activity and later they realize its costs, or they ignore the negative effect as it is small at the first stage. This finding is somehow new as we could not find it in previous studies.

For community attachment, as we noted in the literature review the studies reflected different findings. We found an insignificant positive direct relationship which was significant in Choi and Murray, (2010) and Nicolas et al. (2009). Considering the association of CA and PB and PC, we found a positive association and a negative association respectively. This agrees partially with Gursoy and Kendall, (2006) and Lee, (2013), as they could not find a significant relationship for PC. From table /4/ we see that in the cases of Choi and Murray, (2010) and Lee, (2013) there is a stronger positive association between CA and PB, and a stronger negative relationship with PC for Choi and Murray, (2010) with no relationship for Lee, (2013), compared with ours. We relate this to the degree of destination development and using additional variables for the first and tourism involvement of the sample in the second, also may it be related to the dependency on tourism as a source of income directly or indirectly, as we expect that this dependency reduced the sensitivity of Lee, (2013) sample for this path. By exploring the role of community involvement, there was a positive direct association between CI and STD, which means that the involved people may support tourism, without making special attitude toward its effects, while Choi and Murray (2010) and Nicolas et al. (2009) found an insignificant negative association. So we can say that more involved people may be more positive about tourism, regardless of their attitude. For the association between CI and PB and PC, there was a positive association. This is in line with the results of Lee, (2013) for the PB and Choi and Murray (2010) for PC, but it was at the opposite of Choi and Murray (2010) for PB. For our results it could be explained by the increasing level of knowledge about the negative and positive effects of tourism, with more involvement, and the level of destination development, as our case study is at the starting level and there are not much negative experiences yet.

While we used gender as a social structure that shapes the model and its variables as a whole, the previous studies used it as one of the demographic characteristics. Table /3/ panel (2) shows significant differences between men and women. Considering the paths of effects of perceived cost and perceived benefits on sustainable tourism development, the women are less able to turn their attitudes to effective behavior toward tourism. We can explain this result by the level of social development of Mardin society and the constraints on the behavior and rights of women. For the path of the relationship between community involvement and STD, we can see that with higher involvement the women provide a stronger direct support for STD than men and their sensitivity for PC increases with the increase of involvement more than men, while men are more sensitive for the positive effects. This means higher readiness of women to support tourism, as a chance for better future, without make a special attitude toward cost and benefits. In addition with the increase in women knowledge by the involvement they became more sensitive for the negative effects of tourism. By looking at the relationship between PB and PC, we find a balanced view of the two by men, as there is no significant relationship, but for women there is a negative significant relationship. This reflects the different chances available for men and women to get knowledge for the interest of men, as the evaluation of negative

effects needs higher level of knowledge than the positive ones, in addition to tourism as good chance for women. For CA there are not important differences between men and women relating to the relationships with PB, though it is somehow stronger in the case of men. But there is negative relationship with costs, this means with more attachment women are ready, more than men, to ignore the negative effects of tourism and provide support for it.

5. Conclusion and Implications

In this paper we tested /10/ hypotheses, relating to the resident's attitude toward sustainable development of tourism and its antecedents and social context. To contribute to the efforts that try to understand this phenomenon; /8/ of our hypotheses were accepted, while two were refused. And our model after testing is showed in the figure 2. The first three hypotheses were informed by SET and TBP. They were accepted, which means that people compare between the cost and benefits of sustainable tourism and support it if the benefits are more than the costs. This confirms SET. Also the third hypothesis suggests that people appreciate benefits more than costs and they may ignore the cost because of the benefits. However, as there is a significant direct association between community involvement and support for sustainable tourism development, we can say that not only the perceptions of costs and benefits determine the support; there are other factors, such as community involvement. This path assures the TBP. For the community attachment, the hypotheses 4 and 5 were accepted, which means that more attached people tend to appreciate the positive effects of tourism and depreciate the negative effects. This supports TSR and TPB. However, the hypothesis 6 was refused, suggesting no direct relationship between CA and STD. Relating to the community involvement the hypotheses 7and 9 were accepted while the opposite of hypothesis 8 was acceptable, which means the more the involvement , the greater the appreciation of benefits and costs of tourism will be, with strongest effect for benefits. This also suggests supporting TPB, which refers to the role of control over the behavior in supporting it. Generally, there are indirect relationship between CA and STD, and direct and indirect relationship between CI and STD, with a stronger role for CI. The acceptance of hypothesis 10 means that gender as a social structure is one of the important contexts that shape the sustainable tourism supporting and its factors, and the interaction between them. This supports the using of structuralism and post structuralism in the context of tourism.

In general, we note that the theories which informed us supported partially, as they could explain the results together. This supports our dependence on the postmodernism view. And this gave us some new idea about this issue. Firstly, people in the developing countries and less developed destinations are less sensitive to the positive and negative effects of tourism, in association with society attachment. But with more involvement their knowledge and sensitivity increases. Secondly, people in developing countries and less developed people, with seeing the positive effects, reduce their evaluation of the negative effects. Thirdly, women are less active in transforming their attitude toward the positive and negative effects of tourism to support for sustainable tourism. But they are ready, more than men, to support sustainable tourism and ignore its negative effects, though their higher sensitivity to negative effects with more involvement. Depending on these results we can recommend the tourism decision makers to concentrate their efforts on raising the role of local community in all stages of tourism activities, especially giving women more chances in different levels of activities: planning, controlling, and managing. And increase promotion activities, such as festivals, conferences, sport events, in addition to developing tourism education with its different levels (technical and high) that contribute in developing the local resident's involvement in and their knowledge about tourism and their attachment to the community. And provide more support for small projects in tourism especially that is owned by women, such as studying the investment opportunities in this field and provide financial and technical facilities

In generalizing the results of this study there is some limitations should be taken into account. The limitations of this study were the using of (Lee, 2013) questionnaire with only three items for perceived costs, which is the minimum accepted level, and may affect the reliability of the scale. The other limitation is collecting data from the street and the low level of response. The third limitation was collecting the data only from Mardin city, excluding villages. The last two limitations may affect the representativeness of the sample. So we expect it will be better for future studies to overcome these limitations, and conduct study with more developed questionnaire, with samples cover villages. In addition, because we could not study the role of all social

structures, we expect it will be beneficial for future studies to make more searches about local resident's support for sustainable tourism development in the context of different social structures and other tourism destinations.

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Table1: Measurement Model Properties

Variables	Factor loadings	Average variance extracted	Cronbach's Alpha
Community attachment (CA)		0,76	0,96
The settings and facilities provided by this community are the best	0,86		
I prefer living in this community over other communities	0,84		
I enjoy living in this community more than other communities	0,92		
I identify the living in this community	0,86		
I feel that this community is a part of me	0,90		
Living in this community says a lot about who I am	0,87		
Living in this community means a lot to me	0,89		
I am very attached to this community	0,90		
I feel a strong sense of belonging to this community	0,87		
Many of my friends/family prefer this community over other communities	0,74		
Community involvement (CI)		0,80	0,92
I participate in sustainable tourism-related activities	0,86		
I support research for the sustainability of this community	0,90		
I am involved in the planning and management of sustainable tourism in this community	0,92		
I am involved in the decision-making for the sustainable tourism of this community	0,89		
Perceived benefits (PB)		0,72	0,96
Increase employment opportunities	0,81		
Increase shopping opportunities	0,85		
Increase the revenues from visitors for local governments	0,86		
Increase business for local people and small businesses	0,86		
Increase opportunities for leisure and tourism	0,89		
Improve the conditions of roads and other public facilities	0,86		
Provide an incentive for the preservation of local culture	0,88		
Develop cultural activities by local residents	0,87		
Increase cultural exchanges between visitors and residents	0,86		
Increase positive effects on cultural identity	0,75		
Perceived costs (PC)		0,66	0,74
Increase the prices of goods and services	0,794		
Increase environmental pollution	0,891		
Increase conflicts between visitors and residents	0,752		
Support for sustainable tourism development (STD)		0,82	0,95
I support the development of community-based sustainable tourism initiatives	0,88		
I participate in sustainable tourism-related plans and development	0,93		
I participate in cultural exchanges between local residents and visitors	0,91		
I cooperate with tourism planning and development initiatives	0,94		
I participate in the promotion of environmental education and conservation	0,89		

Table 2: The Basic Model (Standardized)

Path	Estimate	S.E.	C.R.	P
PB <--- CA	0,089	0,031	2,597	0,009
PB <--- CI	0,541	0,034	13,299	0,000
PC <--- CA	-0,083	0,039	-2,002	0,045
PC <--- CI	0,19	0,046	3,664	0,000
PC <--- PB	-0,105	0,049	-2,237	0,025
STD <--- CA	0,007	0,035	0,256	0,798
STD <--- CI	0,236	0,041	6,514	0,000
STD <--- PC	-0,139	0,035	-5,08	0,000
STD <--- PB	0,565	0,054	14,225	0,000

Table 3: The Results of Multi-Group Analysis Panel (a) Multigrup Comparison

models and paths	Chi square	freedom degrees	ΔChi square	ΔDF	
unconstrained model	2720,228	939			
Full constrained model	2623,718	904	96,51	35	P < 0,05
PB <--- CA	2623,718	905	96,51	34	P < 0,05
PB <--- CI	2623,971	905	96,257	34	P < 0,05
PC <--- CA	2632,29	905	87,938	34	P < 0,05
PC <--- CI	2626,28	905	93,948	34	P < 0,05
PC <--- PB	2629,084	905	91,144	34	P < 0,05
STD <--- CI	2632	905	88,228	34	P < 0,05
STD <--- PC	2629,08	905	91,148	34	P < 0,05
STD <--- PB	2624,03	905	96,198	34	P < 0,05

Panel (b) male and female models

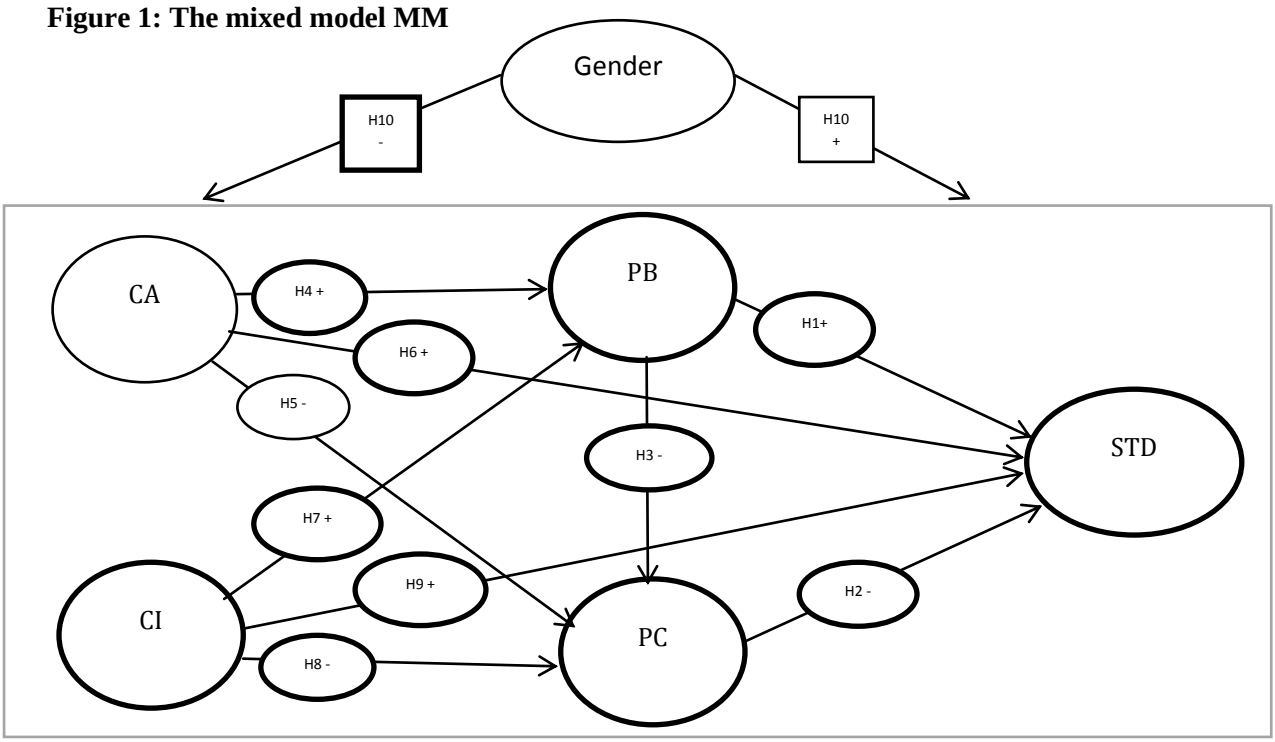
	Female standardized model		Male standardized model	
Path	**Estimate**	**P**	**Estimate**	**P**
PB <--- CA	0,087	0,011	0,098	0,025
PB <--- CI	0,511	0.00	0,561	0.00
PC <--- CA	-0,219	0,01	0,016	0,768
PC <--- CI	0,318	0.00	0,108	0,007
PC <--- PB	-0,266	0.00	0,003	0,96
STD <--- CI	0,335	0.00	0,154	0.00
STD <--- PC	-0,063	0,011	-0,189	0.00
STD <--- PB	0,524	0.00	0,619	0.00

Table 4: Comparative Results

path	Choi and Murray	Lee	Ours
PB <--- CA	0.300	0,4	0,089
PB <--- CI	−0.199	0,25	0,541
PC <--- CA	−0.236	0,06*	-0,083
PC <--- CI	0.285	-0,07*	0,19
PC <--- PB			-0,105
STD <--- CA	0.117		0,007*
STD <--- CI	−.096*		0,236
STD <--- PC	−0.378	-0,24	-0,139
STD <--- PB	0.424	0,69	0,565

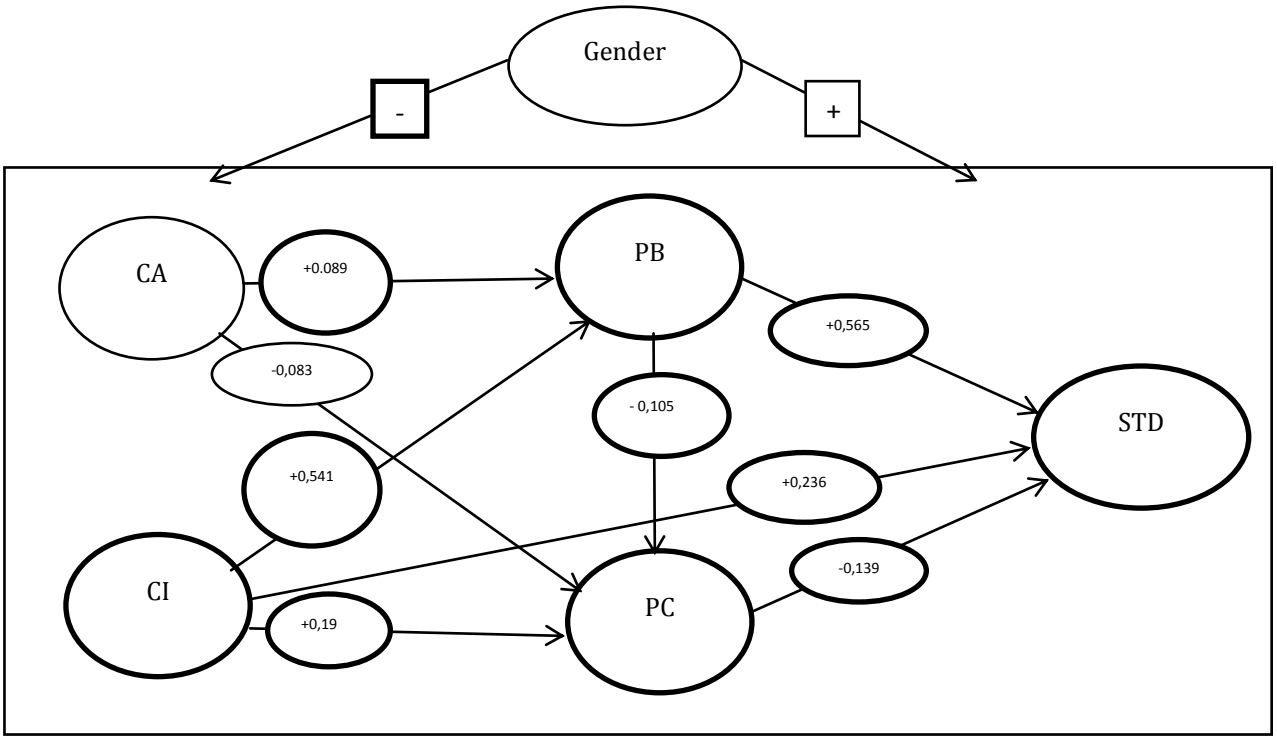
* not significant

Figure 1: The mixed model MM



* CA: community attachment, CI: community involvement, PB: perceived benefits, PC: Perceived costs and STD: support for sustainable tourism.

Figure 2: The mixed model MM after testing



* CA: community attachment, CI: community involvement, PB: perceived benefits, PC: Perceived costs and STD: support for sustainable tourism.

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Modeling the Factors that Influence Employee Attitude and Service Delivery Behavior among Higher Education Professionals

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Abstract: Good and well calculated service delivery is very essential for the smooth running of institutions and for life long learning of students. Looking at factors that lead to employee attitude and service delivery bevaviour helps the higher education professionals to build a strong positive relationships with peers, students, staff and university leaders. This paper will look at remuneration, professional development and Information Communication Technology (ICT) efficiency as factors that contribute to positive employee attitude and good service delivery behaviour. Efforts by higher education institutions to improve the quality and standards of education professionals have progressed through the use of various forms of student feedback and methods of evaluation in an attempt to understand what matters to students' and educational professionals regarding their educational experience. Structured questionnaires were distributed to university professionals, which include all university staff like Deans of faculties, Heads of departments and lecturers at one University of Technology (UoT). A quantitative method using Smart PLS was employed to test the relationships among the four hypotheses. The positive relationship between the four proposed hypotheses validatesthat remuneration; professional Development and ICT efficiencyare instrumental strategy to stimulating employee attitude and service delivery behavior of employees.Practically, the study build on a new direction towards research based on consumer behaviour by opening up a discussion on the importance of marketing practices in the development and improvement of service delivery behaviours in one UoTs in South Africa. Based on the findings, recommendations will be made to both the university policy makers and the university professionals for efficacy reasons. The proposed study is expected to have practical and theoretical implications to policy makers for the university and university professionals. In addition, it will provide added insights and added new knowledge to the existing body of literature hitherto not studied extensively in South Africa and UoT in particular.

Keywords: *Equity theory, Remuneration, Professional development, Information communication technology efficiency, Employee attitude, Service delivery behaviour*

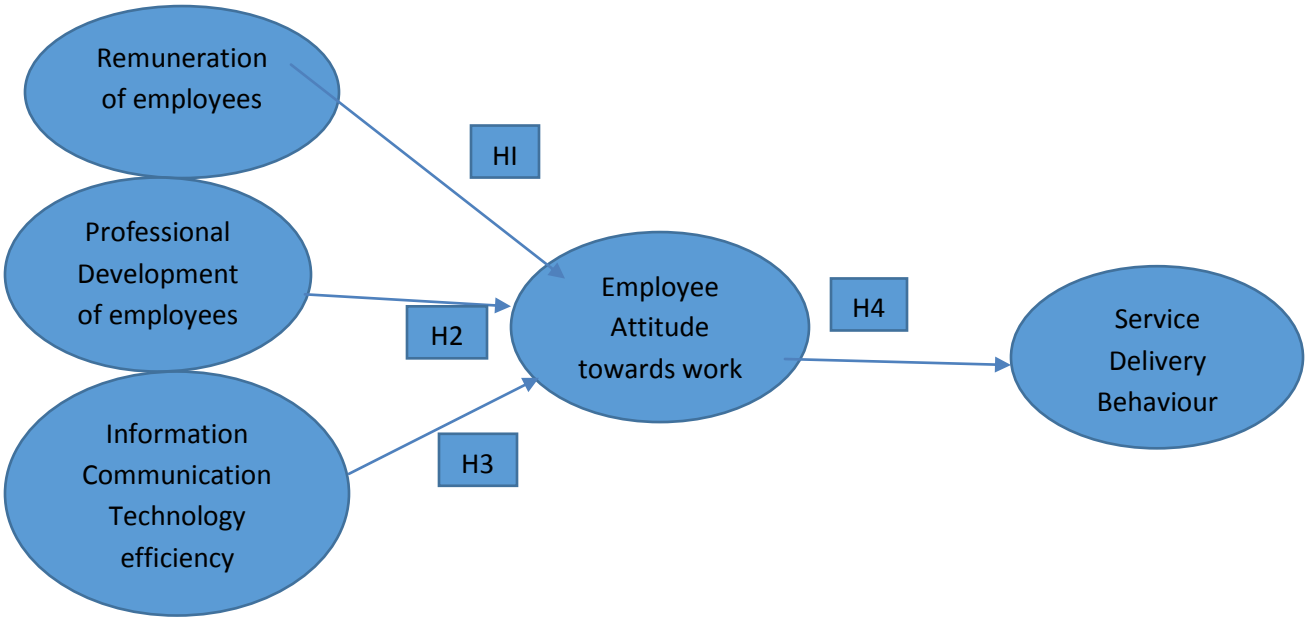
1. Introduction

Positive service delivery behaviour of employees is crucial in any service organisation as it connects the organisation with its customers, thereby representing a critical factor towards the development of effective customer working relationships (Doherty, Shakur & Ellis-Chadwick, 2015, Andrzejewski & Mooney, 2016). Service delivery behaviour can also serve to maintain customer satisfaction by fulfilling the promises made to customers. However, for the delivery behaviour to have a positive effect on services rendered, it should be nurtured by the application of specialised competencies and expertise for the benefit of the organisation and its clients (Pugh & Subramony, 2016). Therefore, delivery behavior necessitates obligatory pre-requisites such as training and development, ICT efficiency and remuneration, for it to produce value among stakeholders. Service delivery behavior among higher education professionals is essential for quality performance, development and continued existence of institutions of learning (Nisiforou, Poullis, & Charalambides, 2012, Sá, Rocha, & Cota, 2016). The significance of service delivery has been widely acknowledge as a mechanism for success, development, customer retention and relationship and sustainability especially among the public and private service sector in South Africa (Lues, 2007; Dorasamy, 2010; Sibanda, 2012). Service delivery behavior has the potential of enhancing organization's well-being and competitive performance which may further enhance service quality. According to Bienstock, DeMoranville and Smith, "the lifeblood of a service organization is its employees". Therefore, an acceptable standard of service delivery behavior is very essential. Due to its importance, strategies and tools such as organizational citizenship behavior (OCB), customer orientation behavior (COB) and etc. has been put in place to ensure efficient and effective enhancement of employee attitude towards service delivery behavior (Lin & Lin, 2011; Mechinda & Patterson, 2011; Jain, 2015; Zayas-Ortiz, Rosario, Marquez, & Gruneiro, 2015; Wen, Li & Hon,

2016; Chumg, Seaton, Cook & Ding, 2016). Its influence within any service organization culminates in either positive or negative reputation (Echchakoui, 2016); accomplished or unaccomplished goals as well as commitment or lack of commitment, thereof (Ratanavaraha, Jomnonkwao, Khampirat, Watthanaklang, & Iamtrakul, 2016, Verbich, & Ahmed, 2016). In order words, service delivery behavior can hinder positively or negatively on organization's reputation as well as organization's promise made to customers.

Broadly, service delivery can be defined as deeds, performances and efforts that cannot physically be possessed (Pugh & Subramony, 2016). Service delivery is both the mechanical and human effort of providing a service to satisfy customer specific needs (Wang, Zhao, &Voss, 2016). According to Holtom, and Burch (2016), Pugh and Subramony (2016), service delivery may be characterized as intangible (cannot be touched), inseparable (production and consumption happen at the same time) and heterogeneous (unrelated) in nature. In this case the customer or client may either find increased value and satisfaction or loss value and dissatisfaction as a result of negative service delivery behavior (Mpofu & Hlatywayo, 2015). Therefore Higher Education as a service organization should strive to ensure that service behavior by an individual professional brings satisfaction, customer benefits and good performance. Higher Education professionals in the field of marketing and management precisely, have researched on service delivery behavior impact on satisfaction and mostly focusing on service delivery processes in creating service quality performance (Mpofu & Hlatywayo, 2015, Holtom, & Burch, 2016, Wahab, Bentahar, Otrok, & Mourad, 2016, Liu & Lee, 2016). However, according to this study, service delivery process may not have a direct influence on service delivery behavior as proposed by previous researchers without first dealing with determinants of employee attitude toward a change in service delivery behavior (Bartel, Freeman, Ichniowski & Kleiner, 2011). For this study therefore, service delivery behavior is the outcome of interface between higher education integrated processes and teaching professionals that can be influence by some input factors such as remuneration, continuous development or training and institution ICT efficiency (Thomas, Passfield, Coulton, & Crone 2016, Mpofu, & Hlatywayo, 2015). The above mentioned factors can positively influence employee attitude towards positive service behavior improvement and productivity. Modeling the factors that influence employee working attitude and service delivery behavior among higher education professionals is the focus of this study. The proposed framework for this study examine employee working attitude as the mediating variable between the determinants of the service delivery behavior among the South Africa higher education professionals in UoT, particularly in Gauteng Province.

Figure 1: Proposed research model



2. Literature Review

Equity theory: Equity theory which originated from the discipline of psychology is based on cognitive dissonance theory which was developed by Festinger in the 1950s (Kinicki & Kreitner, 2008). The equity theory is a model of motivation that explains how people strive for fairness and justice in social exchanges or give-and-take relationships. Researchers have demonstrated that people attempt to "get even" for perceived injustices by using either direct responses such as theft, sabotage, violence or absenteeism or indirect responses such as being less cooperative and displaying low levels of organizational service delivery behavior (Ang, Van Dyke & Begley, 2003; Almar, 2005). Adams (1963; 1965) who pioneered the application of the equity principle to the workplace, established that the relationship of individual organization exchange is pivotal in the formation of employees' perceptions of equity and inequity because workers expect an organization to be fair and reciprocate by working harder. The equity theory theorized that some people become very upset over the slightest inequity whereas others are not disturbed at all. Research has shown that people respond differently to the same level of inequity due to individual difference called equity sensitivity (Steinbeis & Singer, 2013). When relating the Equity theory to this study it is assumed that the employees in one UoT may experience distress or poor service delivery behavior, if for example, they expect the ratio between effort spent and rewards received at work to be inequitable when compared to the average contribution of others. As a result of this perception of inequity, the workers are likely to behave in a way to avoid this distress by reducing among others, their commitment to the employer, bad employee attitude or vice versa. If higher education professionals are given fair remuneration, good and up to date professional development will result in a positive employee attitude and positive service delivery behavior.

Determinants of service delivery behavior: The delivery of improved service quality among tertiary institutions in South Africa has been and continues to draw attention from the external and internal environment. There are various factors that affect service delivery and it is the purpose of the study to analyze those factors and come up with recommendations on how to improve service delivery.

Remuneration and employee attitude: Employee compensation in the form of remuneration or salary is another important factor that determines service delivery behavior in this study. Remuneration can bring about positive employee attitude to delivering value and goal achiever if the employee is satisfied (Davies, Taylor & Savery, 2001, Chaiprasit & Santidhirakul, 2011, Antoncic & Antoncic, 2011). According to Aguinis, Joo and Gottfredson (2013) and Wells (2015), well paid employees are motivated to work with positive attitude towards clients and easily become adapted to skill development, organizational goals, performance and profitability. Remuneration increases teaching professionals' level of commitment/engagement and involvement towards organizational goals and its values (Hon, 2012, Anitha, 2014, Blašková & Blaško, 2014). According to Carraher (2011) and Zalewska (2014), monetary remuneration is a major cost factor of production that an employer uses to attract/retain, motivate performance and to influence positive workplace attitude among higher education professionals, as well as gain competitive advantage over competitors. According to Erasmus, van Wyk and Schenk (2001:526), remuneration is defined as "the financial and non-financial extrinsic rewards provided by an employer for the time, skills and effort made available by the employee for fulfilling job requirements aimed at achieving organizational objectives." Concepts such as pay, wage or salary are occasionally used as more or less having the same meaning as remuneration. Carr and Kazanowsky (1994) showed that inadequate salary was much related to employees' dissatisfaction and ultimately, unfavourable attitude towards the provision of quality services in the workplace. This demonstrates that when employees perceive that their remuneration is fair, they are most likely to experience a feeling of favorableness towards the delivery of quality services. This is because income helps individuals meet certain universal needs and therefore; income, be it financial or non-financial, is an antecedent to positive attitudinal evaluations towards service quality delivery. Based on the foregoing discourse of literature the following hypothesis is formulated for this study:
H_1: There is a positive relationship between remuneration and employee attitude.

Professional development and employee attitude: With the increasing development in technology and global competition, Eisele, Grohnert, Beausaert and Segers (2013), Mpofu and Hlatywayo (2015), Eddy, Eddy and Doughty (2015), Thomas et al. (2016) among others, appreciate the importance and need for professional development as it help institutions sustain their professional competences. Professional

development for this study is defined as a strategic intervention designed to ensure that teaching professionals continue to strengthen competence performance (Sahinidis & Bouris, 2008). Employee training and development aid effective functioning of any service organizations. For improvement to be possible, teaching professional need to be trained so as to improve on teaching quality service to students (Lammintakanen & Kivinen, 2012). Training provides good administration and encourage employee to be more progressive and active at work (Johnson & Beeh, 2014). As such, investment in employee development through training have influence employee attitude at workplace. Cooke (2012), states that, "professional development not only strengthen knowledge and skills necessary for competence performance but also values and attitudes necessary for the service orientation of a profession". Training brings about changes in awareness, motivation and confidence of attitude (Ankli & Palliam, 2012). These changes in employee attitude allows employees go a step further to take strategic responsibility to achieving teaching objectives and goals as well as quality management (Pinnington, 2011; Beausaert, Segers, Fouarge & Gijselaers, 2013). Staff who receive training on the emerging teaching skills/competences and technology that are required to perform well within learning environment will definitely have positive attitude to work in an effective manner and thereby influencing service delivery behavior.

H2: There is a positive relationship between professional development and employee attitude.

ICT efficiency and employee attitude: Information and communication technology (ICT) is among the developmental trends that cause significant change in global business sectors of which teaching institution are part (Laleye, 2015; Melián-González & Bulchand-Gidumal, 2016; Johannsen, 2016). ICT is the combination of information and communication technology for knowledge sharing and collaborative use within an organization or institution in order to effectively perform or carry out both business and educational activities (Hernandez-Ortega, Serrano-Cinca & Gomez-Mene, 2014; Granell, 2015). Computers and software such as E-mails, blog, video conferencing, social network like Blackboard teach, Facebook, you tube, internet and web tools are examples of ICT that support teaching and learning (Yassin, Salim & Sahari, 2013). With the advance in ICT, many organizations are able to cope successfully with both internal and external competitive rivals. Chou and Shao (2014), Cohen and Olsen (2013), has recognized ICT influence on employee attitude to perform effectively. According to Laleye (2015), Otaghsara, Mohseni & khalili (2012) & Brewer & Runeson (2009), ICT influence teaching attitude by bringing in new ways of teaching and learning, and thereby impacting delivery behavior towards student-centered education. Therefore teaching professionals ICT proficiency is necessary to fully contribute to knowledgeable global society and also contribute towards producing employable graduates. Thus,

H3: postulates that there is a positive relationship between ICT efficiency and employee attitude.

Employee attitude and service delivery behavior: Employee attitude may be seen as various sequences of actions (positive or negative) carried out by employees within the organization which may either strengthen or destroy a productive work environment (Welsh, Ganegoda, Arvey, Wiley & Budd, 2012; Lee, Almanza, Jang, Nelson & Ghiselli, 2013). The occurrence of negative behaviours can generate stress and provoke minor illnesses and even cause depression among employees (Limpanitgul, Robson, Gould-Williams & Lertthaitrakul, 2013). The threat is that these negative behaviours are epidemic and may spread to others like the flu, which is costly to the organization's productivity and eventually takes its toll on employees' health and performance (Susskind, Borchgrevink, Kacmar & Brymer, 2000; Dhar, 2015). Teaching professional with positive attitude is an asset in Higher Education environment because employee positive attitude influence the relationship between the determinant of good service delivery and service delivery behavior to fulfilling both clients and institution expectations (McCarthy, Reeves & Turner, 2010; Muthanna & Karaman, 2014). Therefore, a positive change in employee attitude can positively influence employee services delivery behavior. Positive working attitude produce positive behavior (Anand, Bisaillon, Webster & Amor, 2015). Organisation's action to ensuring employees positive attitude is an important strategy considering the fact that positive attitude will help Higher Education achieve institutional goal and objectives towards providing employable graduates. Hence,

H4: There is a positive relationship between employee attitude and service delivery behavior.

3. Methodology

A quantitative cross-sectional survey design was used to describe the service delivery behavior and its relationship with three selected determinants, namely remuneration, ICT skills and professional training. The study population was the academic workforce at one UoT in South Africa. Only those who are permanent employees and have been working there at least nine months were included in this study population. Nine months was the target inclusion period, as people tend to leave their post after one year and get permanent contracts six months after they are recruited. It was assumed after nine months one generally has an idea of one's levels of service quality delivery. As such, the inclusion/exclusion criteria determined that all those on internship and contract employees be excluded from this study.

Measurement instruments: Research scales were designed based on previous work. Proper modifications were made in order to fit the current research context and purpose. Remuneration was measured using six-item scales adapted from Adeoye (2014). Professional development used a six-item scale measure adapted from Yan and Ming (2012). ICT efficiency used a six-item scale measure adapted from Otaghsara, Mohseni and Khalili (2014). Employee attitude was measured using a six-item scale, from McCarthy, Reeves and Turner (2010). Last but not least, service delivery behaviour was measured using a six-item scale from Adsit, London, Crom and Jones (1996). Measurement scales were configured on a five-point Likert-type scale that was anchored by 1 (strongly disagree) to 5 (strongly agree) in order to express the degree of agreement.

4. Results

Sample description: 250 questionnaires were distributed to different UoT higher education professionals in the Gauteng Province in South Africa. 200 questionnaires were returned of which only 195 were usable. This yielded a valid response rate of 78%. Descriptive statistics in Table 1 show the gender, marital status, and age of higher education professional employees.

Table 1: Sample demographic characteristics

Gender	Frequency	Percentage
Male	78	40%
Female	117	60%
Total	195	100%
Age	Frequency	Percentage
≦30	92	47%
31-60	73	37%
≧ 60	30	15%
Total	195	100%
Marital status	Frequency	Percentage
Married	60	31%
Single	135	69%
Total	195	100%

As indicated in Table 1, more females participated in the study. They constructed 60% of the total population. This study shows that males only constituted 40% of the total respondents. In terms of the age groups of respondents, individuals who were less than 30 years of age were the greatest number (47%) in the study, followed by those aged between 31 and 60 (37%). Respondents who are married constituted 31% of the sample while those who were single, which constituted 69% of the sample.

Psychometric Properties of the Measurement Scale: Psychometric properties of the measurement scale are reported in Table 2, which presents the research constructs, Cronbach alpha test, composite reliability (CR), Average variance extracted (AVE) and item loadings.

Table 2: Measurement Accuracy Assessment and Descriptive Statistics

Research constructs	Descriptive statistics*		Cronbach's test		C.R.	AVE	Item Loadings
	Mean	SD	Item-total	α Value			
Remuneration (RM)							
RM 1			0.503	0.795	0.793	0.609	0.559
RM 2			0.623				0.673
RM 3	2.62	1.700	0.719				0.730
RM 4			0.601				0.618
RM 5			0.699				0.705
RM6			0.622				0.658
Professional Development (PD)							
PD 1			0.511				0.564
PD 2			0.765				0.802
PD 3	3.15	1.007	0.733	0.830	0.830	0.700	0.762
PD 4			0.810				0.852
PD 5			0.555				0.568
PD 6			0.622				0.721
ICT Efficiency (IE)							
IE 1			0.683				0.716
IE 2			0.670				0.727
IE 3	3.02	1.355	0.591	0.785	0.784	0.600	0.654
IE 4			0.601				0.628
IE 5			0.615				0.672
IE6			0.700				0.793
Employee Attitude (EA)							
EA 1			0.634				0.664
EA 2			0.625				0.652
EA 3	2.22	1.733	0.596	0.799	0.799	0.605	0.622
EA 4			0.705				0.714
EA 5			0.781				0.783
EA 6			0.741				0.750
Service Delivery Behavior (SB)							
SB 1			0.723				0.793
SB 2			0.801				0.812
SB 3	3.15	1.007	0.733	0.850	0.850	0.700	0.741
SB 4			0.811				0.849
SB 5			0.742				0.755
SB 6			0.551				0.557

RM=Remuneration; PD= Professional Development; IE=ICT Efficiency; EA= Employee Attitude; SB= Service Delivery Behavior

The lowest item to total loading observed was RM 1 with 0.503 and the highest was SB4 with 0.811. The lowest factor loading observed was SB 6 with 0.557 and the highest is SB 4 with 0.849. This shows that the measurement instruments are valid. The lowest Cronbach alpha was 0.785 and the highest was 0.850, which shows that the constructs were internally consistent or reliable and explained more that 60% of the variance. All composite reliability values were above the recommended minimum of 0.7 (Bagozzi & Yi, 1988), which further attests to the reliability of the measurement instrument used in the study. One of the methods used to

ascertain the discriminant validity of the research constructs was the evaluation of whether the correlations among latent constructs were less than 0.60. These results are reported in Table 3.

Table 3: Inter-Construct Correlation Matrix

Variables	RM	PD	IE	EA	SB
RM	0.543				
PD	0.500	0.598			
IE	0.493	0.561	0.430		
EA	0.470	0.499	0.442	0.505	
SB	0.300	0.370	0.307	0.466	0.588

RM=Remuneration; PD= Professional Development; IE=ICT efficiency; EA= Employee Attitude; SB= Service Delivery behavior

A correlation value between constructs of less than 0.60 is recommended in the empirical literature to confirm the existence of discriminant validity (Bagozzi & Yi, 1988). As can be observed from Table 3, all the correlations were below the acceptable level of 0.60. The diagonal values in bold are the Shared Variances (SV) for the respective research constructs. The Shared Variance is expected to be greater than the correlation coefficients of the corresponding research constructs. Drawing from Table 2 and 3 above, the results further confirm the existence of discriminant validity. To ascertain convergent validity, the factor loadings were considered in order to assess if they were above the recommended minimum value of 0.5 (Nunnally & Bernstein, 1994). The factor loadings for scale items (Table 2) were above the recommended 0.5, which indicated that the instruments were valid and converging well on the constructs that they were expected to measure.

Path Modelling Results: After confirming the reliability and validity of the measurement instruments (reported in Table 2), the study proceeded to test the proposed hypotheses. In total, there are four hypotheses that are tested. In the path model, Remuneration (RM); Professional Development (PD) and ICT efficiency (IE) are the predictor variables. Employees attitude (EA) is the mediator and Service delivery behaviour (SB) is the outcome/dependent variable. Figure 2 provides the proposed hypotheses and the respective path coefficients. The same results of the path coefficients are tabulated in Table 2 depicting the Item to Total correlations, Average variance extracted (AVE), Composite Reliability (CR) and Factor Loadings.

Path model results and factor loadings: Below is Figure 2, indicating the path modelling results and as well as the item loadings for the research constructs. In the figure, RM stand for Remuneration; PD is the acronym for Professional Development; IE stand for ICT Efficiency; EA is the acronym for Employee Attitude and SB stand for Service Delivery Behaviour

Table 4: Results of structural equation model analysis

Path	Hypothesis	Path coefficients (β)	T- Statistics	Decision on Hypotheses
Remuneration (RM) →Employee Attitude (EA)	H1	0.137[a]	2.483	Accept/ Significant
Professional Development (PD) →Employee Attitude (EA)	H2	0.392[a]	3.906	Accept/ Significant
ICT Efficiency (IE) →Employee Attitude (EA)	H3	0.336[a]	3.143	Accept/ Significant
Employee Attitude (EA) →Service Delivery Behaviour (SB)	H4	0.731[a]	11.989	Accept/ Significant

[a]Significance Level p<.10;[b]Significance Level p<.05;[c]Significance Level p<.01.

Figure 2: Path Modelling and Factor Loading Results

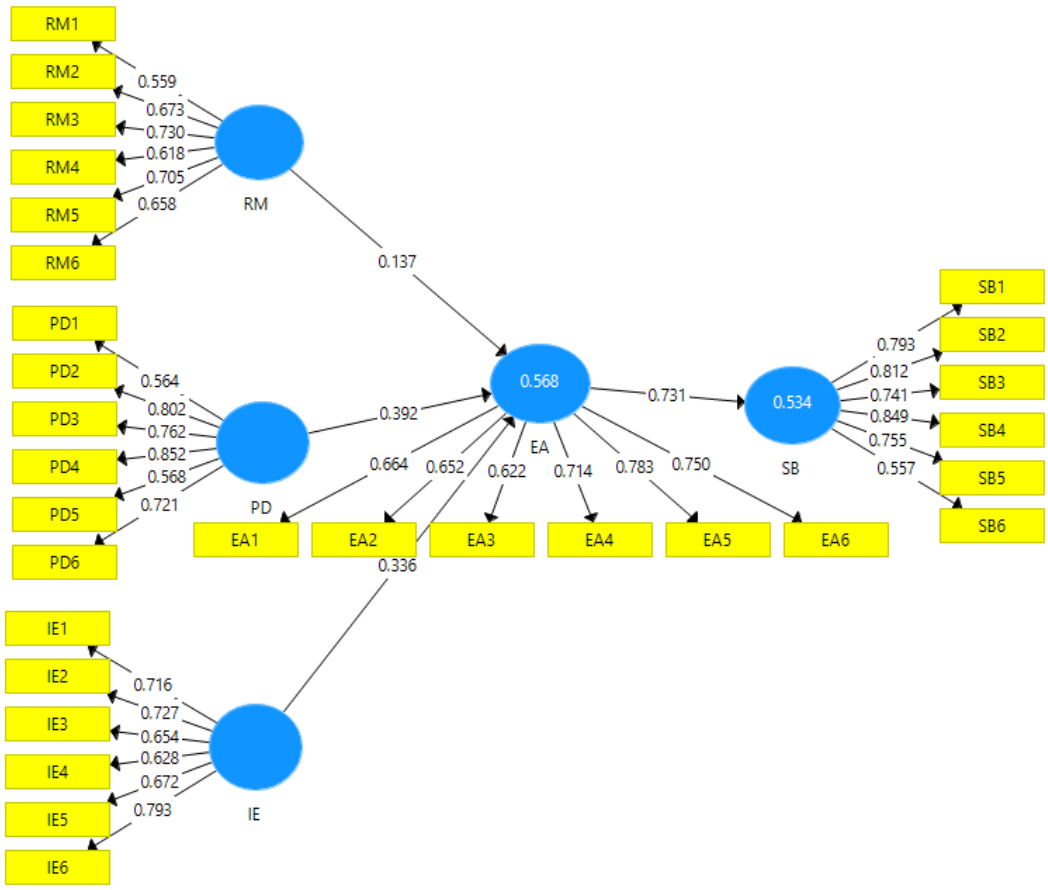


Table 4 presents the four hypothesised relationships, path coefficients, the t-statistics and the decision criteria. The value of the t-statistic indicates whether the relationship is significant or not. A significant relationship is expected to have a t-statistics that is above 2. Drawing from the results provided in Table 4, four of the hypothesised relationships (H1, H2, H3 and H4) were statistically significant.

Discussion: The purpose of this paper was to examine the influence of remuneration, professional development and ICT efficiency on employee attitude and service delivery behaviour in one UoT in South Africa. The first hypothesis stated that remuneration of employees has a positive influence on employee attitude towards work. In this study, this hypothesis was supported. It can be observed in Figure 2 and Table 4 that perceived remuneration exerted a positive influence (r =0.137) and was statistically significant (t=2.483) in predicting employee attitude towards work. This result implies that remuneration directly influence employee attitude towards work in a positive and significant fashion. The higher the level of remuneration, the higher the level of positive attitude towards work. The second hypothesis suggested that professional development a positive influence on employee attitude towards work. This hypothesis was supported in this study. Figure 1 and Table 4, indicate that professional development H2 was supported. Professional development exerted a positive influence (r= 0.392) on employee attitude towards work and was statistically significant (t= 3.906). This result denotes that professional development is positively and significantly related to employee attitude towards work. Thus higher levels of professional development will lead to higher levels of employee attitude towards work.

The third hypothesis, which advanced that ICT efficiency exerts a positive influence on employee attitude towards work was supported and accepted in this study. It is reported in Figure 1 and Table 4 that H3

employee ICT efficiency exerts a positive (r=0.336) influence on employee attitude towards work and that this influence is statistically significant (t=3.143). This result suggests that employee ICT efficiency has a direct positive effect on employee attitude towards work. Thus, the more effective the ICT efficiency, the greater the positive employee attitude towards work. The final hypothesis postulated that employee attitude towards workexerts a positive influence on service delivery behaviour of employees. In this study, this hypothesis was supported and accepted. As can be deducted from Figure 1and Table 4, employee attitude towards work exerted a positive and significant influence (r=0.731; t=11.989) on service delivery behaviour of employees. This result depicts that employee attitude towards work is associated with higher service delivery behaviour of employees. Employees attitude towards work (r=0.731) emerged as the highest scoring construct amongst the three factors influencing service delivery behaviour of employees. Perhaps, this result could be attributed to the fact that most higher education professions perform better and service delivery behaviour is at its peak when they have a good attitude towards work. Thus, in order to enhance good service delivery behaviour, greater emphasis should be placed on employee attitude towards work.

Limitations and Future Research Direction: A number of limitations were observed during this research. First, the study was restricted to five factors only; namely *Remuneration, Professional Development, ICT Efficiency, Employee Attitude and Service Delivery Behavior*. Future research could also include the perceptions of students as well. This could provide a basis for comparing the views of both students and employees. Second, the results are based on a small sample of 195 respondents, which makes it difficult to generalise the results to other contexts of higher education institution, UoTs in particular. Future studies could make use of amplified sample sizes in order to get views that are more representative. Since this study used a quantitative approach, future studies could also use a mixed method approach so that in depth views of higher education professionals can also be captured.

5. Conclusion and Managerial Implications

The study validates those factors such as rremuneration, professional Development and ICT efficiencyare instrumental stimulating employee attitude and service delivery behavior of employees. The study further validates that employee attitude towards work is good when the remuneration is good, professional development and ICT efficiency. Also employee attitude leads to more service delivery behaviour of employees. The study also underwrites a new direction in the research on consumer behaviour by opening up a discussion on the importance of marketing practices in the development and improvement of service delivery behaviours in one UoTs in South Africa. The study has both theoretical and managerial implications. Theoretically, this study makes a noteworthy progression in marketing theory by methodically examining the interplay between rremuneration; professional development and ICT efficiencyare instrumental stimulating employee attitude and service delivery behavior of employees. In this manner, the study is an important contributor to the existing literature on this subject. The study also underwrites a new direction in the research on consumer behaviour by opening up a discussion on the importance of marketing practices in the development and improvement of service delivery behaviours in one UoTs in South Africa.

On the practical front, since remuneration, professional development and ICT efficiency were exerted a positive influence on employee attitude towards work and service delivery behaviour, improvements in each of these three factors could stimulate higher service delivery behaviours in one of the UoTs in South Africa. Remuneration can be improved by paying salaries above poverty datum line and equity issues should be addressed. With regards to Professional development, more staff should be sent for training either in house or out of the company. ICT efficient there is need adopt new technologies of making work easier like the blackboard training. Employee attitudes at work can be improved through learning the benefits of organisational citizenship behaviours and avoiding organisational politics. Free Wi-Fi could also be made available at the whole campus for efficacy reasons. Seeing the importance as well as the significant value-adding for money emanating from service delivery behaviour, it is further recommended that a climate of continuous staff development that support and allow a gradual improvement of employee competences is important to service delivery excellent among UoT teaching professionals. Further study on the subject matter could be extended to other service organisation apart from UoT and possibly to traditional university in South Africa.

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The Prospects of the ICT Policy Framework for Rural Entrepreneurs: an analysis of the Relationship between ICT and Entrepreneurial Development

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Abstract: Entrepreneurs hold the keys to rapid technological development by offering the means to creating employment opportunities even in remote rural areas. Small entrepreneurs do not only provide livelihood for themselves, but they also create employment thereby easing up socio-economic tensions in an atmosphere where so many are deprived. This article introduces the concept of entrepreneurship and how it propagates development and advances human living conditions. The underlying assumption is that Information and Communication Technology (ICT) has a causal effect on human livelihoods of rural entrepreneurs. Thus, a sturdy relationship exists between ICT and entrepreneurial development for rural entrepreneurial economic growth. In the same manner the Government of Zimbabwe commenced on a comprehensive policy framework in order to harness the power of ICT. Through a documentary review analysis, the paper envisages how ICT can sustain rural entrepreneurial development in Zimbabwe at a time where it is suffering from harsh socio-economic and political turmoil. The paper observes that lack of financial services, corruption, political interference, poor planning and the desire to maintain status quo have been discouraging rural entrepreneurship to harness the benefits of ICT. The paper recommends that the government should implement policies that promote the development of ICT in rural entrepreneurship and the provision of training and development for entrepreneurs to bridge the knowledge gap on the use of ICT to enhance the livelihoods of entrepreneurs.

Keywords: *Entrepreneurship, Entrepreneurial Development, ICT Policy Framework, Rural Entrepreneurs*

1. Introduction

The rationale behind this paper is to achieve the primary objective of the use of ICT for its direct contribution to rural entrepreneurial growth towards the overall national socio-economic agenda. According to the World Bank (2012), a 10% increase in ICT penetration causes a 1, 38% in gross development product contribution (GDP). In 2013 ICT contributed 15, 2% to Zimbabwe's GDP (World Bank, 2013). According to the 2015 National Budget, the forecast of ICT growth for entrepreneurial development was 6.4% (Chimucheka, 2015). The study was driven by the amass benefits of ICT development that still need to be cultivated among rural entrepreneurs in Zimbabwe. The power of ICT needs to be injected into the entrepreneurial ecosystem to sustain and maintain the levels of development, considering ICT catapults sectoral development and growth (Ndemo, (2015). According to Zimmerman (2008) the study of entrepreneurship became of prominent interest for policy makers in many nations during the 21st century which has been regarded as the information age. Entrepreneurship has since been regarded as the economic engine necessary for accelerating economic growth, poverty reduction and job creation, bearing in mind the economic meltdown that has strongly hit Zimbabwe (Chimucheka, 2015). Entrepreneurial development becomes very crucial for any developing economy, in particular Zimbabwe's. Simultaneously, the use of ICT is accelerating with new products and new production methods and it has transformed the universe into one globe by creating a global market-place for all businesses through the implementation of various ICT strategies. Zimbabwe is still attempting to harness ICT for entrepreneurial development, as outlined in the World Summit on the Information Society (WSIS) Declaration of Principles and Plan of Action (Geneva in 2003 and Tunis in 2005), Heads of States and governments in developing nations were urged to adopt the use of ICT in order to achieve developmental goals (Zimmerman, 2008).

Background: According to Doyle (2008) ICT directly points to any device or system that allows for the storage, retrieval, manipulation, transmission and receipt of digital information. This means that computers, scanners, systems soft ware's, databases and word processors all encompass ICT. It is significant to comprehend that ICT is not only about computers because the "C" in the ICT is for communication, which covers all forms of communication and the "T" for technology; which is inclusive of internet, global

positioning systems and broadband (Doyle, 2008). Entrepreneurship is a way of thinking, reasoning and acting that is opportunity based, holistic in approach and leadership balanced (Timmons & Spinelli, 2004). This simply implies that entrepreneurs are responsible for the establishment of an enterprise and for this enterprise to thrive, a strong supporting entrepreneurial system is key to the success of that particular enterprise. Resultantly, the concept of entrepreneurship basically indicates to the creation of an enterprise in response to an identified opportunity for profit making by a rural entrepreneur (LSBM, 2016). Entrepreneurship development is the process of enhancing entrepreneurial skills and knowledge through structured training and institution-building programs (LSMB, 2016). It aims to enlarge the base of entrepreneurs in order to hasten the pace at which new ventures are created, which is aimed at accelerating employment generation and economic development (Nieman and Nieuwenhuizen, 2009). The assumption is that urban entrepreneurs tend to enjoy the fruits of entrepreneurial development more than their rural based counterparts who do not have sustainable entrepreneurial ecosystems to promote entrepreneurial development within their enterprises. In addition, studies show that in Zimbabwe the urban to rural ratio of entrepreneurs is 1, 8:1 as opposed to 1:1 for countries like Peru and Chile (Chimucheka, 2015). The most probable explanation for these figures is because rural based entrepreneurs do not have access to adequate infrastructural ICT systems most significantly which have the capacity to propel them to a higher level of entrepreneurial development.

Statement of the Problem: The problem is that although the Zimbabwean government has embarked on ICT development, in the form of policy frameworks enabled through mobile phones, telephones, radios, televisions and internet as ways of improving rural entrepreneurs. It still remains unclear whether rural entrepreneurs are benefiting and to what extent they are enjoying the benefits. The benefits that the rural entrepreneurs should expect are efficient and effective communication systems for socio-economic development and easy affordable and fast access to information for entrepreneurial development (Ndemo, (2015). This is because ICT aims to provide invaluable input to creating and sustaining entrepreneurship. Hence it is fundamental to determine the direct impact of ICT advancement on the livelihoods of the rural entrepreneurs in Zimbabwe. Private companies that include Net One and Econet have erected cell phone boosters in rural areas to place ICT within the reach of the populations in the remote rural areas of Zimbabwe. According to Chisita (2010) Econet launched 3G technology which allows subscribers to access internet on their mobile phones, which will certainly assist entrepreneurs to employ e-services and e-business to boost their enterprises. This is because experience from successful emerging economies in Africa, Asia and Latin America shows that a vibrant sector of rural entrepreneurs and a fertile ground for entrepreneurial minds as driven by ICT play a key role in the economic growth of developing nations (Ndemo, 2015).

The National ICT Policy Framework: Upon the realization of the potential of ICT, the government of Zimbabwe formulated the National ICT Policy Framework in 2005 and a review of the policy was amended in May 2012 due to the rapid changes in the development of ICT. The vision of this policy is to transform Zimbabwe into a knowledge-based society by 2020 and the mission is to accelerate the development and application of ICT in support of sustainable socioeconomic growth and development in the country (Zimbabwe National ICT policy Framework 2012). This clearly streamlines the prospects of ICT for the entrepreneurial development of rural entrepreneurs, if the ICT policy framework of 2012 is meant to sustain the socio-economic growth of citizens. This is explained by the policy framework which is meant to guide and direct the formulation and implementation of ICT strategies and programmes in Zimbabwe. The main function of the national ICT policy is to develop suitable programs and strategies which promote ICT advancement. This is why the policy seeks to lead in the development of proper regulatory frameworks which promote ICT (Government of Zimbabwe, 2012). Another function of the ICT policy is to encourage awareness in the promotion of ICT usage in the country so that the citizens can be competitive in the region and resultantly the rural based entrepreneurs can also thrive, (Zimbabwe National ICT policy Framework 2012). Most importantly this directly points to the rural based entrepreneurs whose awareness to ICT is relatively low which limits their direct exposure to entrepreneurial development (Chisita, 2010).

Although ICT plays an influential role in the economy and assists in turning-around the economy of the country, ICT does not yet play such a role in the rural population of Zimbabwe (Sander, 2008). If a robust ICT policy could be implemented by digitalizing the rural entrepreneurs then weak utilization of ICT systems

would be eradicated. The Global Entrepreneurship Monitor (GEM, 2011) estimated that 388 million entrepreneurs were actively engaged in starting and running new businesses around the globe, and 165 million of them were rural early-stage entrepreneurs between the ages of 18 and 35. Considering staggering global unemployment levels, much hope for the rural population lies in their ability to become job creators rather than job seekers. It is becoming easier for entrepreneurs to find the information they need to start their own businesses, and an increasing number of government initiatives are helping to make the process quicker and less costly (LSBM, 2016). Resultantly, the number of mobile subscriptions in use worldwide both pre-paid and with contracts, has grown from 1 billion in 2000 to over 6 billion and five billion of those live in developing nations (Ndemo, 2015).

2. Literature Review

The absence of sustainable ICT strategies has been identified as causing low productivity for rural entrepreneurial development in developing countries such as Zimbabwe (Chimucheka, 2015). Zimbabwe has a lot to learn from other developing countries that have incorporated ICT to promote entrepreneurial development with the inclusion of Kenya, India, and Ghana which have managed to successfully implement ICT policy frameworks (Nwagu, 2006). If harnessed well, ICT does have a strong direct impact on the lives of the rural based entrepreneurs for entrepreneurial development. The Minister of Information and Technology for Zimbabwe indicated that Zimbabwe is one of the poorest countries in Sub-Saharan Africa that has the lowest access to information and communication resources (Zimbabwe National ICT policy Framework 2012). Tied to the fact that Zimbabwe as a country has very limited access to ICT resources in sub-Saharan Africa, this limits and restricts the rural based entrepreneur who is the last link on the entrepreneurial chain amidst all the turmoil and mayhem the nation is encountering. To rectify this predicament, the national ICT policy framework was implemented as a measure to reduce social, political and economic inequalities which are tearing through the entrepreneurial fabric of Zimbabwe. Ndemo (2015) asserts that developing countries which have harnessed the potential of ICT managed to emerge with better strategies aimed at rural entrepreneurial development, equity in the distribution of resources, social transformation and poverty reduction. Nwagu (2006) gives a striking example of the Asian Pacific economies which managed to improve their economic growth and competitiveness through modernized production systems, propagated through the implementation of ICT strategies. Hong Kong, Singapore and Taiwan's modernized production systems also improved the capabilities of their economies by promoting rural entrepreneurial development (Nwagu, 2006). This implies that if the use of ICT in developing nations is properly managed and retained it benefits the rural entrepreneurs and in turn boosts economic growth for the promotion of rural livelihoods.

Zimbabwe as a "Failed State": WB (2015) defines failed states as "those where the state in power is unable and unwilling to deliver core functions to the majority of its people in terms of security, protection of property rights, basic public services and essential infrastructure". Fesler (1968) defines a failed state as one "wherein the government cannot or will not provide an environment for households to reduce, mitigate or cope with poverty and other risks to well-being". State failure is one of the critical causes of failed relationship between ICT and entrepreneurial development. Therefore, it is essential to analyse the sustainable implementation of ICT policy frameworks in a broader frame of a probable regime change in Zimbabwe. Pending the status of Zimbabwe as a failed state, it is not just a matter of the prospects of the ICT policy frameworks for rural entrepreneurs but economic growth and poverty reduction as well. Zimbabwe has been, and is currently in a state of a complete meltdown in all its socio-economic and political facets since 2000 to date (2016) (Nhema and Zinyama, 2016). The Mugabe administration was primarily meant to embody every ideal that promoted the effective governance of Zimbabwe in the post-1980 era but the state is now fully incapacitated due to endemic government corruption and economic failure (Gambe, 2015). Zimbabwe's classification as a failed state is undeniable, as the country ranks number 16 globally on the Foreign Policy's Failed States Index of 2016 with a score of 100.5 (Nhema and Zinyama 2016). A number of factors may have contributed to this poor performance, in particular the contributing factors to the weak relationship between the ICT policy framework and rural entrepreneurial growth (Matabvu, 2016).

Theoretical Framework

Technology Acceptance Model (TAM): Davis (1989) asserts that with the TAM model when "a user is presented with new technology, a number of factors influence their decision regarding how and when they will use it" (ANAO, 2009). The TAM has proven to be a robust model that is frequently used to study the user acceptance of ICT and it is widely used to help understand the adoption and use of internet ((ANAO, 2009). The theory helps to understand how adopters come to accept or reject the use of ICT in their small businesses. The TAM model proposes that certain factors will determine if a user will accept and use a technology, once it has been presented to them. These factors are:

- **Perceived usefulness (PU)**: the extent to which the user believes that using a system enhances performance and satisfies needs determine if they will accept and use it again.
- **Perceived ease of use (PEOU)**: this is the degree to which the user believes that using a certain system would be free of effort (ANAO, 2009).

These two factors guide the behavioral intention of users to use the system while the intention leads to actual use of the ICT. These factors are applicable to the rural entrepreneurs on the relationship that exists between them and the ICT policies and frameworks being implemented in Zimbabwe. Rural entrepreneurs should feel their productivity and efficiency improved by any means of technology. The main criticism of the theory is however that, the intention to use and the actual use of ICT innovation do not strongly link with each other. It is argued that the intention to use an ICT system does not necessarily mean that the rural entrepreneurs will actually use it. Hence strategic awareness should be done to ensure the benefits of ICT are cultivated by rural entrepreneurs (ANAO, 2009).

The Diffusion of Innovation (DOI) Theory: The Diffusion of Innovation Theory explains how, why and at what rate new ideas and technology spread through socio-economic systems over time. Rogers (1995) argues that ICT is communicated through channels via the process of diffusion and ICT diffusion is influenced by four main elements namely:

- The innovation itself
- Communication channel through which the innovation is diffused.
- Time
- A social system.

The process of innovation is strongly determined by human capital and for the ICT system to be sustained it has to be widely adopted (Gunday & Ulusoy, 2011). The manifestation and sustainability of innovations vary from the subject to the nature of the adopters and how they perceive the ICT and adoption of the ICT is influenced by the following factors:

- Relative advantage – the degree to which the ICT system is perceived as being better than the idea, it is replacing.
- Compatibility – how consistent the innovation is with the values, norms and needs of the expected adopters.
- Complexity – how difficult the innovation is to understand and implement.
- Triability – how possible the innovation is to be tested before full commitment to its adoption
- Observability – what is the extent to which the innovation is capable of providing tangible results? (Gunday & Ulusoy, 2011).

Both the Technology Acceptance Model and the Diffusion of Innovation theory have a direct causal link on the relationship that exists between the ICT policy frameworks and rural entrepreneurs for effective entrepreneurial development in Zimbabwe.

3. Methodology

The document study review was conducted for the Mhondoro which has 11 wards and is set up in a communal area situated in Chegutu District made up of commercial farms, small scale commercial farms as well as communal settlements. Muzenda and Muchawira (2012) explain that Mhondoro is in natural region III

which is a semi-intensive farming region covering 19% of Zimbabwe. The rainfall in this region is moderate in total amount; severe mid-season dry spells make it marginal for maize, tobacco and cotton or for enterprises based on crop production alone. To this end, the farming systems are based on both livestock and assisted by the production of fodder crops and cash crops (Muzenda and Muchawira, 2012). Against this background the residents of Mhondoro have decided to stimulate rural development through ICTs in the hope that it will assist them in agriculture and in business hence rural entrepreneurs have been emerging to use ICT for sustainable development in the Mhondoro District of Zimbabwe. This study adopted a qualitative research approach based on a document study review to establish how rural entrepreneurs have been using ICTs for rural development in the district. Secondary analysis of published electronic journal articles together with relevant secondary data formulated the discussions and findings of this study on the current state of ICTs among rural entrepreneurs in Zimbabwe. Secondary analysis was conducted to provide an overview of the current state of ICTs in Mhondoro District in Zimbabwe. The data obtained from secondary sources was analysed in a qualitative manner using thematic content analysis of data. The reliability was exercised through using articles which were peer reviewed and those articles form the basis of this article.

4. Findings

Using documentary review analysis to explore on the use of ICTs in rural areas of Mhondoro in Zimbabwe, the study reveals that there are policy issues inhibiting the advancement of ICTs. These can be categorized into regulatory or political legislations in the country, poor infrastructural development and financial instability among rural entrepreneurs, social and political perceptions and poor monitoring and evaluation of ICT projects in rural communities

The challenges being faced by rural entrepreneurs-Inconsistent government policies: The bold initiative undertaken by the Zimbabwean government to advance the use of ICTs in rural areas of Zimbabwe is being highly appreciated. Documentary evidence reveals that some government measures, regulations or policies towards ICT service providers discourage the effective implementation by the rural populace. In the recent past, the government withdrew the operating license from TELECEL one of the contributing giant companies to ICTs in the country. Though no one can really establish the cause of such an action, the government was taken to court to answer for the withdrawal of the license. The study ascertained that such holistic antagonism on the government side has negative repercussions on most rural entrepreneurs who depend on cell phone networks to communicate in their business. Unstable government policies reverse the gains of World Summits such as Geneva to bring economic development to citizens through ICT development. These findings augur well with the study conducted in Nigeria by (Ihuba and Njoku, 2013). The results proved that change in governance policies affected the rural entrepreneurs since they did not have any control over such legislation.

High illiteracy rate among rural entrepreneurs: The advancement of ICTs in any country requires expertise to effectively use the highly technical devices. However, this study discovers that in Mhondoro, the use of ICT for rural economic growth has been hindered by high levels of illiteracy among the rural population. Most people presently residing in the rural areas are old people and those who could not get the opportunity to acquire education hence the use of ICT is a challenge for them. The study cannot ignore the fact that cell phones have been used by nearly everyone for primary reasons like making and receiving calls, but functions like internet browsing is still a long way to be achieved. The higher levels of illiteracy among rural entrepreneurs pose a serious challenge to both government and the private sector to conduct training and development workshops where most rural entrepreneurs can be educated on how to utilize modern technology such as computers, printers, tablets, scanners among others for their own benefit. Existing evidence indicates that there is much potential for rural entrepreneurs who are taught how to effectively operate the ICT systems because lives of millions of people can be enhanced. The First National Bank (2010) conducted a study in South Africa which corroborates these findings that ICT development is being discouraged by lack of education and insufficient social networking among rural entrepreneurs. This is a huge challenge for rural entrepreneurs in Mhondoro to meet and share ideas on how they can grow their business for rural economic development.

Poor infrastructural development: The infrastructure in most rural communities in Zimbabwe is not conducive enough to advance the cause of rural entrepreneurs. While earmarked improvements have been realized in the form of rural electrification in some parts of the country, Mhondoro still lags behind as the infrastructure is failing to support the establishment of ICT systems to empower local people both technologically and economically. These findings were echoed by Greunen (2013) who affirmed that poor infrastructure is a barrier to effective development of ICT for socio and economic development. In another study Rasker et al. (2009) points out that, poor and underdeveloped infrastructure was singled out as a hindrance to the implementation of ICT for rural entrepreneurship. The study recognizes the unavailability of transport which is a stumbling block to rural entrepreneurs. A study was conducted by Gora and Fal (2010) in the Eastern Cape province of South Africa which is one of the poorest provinces to assess the viability of rural entrepreneurship using ICTs. Empirical evidence from this study points out that, persistent poverty coupled with poor infrastructure impair the success of rural entrepreneurship. In Zimbabwean context, Econet wireless the leading ICT brand, is trying in its capacity to assist rural entrepreneurs to grow in business given the establishment of a mobile bank, termed ECO-CASH. The majority of rural entrepreneurs from across the political and social divide embraced this initiative since it minimizes costs and risks associated with moving around with amounts of hard cash, as the financial transactions are done easily via mobile ECO-CASH. The need to improve on infrastructural development rests on the service providers of ICT such as Net One, Econet and Telecel to forge mutually beneficial partnerships with the government to establish infrastructural support systems in rural areas. These sentiments were echoed well by the findings from Chisita (2010) which supported the coordination among service providers to enhance rural ICT development for entrepreneurs.

The desire to maintain status quo: Evidence from studies conducted on ICTs in Zimbabwe have shown that fear of change still grips most rural entrepreneurs in the process robbing them of the right to improve on their business through using modern technology. This paper realizes that the use of computers and cell phones to conduct financial transaction still scares most rural entrepreneurs as they regard these modern devices as the conspiracies of the Western countries to harm them. It may seem to be a narrow minded perspective, but it is a living nightmare among rural entrepreneurs who are resisting change and claiming it is expensive to operate in business using modern technology instead they resort to writing of letters which is a discouragement to the advancement of ICTs in rural areas. These findings correspond with the GEM Report (2011) compiled in South Africa which reveals that, fear of business failure hinders entrepreneurial development. Herrington et al. (2010:49-50) concurs in his study, that the business environment which is factor driven and efficiency driven economies pose unimaginable fear of startup business failure which is a stumbling block for entrepreneurs to explore and experience ICT to increase the chances of business survival. In this regard, ICT companies should strive in their capacity to launch awareness campaigns to engage people in the benefits of using ICT in business for growth and exposure of business on a global scale. To this end, the desire to abandon the status quo can be achieved if the government assists service providers to spread the benefits of technology on how it can generate employment for an economy whose economically active population is suffering. The remoteness of rural entrepreneurs is another contributing factor to the failure of ICT in Zimbabwe. The rural areas of Mhondoro are inaccessible hence service providers and other stakeholders find it difficult infiltrate and establish ICT development as a way of empowering the local communities. Steyn (2013) echoes the same sentiments that the remoteness of entrepreneurs in some communities in South Africa inhibits entrepreneurial growth for rural entrepreneurs.

Insufficient credit/loan facilities: In Zimbabwe the cost of borrowing money from financial institutions and loan sharks scares a lot of entrepreneurs due to the high interests expected in return. Most of such transactions occur in most urban areas. However, such facilities are rarely available in rural areas. This paper establishes that in the Mhondoro district, rural entrepreneurs are faced with this challenge as evidence proves that there is a severe shortage of loan or credit facilities for them to efficiently harness the use of ICT. A report presented by Chisita (2013) in Kenya clarified that lack of finances in business has caused most rural enterprises to lag behind in terms of growth and expansion. These findings correspond to the study conducted by Ihugba et al. (2013) in Nigeria which reveals that entrepreneurs were faced with the challenge of inadequate credit facilities to fund their business operations. Most of the credit borrowing facilities charge exorbitant prices which is a challenge to rural entrepreneurs hence they often fail to grow in business. The FinScope Small Business Survey (2010) corroborates the assertions when it points out that, liquidity crisis is

one of the severe and most critical; shortcomings for advancing rural entrepreneurship. Based on the findings, rural entrepreneurship using ICT can be achieved if relevant stakeholders and the government collaborate and pump in more funding into the entrepreneurial sector.

Corruption, maladministration in public institutions: Evidence from the study points out that, rampant government corruption has affected every aspect of business, political and socio-economic spectrum in Zimbabwe. In this growing dilemma, rural entrepreneurs are not spared, since they are involuntarily forced to find political affiliations and connections to acquire business opportunities for their enterprises. The payment of bribes, tax evasions and expired business licenses, are the order the day for emerging entrepreneurs who are relegated out of the game due to lack of political affiliation. Most innovative young people with business ambitions especially in the world of entrepreneurship are disadvantaged as a result of unchecked corrupt tendencies either from municipal officials or other government departments. These findings state that endemic corruption in government institution inhibits the growth of ICT; hence rural entrepreneurs still suffer as result of lack of political connections to support their businesses.

Inability to adapt to changing business environment: Through the analysis of secondary data, this paper discovered that the majority of emerging entrepreneurs in rural areas especially Small, Micro, and Medium Enterprises are failing to cope with the changes in the external environment due to irrelevant or lack of information relevant to their business. In several cases when they are problems related to ICT, the rural entrepreneurs lack enough problem solving techniques to survive in the challenging environment. With the fast growing rate of ICT in Zimbabwe, some rural entrepreneurs are failing to cope for instance with the changes in computer software or the use of modern technology to spear head change and enhance their business profits. These findings correspond with a study conducted by Ihugba et al. (2013) in Nigeria which asserts that upcoming entrepreneurs in Nigeria were failing to adapt to the changes in the technological environment which has hampered the ability of their businesses to grow. In most cases when entrepreneurs fail to succeed in starting a business, they give up hope or succumb to psychological trauma associated with high failure rate. A study conducted by Bizri et al. (2012:83) reveals that, most rural entrepreneurs suffer from symptoms inter-arlia personal confidence, low self-esteem and lack of trust. These challenges discourage the advancement of ICT among rural entrepreneurs which is a growing challenge that requires the government and stakeholders to intervene an assist struggling rural entrepreneurs.

Poor planning: Evidence to this paper proves that poor planning among the sponsors of ICT projects has also been a growing challenge which has been passed to most projects in rural areas. For instance various non-governmental organizations have been sponsoring computer awareness programs in Mhondoro with the aim of equipping the rural entrepreneurs' mostly young people with the necessary technological expertise to exploit the modern devices. However, evidence points out that poor planning and management among the project leaders has hampered the growth of rural entrepreneurs. There is no consistency in the way the technological education and training is provided to the rural people. Sometimes they attend training sessions or miss them due to poor information dissemination. As a result most rural entrepreneurs lag behind on how they should effectively position their business using modern ICT.

Limited youth participation in rural entrepreneurship: Using documentary evidence from Mhondoro District, it has been realized that limited youth participation hinders growth of ICTs in the most vulnerable provinces in Zimbabwe. Despite the ability to grasp internet knowledge most youth still want to focus on using technology only through mobile phones and social networking. Evidence indicates that the growth of Facebook and Whatsapp social networks has robbed the young entrepreneurs of the realization of other e-services from the internet to enable growth of their business. These findings corroborate with the study by Nelson (1997) who notes that despite the availability of ICT projects sponsored by the government, youths are still reluctant to participate in ICT systems are offered. This has been a situation affecting Ghana as Nelson (1997) puts it. The inability of the youth to fully participate in ICT development calls for the government of Zimbabwe and the private sector to launch awareness campaigns on the use of technology to improve the lives of many youths through entrepreneurial development.

Culture and rural entrepreneurship: Cultural belief excludes some groups of people on using ICTs to reduce highest level of poverty in their enterprise. In Mhondoro it has been observed that some conservative

cultures among the people play a significant role in diminishing the role of ICT advancement. Some rural entrepreneurs are failing to thrive because their cultures or traditional beliefs discourage the use of modern technology to influence economic change. These findings note that these cultural differences fail to promote entrepreneurial development hence various rural areas remained marginalized socio-economically.

Discussion: From the analyses of findings the paper concludes that there is still a wide gap which needs to be filled in terms of ICTs for rural entrepreneurs in Zimbabwe. Despite the proliferation of various technological devices to influence rural economic development, relevant literature suggests that rural entrepreneurs are still facing a myriad of obstacles ranging from financial, political, social and infrastructural. The paper depicts that lack of funding in ICTs towards rural entrepreneurs has crippled various emerging small business to the extent that some have since shut down. The government of Zimbabwe is failing to adequately fund small businesses which are a growing challenge to economically empower the rural people. Evidence from the paper also revealed that it is not only in Mhondoro District but other remote parts of the country which have been affected. The paper establishes that a low educational level among rural entrepreneurs has also been a hindering factor towards achieving effective ICT growth in the communal areas.

The use of cell phones for communication is highly appreciated but there is still a challenge in the use of other technological devices such as computers and scanners among other modern ICT devices. The result is there is little or no education provided by the government and the private sector to enable the best causal relationship between the use of ICT and rural entrepreneurship and consequently, rural entrepreneurs fail to realize the benefits of ICTs. The lack of strategic plans and monitoring and evaluation techniques has also been a backdrop in realizing ICT advancement in Mhondoro. Empirical evidence stressed out that, most ICT projects in rural areas are not monitored by the sponsors be it the government or private sector. This a growing challenge which needs to be addressed urgently because most small businesses are failing to expand because of poor marketing strategies which could be easily done through the internet. The government and the private sector need to collaborate and provide training and development schools to educate the rural entrepreneurs on how to effectively use technology for improving their standards of living. In this sense ICT is a catalyst in improving the image and sustenance of small business in the rural areas of Zimbabwe. The findings have reflected further that that there is a need for increased funding and improved network infrastructure to enhance the use of ICT among rural entrepreneurs.

5. Conclusion and Recommendations

The major questions that remain are whether ICT can really be a sustainable option for the rural based entrepreneur? Can ICT advancement in Zimbabwe benefit the rural based entrepreneurs who are involved in small, medium or even micro enterprises for their entrepreneurial developments? For this reason it is essential to note that to promote, sustain and maintain entrepreneurial development, Zimbabwe will require to reach an international standard in terms of ICT policy framework development. To achieve this requirement, there will be need to support and coordinate national ICT research efforts as well as promote the development of software, hardware and ICT infrastructural capacity, particularly for rural based entrepreneurs who do not have adequate access to this infrastructure. The incorporation of ICT in the entrepreneurial development strategies for rural entrepreneurs will definitely have the potential to improve their access to the outside and bigger markets thereby beheading the social construct that rural entrepreneurs are stuck in a cocoon with no room for entrepreneurial development. Policy makers need to promulgate laws that support ICTs in rural entrepreneurship which can be realized through a national budget so that it attracts foreign direct investment as an economic or poverty alleviation initiative. Rural entrepreneurs themselves should adopt team based entrepreneurial activities where they combine their ICT resources to ignite change in their socio-economic inequalities. Despite the high politicization of the study environment, rural entrepreneurs in Zimbabwe need to engage in a mindset shift and denounce the status quo and other cultural beliefs and religious tendencies and embrace the use of ICT, which is currently the only innovative economic strategy to improve their livelihoods at the height of escalating unemployment in Zimbabwe. Public-private partnerships can be formed between the government and private agencies to accelerate ICT implementation in rural areas. Hence, the government of Zimbabwe and relevant stakeholders need to provide mentoring and coaching to rural entrepreneurs which encourages innovativeness and economic transformation.

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Influence of Small Business Ethics on Buying Decisions of Customers: A case of Indigenous Owned Fast-Food Outlets in Zimbabwe

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Abstract: While the prevalence of ethical consumerism has pressured small businesses to embrace ethical behaviour, in ethically precarious business conditions the relentless pursuit for profit by small businesses may compel them to compromise their moral values. As such, a tacit struggle may persist between such businesses' strategic orientations (e.g. profitability, improved performance) and demands of ethically conscious consumers. Drawing on ethics theory, this study explored the influence of the ethical conduct of small fast food outlets on buying intentions of customers. A survey was conducted on 116 probabilistically sampled customers of an indigenous owned fast-food outlet in two cities in Zimbabwe. Findings suggest that customers considered ethical conduct of business ventures when making their purchase decisions although it was unclear whether ethical consumers persistently maintained their buying decisions (i.e. purchasing ethically made products). Ethical business practices, however, remained an enduring feature of enterprises striving to optimise their profit motives.

Keywords: *Ethical values, fast food outlets, buying decisions, survey approach*

1. Introduction

Business ethics in Zimbabwe: In view of the heated controversy that surrounds business ethics, perhaps, a safe point of departure is to define ethics as a precursor to understanding business ethics. Harris et al. (2011) conceive ethics as the moral values or principles that guide human behaviour. They delineate what is right or wrong for an individual or an organisation (Ferrell & Fraedrich, 2014). For Jones (1991, p. 367) "An ethical decision is a decision that is both legally and morally acceptable to the larger community. Conversely, an unethical decision is a decision that is either illegal or morally unacceptable to the larger community." While ethics has resonance with legitimate conduct, what is acceptable to the larger community is relative to particular contexts and imprecise as it is dependent on individual moral prescriptions and judgements. To the extent that ethics are at the heart of the decision making process of an organisation, they contribute directly to the firm's image and reputation, which exert an influence on whether other organisations will deal with an organisation or not (Lii & Lee, 2012). Where ethics are unclear, an atmosphere of distrust between and organisation and stakeholders is created (Mullins et al., 2008, Longenecker et al., 2013) because stakeholders often prefer to work with firms with ethical values (King & McDonnell, 2012). It is not clear how ethical values within a corporate context affect customers' perceptions and buying behaviour (Sebastiani et al., 2013) in economically distressed contexts, and hence the rationale for this study. This obscurity derives from the fact that ethically procured and manufactured goods/ services tend to attract premium prices than those procured and manufactured through unethical means (Jokinen, 2011). The irony is that in economically hard hit countries like Zimbabwe, where consumers tend to be cash strapped, even ethically sensitive consumers may be the tempted to suspend their ethical sensitivity by purchasing goods which were unethically produced or manufactured.

The compromising of ethical standards in the Zimbabwean business context can be construed from structural and operational perspectives. From a structural perspective, the moral degeneration of small businesses in Zimbabwe is intricately connected to the economic collapse and imprudent, inconsistent policy interventions in the country. At the heart of this moral paralysis in the small food industry are controversial business malpractices such as: "hoarding of basic commodities, profiteering, overstating the virtues of products being sold and other forms of business cheating such as selling of sub-standard commodities" (Masaka, 2007, p. 1). Poor political decisions such as the government's unilateral directive for businesses to slash prices as part of price controls to regulate the then galloping six digit inflation in 2008, and welfarist programmes such as the Basic Commodity Supply Intervention (BACOSI) facility compounded the problem. The BACOSI facility provided production targets-linked financial support to primary, secondary and tertiary producers and

suppliers to improve their production capacity utilisation and rendered goods at affordable, but "economically viable" prices, and these financial incentives were administered through local banks at concessionary interest rates (Reserve Bank of Zimbabwe, 2007). However, there was no evidence to suggest that concessionary lending would curtail predatory pricing by small businesses/suppliers such as fast food businesses or guarantee affordable pricing of commodities. Another policy shift that could be linked directly to political clientelism and profiteering is the indigenisation policy, in which online commentators expressed wariness about opportunistic political elements seeking to grab productive companies (Magure, 2012) including those in the fast food industry. Magure (2012) elaborates that the continuation of user charges on health, education and utility services in the post Economic Structural Adjustment Programme (ESAP) has escalated the profiteering motive of emerging businesses such as fast food businesses and masked predatory tactics under the guise of cost recovery.

From an operational perspective, Mawere (2011, p. 45) debunks the 'myth of amoral business' in Zimbabwe perpetuated by the view that "business is for business only." Rebutting the end justified the means mantra; he exhorts small businesses such as fast food businesses to uphold the moral compass for their benefit and that of their stakeholders. A handful of literature demanding ethical sensitivity in small businesses including those in the food industry all point to the necessity of robust research into moral business and ethical consumer behaviour (Masaka 2011; Industrial Psychology Consultants 2012). However, the application of moral principles in the fast food industry remains inconsistent and ambivalent due to: their survivalist orientation, steep competition from established rivals, threats of product substitution, and limited barriers to entry for new smaller entrants in the market (Mkono, 2012).

Research Problem: In emerging volatile economies, stiff competition and fast-paced changes present ethical dilemmas to entrepreneurial business ventures seeking to maximise profits and survive at all cost (Longenecker, Petty, Palich & Hoy, 2013). As such, fast food enterprises may be tempted to ignore warnings of subversion of ethical practices in pursuit of profits (Brizek, 2014). Thus is despite the hailed ethical, societal, and environmental benefits of adopting ethical practices such as: reputation of the business for customers and suppliers, goodwill from the communities where the business operates and reduction of integrity risks for the business (IBE Briefing, 2007; CIMA 2014) small firms' temptation to breach the ethical code in pursuit of profit is ever lingering in economically distressed economies where genuine raw materials are expensive to acquire and customers are cash strapped to purchase fast foods persistently.

In resilient economies reeling under economic recession or stagnation under-hand deals and subversion of moral uprightness may reign supreme, while the business-related benefits of moral conduct such as: increased employee loyalty, higher commitment and morale, lower staff turnover, attraction of 'high-quality' staff and open, innovative culture (IBE Briefing, 2007) may be sacrificed. Such moral degeneration may persist notwithstanding convergence of literature on the significance of ethical behaviour in business sustainability (Jenkins, 1996; Holme, 2008; Carroll & Burchholtz, 2014). The pursuit for firm survival in the face of business rivalry and the temptation to profiteer from customers' imperfect information on fair pricing may undermine Holme's (2008) exhortation of firms to pursue economic objectives, common good, positive stakeholder opinion and caring for the environment concurrently as a basis for improving sustainability. Thus is notwithstanding the fact that business sustainability relies heavily on the capacity of firms to pursue honesty, reliability and fairness relentlessly when dealing with stakeholders (Carroll & Burchholtz, 2014) because stakeholders (especially customers) are the focal point of the implementation of business strategy and improved performance (Jenkins, 1996). More so, a business environment where ethical consumers are growing in numbers makes external demands on business more explicit and impacts on business profitability and performance positively (Mullins et al., 2008; Holme, 2008).

Since customers are the heart and soul of the success of firms while ethical conduct is fundamental to business credibility and long term sustainability, the potential influence of ethical conduct of businesses on buying decisions of customers deserves sharp scrutiny. Jokinen (2011) explores European and Australian jewellery consumers' perceptions of ethical issues in jewellery manufacturing and how these perceptions shape their purchasing behaviour. The findings suggest that consumers emphasise trust in addition to price and design as part of ethical consumerism since it is difficult for them to evaluate how jewellery price is determined. More so, consumers are willing to make extra efforts to get ethically made jewellery (Jokinen,

2011). While there is a growing body of literature on the influence of ethical conduct of businesses on the buying decisions of customers in the developed world (Bray et al., 2011; Jokinen, 2011; White et al., 2012; Carrington et al., 2014), little is known about the nexus between emerging small businesses' ethics and consumer buying behaviour in emerging African economies. For instance, there is a lack of conclusive empirical evidence that consumers will pay more for socially responsible products or services (Cotte & Trudel, 2009). While research evidence suggests that the number of ethical consumers most interested in ethically produced products is growing across the world (Globescan, 2007), ethical consumers may not be willing to reward firms for their ethical sustainability actions with price premiums or increased purchases (Cotte & Trudel, 2009) as they buy responsible products only if "quality, performance, and price are equal" (Deloitte Consulting Ltd, 2008). More so, in developing African economies, ethical ambivalence (i.e. buying from unethical businesses) among ethical consumers cannot be discounted due to the paucity of consumer rights groups, inconsistent ethical business policy frameworks and fragile, incoherent regulatory institutions. By the same token, where business ethical frameworks are weak, unethical practices like predatory pricing and unethical sourcing by small businesses is common.

As such, there is scope to explore the business ethics-consumer behaviour relationship in emerging African economies. To understand this complex problem, the study explored how consumers of fast food products conceive the ethical conduct of resilient, fast food outlets in Zimbabwe-which are ethically challenged entities due to: their difficulty in sourcing genuinely manufactured raw materials, the prevalence of counterfeit raw materials at affordable prices, stiff competition from rival food outlets and illiquid economic environment. The interest in the purchase decisions of consumers is also premised on the generally cheaper food stuffs that emerging food outlets sell to consumers compared to established food outlets, which make the former's food stuffs appealing to most cash strapped Zimbabwean customers. The study, therefore, sought to address the following main question:

- What is the extent to which consumers of fast foods in Zimbabwe consider the ethical conduct of fast food outlets towards their stakeholders when making purchasing decisions?

The following sub-questions are proposed:

- Does the consumer's gender influence their consideration of the food outlet's ethics when making buying decisions?
- Does the consumer's age influence their consideration of the food outlet's ethics when making buying decisions?
- Does the consumer's educational background influence their consideration of the food outlet's ethics when making buying decisions?
- Does the consumer's occupation influence their consideration of the food outlet's ethics when making buying decisions?

The paper is structured as follows: existing literature on ethics, ethics and the business context and ethical consumerism are examined first. This is followed by the research methodology used in the study. Findings are then discussed. Finally, conclusions, practical implications and recommendations for future research are suggested.

2. Literature Review

Ethics and the business context: There seems to be a contradiction between ethics and the traditional tenets of business enterprise. While ethics emphasise good deeds and fairness in business conduct, engaging in a successful business venture foregrounds the optimisation of profit (Longenecker et al., 2013) at whatever the cost. In contrast to ethics whose heartbeat is transparency, integrity, honesty and fairness in business transactions (even if at the expense of profit), business performance values profit maximisation and competition with little/no regard for fairness and integrity in business activities. However, in recent years, discourses of business social responsibility have loudened calls for business enterprises to simultaneously pursue economic and non-economic goals (Kitzmueller & Shimshack, 2012; Epstein & Buhovac, 2014) although the pursuit for profit through expediency and possibly unethical behaviour (Harris et al., 2011) remains an alternative discourse. In fact, where expediency is the only viable option for a firm's competitive advantage over its rivals, the strategic business philosophy of the end (e.g. profit maximisation and market

expansion) justifies the means normally leads to the downplaying of sustainability concerns like good ethical conduct. Millar et al. (2012) argue that the dilemma of giving into temptations to 'cut corners' is apparent for most SMMEs such as those in fast food industry– that exploit information asymmetries in innovation to support misleading claims about specific capabilities and to exploit reputation created unjustifiably.

The drive to indulge in self-serving behaviour is stronger amongst entrepreneurs in fledgling stages of business (Vyakarnam et al., 1997) typical of those in distressed economies like Zimbabwe's. New start-ups tend to exhibit an inherent inclination towards compromising their own values in order to succeed at any cost (Fisscher & Nijhof, 2005; Millar et al., 2012) due to their survivalist orientation, steep competition from established businesses and limited acquaintance with legal parameters. Thelen and Zhuplev's (2002) comparative analysis of Russian and U.S. undergraduate student attitudes towards application of ethical issues in managing Russian small firms engaged in business transactions with U.S. firms revealed interesting results. When confronted with business ethical dilemmas, Russians failed to recognise significant differences between various business alternatives notwithstanding the severity of these alternatives for resolving business problems. They also preferred more forceful alternatives, resorting to business practices that would be considered unethical in the US. The study attributed the differences in ethical business decision making to the transitional nature of the Russian economy at the time (Thelen & Zhuplev, 2002). While the aforementioned SMME studies were conducted in developed countries, little is known about the impact of ethical business behaviour on customer purchasing decisions in developing economies.

Contemporary literature has interrogated personal motivation for engagement in unethical behaviour (e.g. Wu & Joardar, 2012; Longenecker et al., 2013) and entrepreneurs' attitudes towards ethical conduct (Christensen et al., 2008) but not perceptions of business stakeholders towards the ethical conduct of entrepreneurs and their implications for purchase decisions of these stakeholders, which is the focus of this study. With regard to motivations for ethical malpractice, Longenecker et al., (2013) noted that since many entrepreneurs are often driven by self-centredness, conceit usually pushes them to violate norms of fairness and justice leading to unethical conduct. Commenting on the organisational climate of ethical misconduct and crime, Wu and Joardar (2012) attributed motivations of unethical behaviour to short term rewards and absence of harsh penalties for entrepreneurship-related crimes. Our study departs from this individual entrepreneur perspective on ethical conduct (what we coin an *internal perspective*) by examining the extent to which stakeholders' (especially customers) buying decisions are shaped by ethical behaviour of small businesses (a *stakeholders' perspective*). A stakeholder perspective is critical to sustainable business ethics given the dearth of literature on the relationship between business social responsibility in pursuit of ethical practices and stakeholder behaviours such as customer purchasing behaviour (Moeti, in press; Moyeen & Courvisanas, 2012). The decision making processes of stakeholders such as customers are critical to sustainable business ethics because when new venture creation and entrepreneurship are left to the vagaries of free market economics and neo-liberalism, they tend to gravitate towards self-centred practices. Zhang and Arvey (2009) argue that sometimes, the entrepreneurship of firms involves putting stakeholders' resources at unreasonable risk in the hope of reaping economic benefits – hence entrepreneurship may inherently embraces elements of unethical behaviour. To this effect, stakeholders' purchasing perspectives are critical to business pursuit of good ethical behaviour.

The ethical consumer: Carrington et al. (2012) allude to the growth of ethical consumerism, a movement comprising consumers whose consumption of products is guided by moral values. Such behaviour is attributed to the pursuit of critical citizenship, which emphasises the fulfilment of civic duties, desire for sustainable business practices, genuine collective benevolence and adherence to expectations of an ideal society. According to White et al. (2012, p. 103) expression of ethical consumerism include "charitable donations, cause-related purchases, avoidance of goods made with sweatshop labour and choosing fair-trade products" According Cotte and Trudel (2009), ethical consumers refrain from consuming products from business enterprises that compromise ethical values but rather conduct business with those enterprises that are perceived to be ethical. An example is the South African consumers' recent threats of boycotting of Woolworths brands and seat ins in Woolworths departmental stores in protest against this giant brand's perceived association with/collusion with Israelis against the Palestinians (Mendes & Dyrenfurth, 2015). In the context of the fast food industry, ethical consumers may refrain from purchasing genetically modified products, and purchasing from food outlets that make false claims about the nutritional value of

products/goods they sell. While consumer councils often require enterprises (e.g. large corporations and small businesses) to provide labels on the authentic nutritional value of their products, customers do not always have the capacity to ascertain the veracity of these labels as this requires consumers to work like nutritionists or food scientists. Millar et al. (2012) argue that entrepreneurs develop tools and techniques which will help them to communicate what they wish about their products– and to conceal what they wish to hide. Their strategies may include misrepresentation in their relations with stakeholders, manipulative exploitation of reputation and reputational networks.

Another dimension to the ethics debate is that consuming ethically manufactured products comes with a cost trade-off (Young et al., 2010). Usually, fair-trade products are more costly than non-fair-trade products (Didier & Lucie, 2008). Such a scenario comes as a challenge to consumers who have to decide whether to consume ethically made products and incur additional costs or to purchase unethically produced products at lower products but in the process compromise their integrity. Identifying with Didier and Lucie (2008), we wondered whether consumers exercise ethical buying behaviour consistently in the real world. We also questioned whether consumers may embrace ethical values yet eventually buy unethical products. This is particularly critical for consumers in developing countries where little is known about the nexus between customer purchase decisions and SMME ethical behaviour. Devinney et al. (2010, p. 11) question the feasibility of ethical consumerism and propose consumer social responsibility as an alternative. Consumer social responsibility is the "conscious and deliberate choice to make consumption choices based on personal and moral beliefs" (Devinney et al., 2010, p. 11). The preference for social responsibility suggests deliberate selfless decisions made in recognition of the social, economic and environmental benefits of the society rather than the individual per se. Yet literature highlights with concern the disjuncture between ethical intentions and actual ethical consumption behaviour (Chatzidakis et al., 2007; Szimgin et al., 2009; Devinney et al., 2010). The concern is that ethically minded consumers do not buy ethical products always. In view of this disparity between aspirations and reality, the study breaches this gap in research by exploring the extent to which fast-food consumers in resilient, emerging economies consider ethical conduct of fast-food outlets in making their purchasing decisions.

The influence of demographic factors on ethical consumption behaviour: Studies on the morality of consumption decisions have attempted to examine the relationship between demographic profiles and ethical buying preference measures, albeit their intricacy. While there is a general consensus on the influence of demographic factors on ethical decision making, the nature of this influence remains shrouded in mystery as both positive and somewhat contradictory results have been reported in literature (Starr, 2009; Hudson et al., 2012; Seppanen, 2013; Kavaliauske & Ubartaite, 2014)

Age of consumer: Although it is unclear whether age really impacts ethical consumption in particular, consumer behaviour scholars argue that a consumer's age group may exert an influence on their buying decisions in general. Kavaliauske and Ubartaite's (2014) study on the factors influencing the intention to purchase organic foods in an emerging economy, Lithuania, revealed that age significantly influenced ethical consumption decisions of individuals. The results of the statistical analyses revealed that there were significant differences between the 26 to 30 years versus the 41 to 45 years, and 31 to 35 years versus 41 to 45 years age groups. It was concluded that 26 30 age and 31 35 years age group consumers preferred to buy organic products more than the 41 to 45 years age group consumers. The other demographic pointers in the study, however, did not significantly influence the intention to buy organic products. These findings contradict Carrigan et al. (2004) interpretative study into the elderly population's intention to consume ethical products, which reported that this ageing population exercised some moral responsibility and were willing to engage in ethical consumption and boycotting of products. They study demonstrated that the elderly population were a force to reckon with in the consumer resistance movement compared to the younger generation. The inconclusive evidence from these studies provides an impetus to the current researchers to investigate the connection between customers' ethical consumption decisions and business' ethical conduct.

Gender of the consumer: Gender variances in ethical perceptions have been observed in several studies across the globe (Tan, 2002; Starr, 2009; Hudson et al., 2012). Females have been observed to show acute ethical awareness and intentions as compared to males (Tan, 2002). Holding other factors constant, women

are believed to derive more intrinsic value from ethical consumption when compared to man. Another explanation for the higher tendency for women to consume ethically is that they are more often responsible for family shopping duties than their male counterparts (Starr, 2009), hence their comparably higher exposure to information about ethical products and business enterprises than their male counterparts. In an experimental methodology based study conducted by Hudson et al. (2012), 200 students at a large public university in the United States were required to choose between "conventional" coffee for $5.00 per half-pound, and fair trade coffee for $7.00 per half-pound. Of the total population, 64% chose the fair trade coffee, signifying a resilient readiness to pay a higher price for products with social benefits. Though as it may, there is no reason believe that the results of such a study conducted in developed countries with higher ethical consumer awareness can obtain in a developing country such as Zimbabwe, where ethical consumerism is hardly debated in public for a due to the consumers' pressing needs for survival.

Consumer's level of education: Consumers' educational background influences their ethical consumption as it potentially exposes them to ethics information through the education process (Starr, 2009). Discounting for other factors such as access to communication media, nature of networks and age of consumers, it would be assumed that consumers with higher levels of education are likely to exercise more ethical consumption than those without such education as higher education can impact the acquisition and processing of ethics consumption information. Newholm and Shaw's (2007) study on factors influencing consumer behaviour emphasised the consumer's level of education as a critical factor that influences ethical purchasing decisions as it facilitates exposure and processing of consumer brand information**.**

Occupation of the consumer: Through the effect occupation has on a consumer's income level, occupation affects one's willingness to consume ethically (Seppanen, 2013). Since ethical products and services tend to be more expensive as compared to their substitutes or comparable products not produced with ethical, environmental or social effect issues in mind, the purchase of ethical products may be costly and is seen as a luxury (White et al., 2012). As such, it would be expected that people with high income occupations buy ethical products as they have more spending power than those with low income jobs. Perhaps, this income-purchase decision relation casts light into how price levels influence ethical consumption decisions. A study conducted by Uusitalo and Oksanen (2004) on the views of Finnish consumers about ethics in trade reveals that one of the most important obstacles to ethical consumption was high prices of ethical products.

Theoretical Framework: Some authors (Jones, 1991; Rex & Sprunt, 2006) provide three contrasting models of ethical decision making that emphasise the moral code of the individual, the situated context of decision making including the range of moral choices that individuals possess in their decision making. Rest's Model of the Ethical Decision Making (EDM) process emphasises the sequence for individual EDM and behaviour: *recognise the moral issue*; *make a moral judgment*; *resolve to place moral concerns ahead of other concerns* (Establish Moral Intent) and *act on the moral concerns* (Engage in Moral Behaviour). Trevino's (1986) 'Person-Situation Interactionist Model' considers the range of interacting factors (*personal factors* such as moral development, *individual moderators* (ego strength, field dependence, locus of control) and *contextual factors* such as immediate job context, organisational culture and work characteristics) implicated in ethical behaviour of individuals rather that the decision making process itself. Since the size and lean reporting structures of SMMEs may blur the vivid expression of the elements of organisational culture in the model such as normative structure, referent others, obedience to authority and responsibility for consequences, Trevino's (1986) model may be difficult to apply to SMMEs.

Jones (1991) developed an 'Issue Contingent Model' and highlighted that the varying intensity of a moral issue influenced judgement and behaviour stages of the ethical decision making process and the extent to which these were consistent (cited in Rex and Sprunt, 2006). Since this study does not consider ethical purchase decisions as serendipitous, impulsive decisions influenced by customer emotions and whims but rather deliberate, logically orchestrated moral prioritisation and decision making process based on reflective consideration (i.e. critical awareness) of moral issues, the study identifies with the EDM process. The study argues that the moral decision making process emerges from a recognition of an immoral business issue (e.g. predatory or unfair pricing of products/goods/commodities, unethical supplies of products/goods/commodities, the immoral standing of unethical purchasing). Subsequently, consumers make subjective judgements about the extent to which businesses make ethical decisions in their acquisition

(sourcing), marketing, branding, nutritional value and pricing of commodities. This is followed by the prioritisation of moral concerns (e.g. deciding to purchase a more expensive, ethically sourced, manufactured, displayed and priced product than a cheaper unethically sourced, manufactured, displayed and priced product. This leads to final purchase or refrain from purchasing of product depending on the fulfilment of moral parameters and prescriptions.

3. Methodology

The study adopted a positivist paradigm, which holds that research must be limited to what can be observed and measured. The research design used was descriptive, cross sectional and quantitative. According to Leedy and Omrod (2010, p. 182), the research design "involves either identifying the characteristics of an observed phenomenon or exploring possible correlations among two or more phenomena." Quantitative designs examine phenomenon in their current state and are ideal for exploring answers to the "*who, what, when, how* and *why*" questions. In this study, the objective of the study was to ascertain the extent to which consumers of fast food products in Zimbabwe considered the ethical conduct of these fast food outlets towards their stakeholders when making their purchasing buying decisions. The sub-objectives of the study were to determine whether customer demographics (gender, age, occupation and level of education of respondents) also shaped their perceptions of food outlets' ethical behaviour when making purchase decisions.

Pilot survey: The questionnaire used in this study was pretested using a sample of 20 students at Kwekwe Polytechnic in Zimbabwe. Data for the actual study was collected over one month using the telephone survey method. The telephonic surveys involved the actual customers of the two food outlets involved.

Sampling method and data collection: The target population consisted of customers of branches of an indigenous owned fast-food outlet in Gweru and Kwekwe cities in the Midlands region in Zimbabwe. Given the difficulty of demarcating precisely the customer base of these fast food outlets, developing a defined sampling frame proved to be complex. A sampling frame was established using coupons submitted by customers for a sweepstakes competition. The coupons contained customer details like name, residential address and phone number. A total of 1650 were collected from participating customers from the two branches. These were then used as a sampling frame for this study. Respondents were selected randomly by picking any coupon submitted and then making a telephone call to the number on the coupon. The researchers then inquired about the willingness of respondents participate voluntarily in the study. If they acceded, the researchers would then proceed to ask questions from the questionnaire and complete the questionnaire on behalf of the respondent. According to Saunders et al. (2009), a minimum sample size of 30 respondents is adequate for making valid statistical inferences and generalisations of the sample to the entire population. While this is acceptable, 200 phone calls were made in order to cater for non-responses. Of this number, 116 customers volunteered to participate in the survey, representing a response rate of 58 %.

Ethical issues: Permission to conduct the study was sought from branch managers of the outlet prior to the study. Each respondent was informed of the purpose of the study, participation in this study was voluntary and that respondents were free to withdraw from the study without any threats of sanctions. Participants were guaranteed of their anonymity by informing them that their responses would be reported in aggregate form to protect their individual identities. No financial incentive was given to participants to entice their participation in the study.

Measurement

Consideration of ethical conduct of business and impact on purchase decisions: Measures of a pre-validated scale developed by Vivi and Yothmontree (2002) were used to determine whether customers considered the ethical conduct of fast-food outlets towards various stakeholders when deciding whether or not and what to purchase. The measures consisted of five Likert-scale statements intended to evaluate the ethical perceptions of respondents. Responses were sub-divided on a seven-point Likert-scale, ranging from "disagree completely" (1) to "agree completely" (7). A total tally for each construct was found by averaging the response to the applicable items. Table 1 below shows the Cronbach coefficient of each sub-dimension.

Table 1: Reliability test results

Sub-dimension	No. of items	Cronbach's alpha
Customer consideration of ethical behaviour of retailer towards all stakeholders	5	0.792

A composite score was then calculated for the responses to the five statements measuring the level of ethical perception of customers.

Data presentation-*Demographic variables:* Table 2 provides a demographic profile of the respondents who took part in the study. Females dominated the selected sample with 63.8 % and the majority of the respondents fell in the 20 to 29 age group. Many of the respondents had tertiary education and were formally employed.

Table 2: Socio-demographic profiles of respondents

	n
Gender	
Male	44
Female	72
Total	116
Age groups	
Under 20 years	12
20 to 29 years	60
30 to 39 years	36
Over 40 years	8
Total	116
Education	
Up to Primary level only	16
Up to High School level only	44
Up to Tertiary level	56
Total	116
Occupation	
Formally employed	68
Self-employed	8
Student	40
Other	0
Total	116

The representativeness of the population characteristics could not be verified since there were no detailed customer profiles in the database except for the names, residential and contact details of customers found on the coupons.

4. Data Analysis

Data obtained from 116 usable questionnaires was captured in Statistical Packages for the Social Sciences (SPSS 16) software for quantitative analysis. Descriptive statistics, an independent samples T-test and One Way ANOVA were employed to ascertain the perceptions of customers towards food outlets' ethical behaviour and whether any variations in such perceptions was influenced by demographic factors. In

addition, customers were assessed for their level of preparedness to alter their purchasing behaviour in line with their perception of ethical conduct of food outlets. Ethical perceptions are deduced as the aggregate of five items whose composite score is shown as a mean in Table 3 to 7.

Customers' consideration of ethical behaviour of fast food outlets towards their stakeholders: As a starting point, the findings of the study generally suggest that the majority of respondents were ethically aware and paid attention to the ethical behaviour of food outlets when making purchasing decisions. This is illustrated in Table 3

Table 3 Descriptive statistics for Total Customer Consideration of Ethical Behaviour Score

	M	SD	n
Total Customer Consideration of Ethical Behaviour Score	24.48	5.67	116

The mean statistic of 24.48 is relatively high when compared to the maximum possible statistic of 30.

Customer consideration of ethical behaviour of food outlets towards all stakeholders and gender of respondents: An independent samples *t*-test was conducted to examine whether the mean composite score for customer consideration of ethical behaviour of food outlets towards all stakeholders was significantly different between the male and female categories of gender. Prior to the analysis, the assumptions of normality and homogeneity of variance were assessed. A Shapiro-Wilk test was conducted to determine whether the composite scores could have been produced by a normal distribution. The results of the Shapiro-Wilk test were significant, $W = 0.74$, $p < .001$. This suggests that the composite score is unlikely to have been produced by a normal distribution, thus normality cannot be assumed. However, the mean of any random variable would be approximately normally distributed as sample size increases according to the Central Limit Theorem (CLT). Therefore, with a sufficiently large sample size ($n > 100$), deviations from normality would have little effect on the results. Levene's test for equality of variance was also applied to assess whether the homogeneity of variance assumption was met. The homogeneity of variance assumption requires the variance of the dependent variable to be approximately equal in each group, represented by each combination of factor levels in the independent variables. The result of Levene's test was significant, F (1, 114) = 4.70, $p = .032$, indicating that the assumption of homogeneity of variance was violated. Consequently, the results may not be reliable or generalizable. Since equal variances cannot be assumed, Welch's t-test was used instead of the Student's *t*-test, which is more reliable when the two samples have unequal variances and unequal sample sizes. The result of the independent samples *t*-test was significant, t (61.66) = -2.91, $p = .005$, suggesting that the mean of composite score was significantly different between the male and female categories. The mean of composite score in the Male category of Gender was significantly lower than the mean of the composite score in the Female category. Table 2 presents the results of the independent samples *t* -test. Table 4 presents the results of the test.

Table 4: Independent Samples t-Test for the Difference between Composite ethical considerations scores for (Male) and (Female)

	Male		Female				
Variable	**M**	**SD**	**M**	**SD**	**T**	**p**	**d**
Composite ethical consideration Score	22.36	7.05	25.78	4.17	-2.91	.005	0.59

Note. Degrees of Freedom for the *t*-statistic = 61.66. *d* represents Cohen's *d.*

Customer consideration of ethical behaviour of food outlets towards all stakeholders and age group of respondents: An analysis of the descriptive statistics relating to the total consideration of ethical behaviour of food outlets towards all stakeholders score shows variations across the age groups that participated in the study. Table 5a shows that the younger participants (Under 20 years) scored lower than the older ones (20 to 29 years and over 40 years) suggesting an age-based variation in ethical perception of customers.

Table 5a: Descriptive statistics for age group differences

Age group	M	SD	n
Under 20 years	23.33	2.74	12
20 to 29 Years	25.47	4.37	60
30 to 39 years	22.33	7.74	36
40 years and above	28.50	1.60	8

Table 5b shows that the distinctions in the total consideration of ethical behaviour score across age groups are statistically significant as shown by the p-value of 0.008.

Table 5b: ANOVA table for age-based differences

Variable	df	SS	MS	F	p	η^2
Age group	3	369.37	123.12	4.15	.008	0.10
Residuals	112	3323.60	29.68			

Post-hoc Comparisons: To further examine the differences among the variables, *t*-tests were calculated between each pair of measurements. A Bonferroni *p*-value correction was used to adjust for multiple testing. The mean value of 20 to 29 years (M = 25.47, SD = 4.37) was significantly greater than 30 to 39 years (M = 22.33, SD = 7.74). The mean value of 30 to 39 years (M = 22.33, SD = 7.74) was significantly less than 40 years and above (M = 28.50, SD = 1.60). No other significant differences were found.

Customer consideration of ethical behaviour of food outlets towards all stakeholders and respondents' level of education: The results presented in Table 6a show a clear distinction between mean scores on customer consideration of ethical behaviour of food outlets variable across participants of different educational backgrounds. Participants exposed to higher levels of education had significantly higher mean scores compared to those exposed to lower levels of education.

Table 6a: Descriptive statistics for educational background based differences

Education	M	SD	n
Up to high school level	25.09	5.33	44
Up to college level	26.43	2.74	56
Primary level only	16	6.73	16

The variations in mean scores on the basis of level of education are statistically significant at the 95% level of confidence, where the p-value of 0.000 is less than 0.05 as shown in Table 6b.

Table 6b: Anova statistics for educational background based differences

Variable	df	SS	MS	F	p	η^2
Education	2	1379.61	689.81	33.69	< .001	0.37
Residuals	113	2313.35	20.47			

Post-hoc Comparisons: To further examine the differences among the variables, *t*-tests were calculated between each pair of measurements. A Bonferroni *p*-value correction was used to adjust for multiple testing. The mean value of up to college level (M = 26.43, SD = 2.74) was significantly greater than Primary level only (M = 16.00, SD = 6.73). The mean value of up to high school level (M = 25.09, SD = 5.33) was significantly greater than primary level only (M = 16.00, SD = 6.73). No other significant differences were found.

Customer consideration of ethical behaviour of food outlets towards all stakeholders and respondents' occupation: Results shown in Table 7a suggest they are no significant variations in mean scores on the basis of one's field of occupation. All categories of occupations had mean scores of approximately 24 each, thus showing not much distinction.

Table 7a: Descriptive statistics for occupation based differences

Occupation	M	SD	n
Formally employed	24.29	5.77	68
Self-employed	24	5.35	8
Student	24.90	5.67	40

Further analysis of the above results using ANOVA shows that the minor differences in the mean scores are also statistically insignificant as indicated by the p-value of 0.843, which is greater than 0.05 as shown in Table 7b. Since the overall model was not significant, post-hoc testing was not conducted, as it would not contribute additional information to the analysis.

Table 7b: Anova statistics for occupation-based differences

Variable	df	SS	MS	F	p	η^2
Occupation	2	11.25	5.62	0.17	.842	0.00
Residuals	113	3681.72	32.58			

Discussion of Findings: The findings demonstrate that females are more ethically perceptive as compared to males. The results are in sync with observations from other ethics-based studies which concluded that females are more ethically conscious as compared to males. Eweje and Brunton's (2010), study on a sample of 655 business students in New Zealand found females to be more ethically perceptive as compared to males. This view buttresses Tan's (2002) claim that females show acute ethical awareness and intentions as compared to males. However, the finding somewhat contradicts Steele et al. (2011) observation that gender-based distinctions in ethical views do occur albeit inconsistently. The findings also revealed that younger participants scored lower than the older ones on ethical sensitivity suggesting an age-based variation in ethical perception of customers, even though the variations were not marked. This findings contradicts Kavaliauske and Ubartaite's (2014) study that revealed that younger consumers (26-30 and 31-35 age groups) who were more ethically aware than older consumers preferred to buy organic products more than the 41 to 45 years age group consumers. However, even though they scored lowest than all age groups, the 20 to 39 age group's purchase behaviour did not seem to be inconsistent with those observed among other age groups, suggesting that they may be another factor apart from age that is influencing the mean score variation. In connection with this, Tan (2002), and Solomon and O'Brien (1990) observed that demographical factors like gender, age and educational background had a moderate impact on ethical consumer decisions.

The results also demonstrated that participants exposed to higher levels of education had significantly higher mean scores compared to those with lower levels of education. This demonstrates that respondents with higher academic attainments tend to be more ethically sensitive than those with lower educational attainments. This finding resonates with Newholm and Shaw's (2007) findings that consumer's level of education is a critical factor that influences ethical purchasing decisions as it facilitates exposure and processing of consumer brand information. The finding also affirms Starr's (2009) claim that consumers' educational background influences their ethical consumption as they are exposed to ethics information through the education process. If this understanding on the influence of education on purchasing behaviour were to shape consumers' actual ethical purchasing, then such customers would be keen to purchase from ethical businesses. While mainstream literature associates consumer ethical sensitivity and critical consumerism with advanced Western nations due to high literacy rates, our study also demonstrates the prevalence of ethically sensitive consumers in emerging, distressed economies- environments considered to lack consumer ethical consciousness (Creyer, 1997; Vivi & Yothmontree, 2002). However, it can be argued that sustenance of ethically conscious productivity and performance rides on the conversion of customers' ethically sensitive intentions into ethically informed purchase decisions.

All categories of occupations had mean scores of approximately 24 each, thus showing not much distinction on ethical sensitivity based on occupation. This findings contradicts Seppanen's (2013) claim that through the effect occupation has on a consumer's income level, occupation affects one's willingness to consume ethically, a claim that insinuates that higher income earners have a higher propensity for ethical consumption than lower income earners. This findings also contradicts White et al. (2012) claim that the higher the consumer's income levels, the greater their inclination to purchase ethical products notwithstanding their costly nature.

The implication is that owners, managers and employees of fast food outlets, regardless of the target customers' income group, should show ethical concern towards all stakeholders in conducting their business in case they face a customer backlash if they act otherwise. Overall, most respondents indicated that they were pleased to discover that a firm which they bought from acted ethically to all stakeholders. Many customers would choose to buy from an ethical outlet as compared to unethical ones demonstrating the ethical sensitivity of stakeholders (i.e. customers). The overwhelming reception of good ethical practices as a precondition for purchase signifies the central place of ethical conduct in broader stakeholder management discourse (White et al., 2012). Consistent with the Ethical Decision Making (EDM) Process (see Jones 1991; Rex & Sprunt, 2006), customers act on their moral concerns (of buying ethically acquired products/goods/services), logically recognise the morality (of businesses buying from ethical suppliers); make moral judgments about these ethical practices and make a determination to prioritise this moral concern (of buying ethically sourced products/goods) ahead of other concerns. Therefore, it is important for enterprises in the fast-food industry to maintain an ethical reputation if they were to get positive endorsement from their patrons. Yet having awareness, favourable attitudes or even intention does not indicate future ethical actions (Rex and Sprunt, 2006, Jackson, 2005). Bonsu and Zwick (1997)'s study of Ghanaian consumers indicated that consumers were prone to suspending their ethical principles if the outcome would be to their advantage.

5. Conclusion

The primary objective of the study was to ascertain the extent to which consumers of fast foods in Zimbabwe considered as critical the ethical conduct of fast food outlets towards customers when making buying decisions. The results of the study suggested that a majority of the respondents in the study indicated they considered the ethical standing of fast food outlets they patronised when making their purchasing decisions. Our results are consistent with the findings of Shen et al. (2012) claim that consumer purchasing behaviour is subject to their perceptions of a company in terms of its reputation in the industry, and influence their support of what they believed to be ethical business practices. It also emerged from the study that they were statistically significant variations in terms of ethical considerations amongst the customers on the basis of respondents' gender, age and educational background. However, consumers' occupation was not a significant underlying factor in shaping ethical perceptions of the fast food outlets. In spite of this customers' overwhelming intent to make ethical purchasing decisions, what was not obvious is whether customers fulfilled their intentions with actual purchase actions. This uncertainty is supported by Titus and Bradford (1996) who noted that consumers may notice the moral aspects of a purchasing scenario but still ignore these ethical aspects when making their final purchase decisions. As such, what is less common is ethical consumers' willingness to pay premium prices than their willingness to change their behavior (towards the socially conscious choice) (Cotte & Trudel, 2009). This is because they often appear to expect the socially better choice to be of the same quality and price—it does not appear that they will understand the trade-off functionality (Cotte & Trudel, 2009). While our findings reported the possible linkage between business ethics and consumer purchase decisions, it did not confirm whether a statistically significant relationship really existed between them. Hence, further studies are necessary to establish the significance of this relationship.

Recommendations: Since women reported more ethical purchasing than their male counterparts, the study recommends that more ethical consumption advertising and policies should target male consumers to ensure more robust ethical purchase decisions by male consumers. In the same vein, public policies and business marketing interventions on ethical consumption should deliberately target younger age groups that were considered to be less ethically sensitive when it comes to ethical purchase decisions. The deliberate ethical consumption campaigns can also to involve those with lower educational attainments who exhibited lower ethical consumption behaviours to ensure a broader internalisation of ethical consumption than what currently obtains. The general display of ethical consciousness by customers in purchasing scenarios require small firms to take deliberate steps to entrench ethical awareness and conduct within the organizations. Such steps may include adoption of codes of ethics, acknowledging ethical behaviour by employees, censuring unethical conduct and managers acting as role models in ethical conduct.

Limitations and Areas for Future Research: One of the limitations of the study is that it was undertaken at only two branches of a fast-food small enterprise situated in two cities in Zimbabwe. Therefore, the extent of generalisability of the findings across the general fast-food industry is constrained. Though as it may, the rigorous analysis and the decent sample size employed make the study relatively credible contribution to ethical research literature. The authors exhort other researchers to build on the current study by utilizing more robust methodologies and more comprehensive sample compositions. The use of larger sample sizes drawn from Zimbabwean fast-food outlets of different sizes can enhance the generalisability of findings from the study. Apart from the preceding, this project was a snapshot of the ethical situation within business enterprises. A longitudinal study exploring how customers respond to the business' variations in ethical behavior over time through ethical purchases can shed more light on the relationship between business ethics and consumer purchase decisions.

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Foreign Direct Investment in Russia: Stakeholders' Views and Perceptions

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Abstract: Volumes of foreign direct investments (FDI) are growing steadily, however, transition economies, such as Russia, are attracting only a minor share of FDI despite of available potentials. Risk aversion is one of the reasons influencing decision-making processes of FDI investors. This paper reviews existing objective and subjective risks, which impact decisions regarding FDI. The results of the paper are based on the extensive dialogue with stakeholders from Austria, Germany and Japan on the risks for FDI in Russia as well as on the outcomes of the discussions on barriers for trade in frames of the workshop, which brought together Russian and European stakeholders. The results show that political, regulatory, revenue, currency and operational risks within the economy of Russia are perceived by FDI investors from different sectors such as construction, financing, automotive and other industries as being the most likely and probable risks for FDI in Russia. The majority of investors perceive political risks as a greater barrier for investment in Russia. These perceptions are influenced by existing asymmetries on the market and the political decision-making dominance over business environment. Our results support existing evidence on impacts of uncertainties connected with political and regulatory risks for FDI in Russia. However, we did not find evidence that these risk perceptions were affected by creation of the Eurasian Customs Union, neither in positive nor in a negative way. The results suggest that significant progress was already done by improving investment climate in Russia but further efforts are also needed on addressing regulatory risks such as dealing with construction permits, protecting minority investors or simplifying customs regulations, as well as addressing existing market asymmetries.

Keywords: *Foreign direct investment, transition economies, decision-making processes and risk aversion*

1. Introduction

Foreign direct investment (FDI) contributes to modernization of economy of hosting country because they are connected with technology transfer. With investment into advanced technologies new ideas are transferred from the source to the host country, which increases competition and improves efficiency, by lowering prices to consumers (Dunning, 1973). The effects of FDI on economic growth in transition economies were tested by Campos and Kinoshita (2002), which found significant positive effects. However, this effect will depend on the quality of institutional framework in the hosting transition countries (Jude and Levieuge, 2014). During the last decades the volumes of international trade and FDI were growing significantly globally mainly due to favorable economic climate and orientation of private sector towards geographical reorganization of production. Only in the period between 2000 and 2010 the volumes of the world trade increased from 48% to 58% (UNCTAD, 2010) and the period 1985-1990 saw the fastest FDI growing economic activity. In this period FDI increased from an average of 142 billion dollars US in 1985 to 1.2 trillion dollars US in 2010 (UNCTAD, 2014). The turbulent period of financial crisis resulted in a certain declaim of FDI, those volume is however, growing since 2015. In 2014 UNCTAD conducted a survey in collaboration with McKinsey among 1.000 top managers in 89 countries. 42% of them think that the state of development in transition economies, as well as regional economic integration (37%) will lead to an increase of FDI globally. Also 63% of them think that FDI into transition economies will be increasing in the period between 2015-2017.

FDI make an important share of financing volumes in transition economies and account for 40% of external development finance in these countries (UNCTAD, 2015). The year 2014 saw a record decline in FDI by 52% in comparison to the previous year, mainly, because of regional conflicts, falling oil prices and international sanctions, according to the World Investment Report. The drop of FDI in some of the transition economies, such as Russia, was even more dramatic and made 70% in 2014 comparatively to 2013. The dynamics of FDI show that significant growth of FDI activities can be followed by drastic declines and that this dynamic

depends on decision-making process of investors, which is influenced by their vision of existing risks for their investment. Majority of existing on FDI works tell that the decision of foreign investors to undertake FDI depends, mainly, on economic factors and favorable institutional environment in the hosting country (Dunning, 1998). Since late 1990s several works were written on FDI in transition economies, mainly, using statistical methods of analysis and focusing on quantifiable impacts from FDI. The works on qualitative factors, such as impacts of cultural determinants or human factors, including views, concerns and perceptions of stakeholders, are almost non-existent (Lucke and Eichler, 2016).

At the end of the 2000ies Russia became one of the largest recipients of FDI among the Central and Easter European (CEE) countries. The cumulative gross direct investment in Russia from 1989 to 2009 was 24 billion USD higher than the amount received by Poland, which was the second largest FDI recipient among the CEE countries (UNCTAD, 2015). Until now little research was conducted on barriers for FDI in Russia, which can be explained by two reasons, such as on-going transition from centralized market structures towards market economy and the fact that the region started recently attracting FDI (Azam and Ahmed, 2015). Also Iwasaki and Tokunaga (2014) found out that the works on post-communist transition economies account only for a very small proportion of earlier studies, with the majority of these studies being focused on the Central and Eastern European countries, which joined the European Union. Only a very small portion of existing research is focusing on Russia and other countries of the former Soviet Union.

In this paper we argue about the importance of understanding human factors, such as risk perceptions, and their impacts on decision-making processes regarding FDI. Following the distinction of Slovic (1987), we assume that there is a difference between existing risks, such as unstable institutional environment, and perceived risks, which can be subjects of cognitive and behavioral biases. We choose Russia as our case country for several reasons. First, this is one of the largest transition economies, which before the year of 2014 was the third most attractive place for FDI investment among transition countries. Evidence also exists that FDI have significant positive effects on the economy of Russia, at the same time, as these effects are less significant in other countries of the region. For instance, Iwasaki and Tokunaga (2014) find significant positive effects of FDI on total factor productivity in the Russian regions and the remarkable role of FDI in the regional economic development of Russia. However, Ahmed and Azam (2015) found weak statistical evidence of positive effects of FDI on economic growth of other countries of the region, not only because these countries were not able to attract desirable volumes of FDI but also due to uncertainties and economic disturbances in the last years. Second, because Russia currently experienced a number of developments, which might have impacted perceptions of FDI investment in this country. Third, we were interested how FDI investment were impacted by risk perceptions, connected with cultural environment of the country rather than with objective risks.

2. Literature Review

Impacts of objective and subjective factors on FDI decisions: In our research we focus on two groups of factors, which influence decisions of FDI investors. The first group of factors, the so-called "objective factors", is characterized by trading relations and international framework influencing these relations. We include into this group such factors as trade integration. Previous studies identified positive and robust correlation between trade integration and FDI activity, when FDI were often described even as a "new engine" of economic growth for recipient countries (Kobrin, 2005). The liberal market economy theorists tell that the optimization of resources requires free capital and investment flows. For example, Martinez-San Roman et al. (2015) examined patterns of FDI flows within the European Union and impacts of trade integration on these flows over the period 1995-2009. Also foreign economic relations can become a catalyst of economic transformation where trade agreements would restructure economy, markets and their dynamics and contribute to the accumulation of capital. The study on the impacts of the Eurasian Customs Union found that trade barriers limiting FDI have impacts on economic growth (Mkrtchyan and Gnutzmann, 2014). The links between FDI and trade were also identified by Pfaffermayer (1996), Brainard (1997), Blonigen (2001), Neary (2009). For some countries the effects on FDI could be solely explained by how easy it is to trade across the borders, at the same time as other components of ease of doing business have little or no effects on FDI. Also for the middle-income countries, like Russia, being in a cluster of countries with good trade regulations improves their ability to attract FDI.

The second group is so-called "subjective factors", which are cultural or human factors characterizing the business environment. These factors represent perceptions of specific characteristics of the hosting country. Research showed that regulatory reforms leading to more liberalization, particularly, in relations to the markets entry, lead to perceptions of regulatory environment as being more attractive and an increased FDI activity (Alesina et al., 2005) and, in contrary, costly entry regulations reduce the number of newly created firms (Klapper et al., 2006). Martinez-San Roman et al. (2015) identified several factors, which affect perceptions of investors and make one country looking more risky for investment in contrary to another one. These factors are quality standards, bureaucracy, regulations and complexity of contracts as well as consumers preferences. Significant correlation also exists between perceptions of business environment of the host country, which is reflected by the Ease of Doing Business Index, developed by the World Bank, and the volumes of FDI. For instance, Jayasuriya (2011) finds that higher Doing Business ranking impacts risk perceptions of investors and attracts more FDI. At the same time, Corcoran and Gillanders (2015) find significant influence of Doing Business rank of a country on perceptions of regulatory environment and on investment decisions. There are also many other factors, which influence risk perceptions such as perceptions of quality and complexity of bureaucracy (Busse and Hefeker, 2007; Komendantova et al., 2011), generic host bureaucratic quality (Eicher et al., 2011) or tax complexity (Lawless, 2009). Other studies speak also about such cultural factors as perceptions of corruption risks or impact of religion (Egger and Winner, 2005) and cultural distance to a host country, such as common religion, language, border and similar past with hosting country (Lucke and Eichler, 2016). Another important factor is the social infrastructure and evidence shows that FDI are mainly attracted by the countries, which have strong social infrastructure (Hall and Jones, 1999) and can include well-functioning state institutions and stable governments (Janjua and Samad, 2007).

Current situation in Russia: In the last decades several types of trade liberalization and integration models were introduced, affecting also trade with Russia. The first type is free trade agreements, which are concluded on the bilateral basis. The second type is regional integration bloc, for example, the Customs Union (CU) of Belarus, Kazakhstan and Russia, which resulted in abolition of customs regulations between these three countries. On January 1, 2012 the three states of Russia, Kazakhstan and Belarus formed a Single Economic Space (SES) to promote further economic integration development (Stepanova, 2013). On January 1, 2015, it was transformed into the Eurasian Economic Union (EAEU) and enlarged by Kyrgyzstan and Armenia. Thus, the third example is inter-regional integration agreements. With the population of around 144 million people and gross national income (GNI) per capita of 13.210 dollars US, Russia belongs to the group of high-income countries. Starting from 2012 Russia experienced a number of events, which facilitated integration of the country with the global economy and its trading relations with other countries. After more than 18 years of negotiations Russia joined the World Trade Organization. Also for the first time Russia hosted the summit meeting of the Asia-Pacific Cooperation (APEC) in Vladivostok with a number of important agreements on liberalization of trade investment and regional economic integration.

Further on, Russia launched the Common Economic Space with Belarus and Kazakhstan as well as the Customs Union. Currently the Russian share in GDP of the Customs Union makes 86% and of population is 84%. Kazakhstan has 8% of GDP and 10% of population, Belarus accounts for 5% of GDP and for 5% of population. Russia has intensive trade relations with these two countries, with the Russian export making 46% of all export to Belarus and 24% of Kazakhstan. Trade of petroleum and natural gas plays an important role in Russian exports to these countries. Trade between members of the Customs Union is also facilitated by the fact that internal tariffs between members were largely eliminated. Supposedly, these events would facilitate trade activities between Russia and foreign countries. In 2013 the FDI inflows to Russia made 26.1 billion USD, a significant portion of this FDI (11.15 billion USD) came from offshore companies (EMISS database of Rosstat, 2015). Thus, around 50% of all FDI in Russia can be regarded as returning of Russian capital. These investments are primary done into real estate, trade, manufacturing and mining. However, the share of industries engaged into innovation does not exceed 20% of all FDI (Grasmik, 2015). The record year for FDI was 2007 and 2008 when the volumes of FDI reached 27.8 billion USD. The share of individual industries in FDI and investment in fixed assets made 27% in manufacturing sector, 14% in food manufacturing, 14% in transportation equipment manufacturing, 12% in nonmetallic mineral product

manufacturing, 9% in chemical manufacturing, 6% in production of electrical equipment and 4% in metal manufacturing (Rosstat, 2015).

In the year 2013 the volumes of FDI to the Russian economy reached their record level of 94 bn US dollars, which put Russia for the first time in history on the third place among 20 countries with maximum volumes of FDI (UNCTAD, 2015). This happened mainly because of one large deal conducted between BP and Rosneft. Other FDI during this year came from UK (26.8%), Luxemburg (16.5%), Ireland (14.8%), British Virgin Islands (13.3%), Cyprus (11.8%) and the Netherlands (8%) (Trading Economics). However, expectations were that the future FDI would reach the 2013 level. Examples could be large deals such as FDI from the sovereign fund Mubadala from the United Arab Emirates, which plans to invest 7bn US dollars. Currently these expectations did not realized and the decline of FDI investment continued in 2015, the year when the global FDI reached their maximum level after the financing crisis of 2008-2009. The majority of these FDI went to USA, China and Hong Kong, followed by the Netherlands, UK, Singapore, India, Brazil, Canada and France. UNCTAD identified the low volumes of global economic growth and political risks as major reasons for the drop of FDIs to Russia in 2014. Other risks identified as barriers for investment in 2015 are currency risks and again geo-political instability as well as the decline of interest regarding FDI into fossil fuels energy sector because of the low oil prices. According to the World Bank, other reasons for decline in FDI are instability of national currency and the slow economic growth as well as low prices for oil and impacts of sanctions. Despite negative current FDI dynamic, the analytics of Forbes based on the results from large-scale survey among investors, identified Russia as the forth the most attractive for FDI country, after US, China and India.

3. Methodology

Our methodology was based on three-stage research. During the first stage we analyzed existing literature and identified critical factors, which influence investors decision-making process. We classified all factors to two groups of objective and subjective factors. The objective factors included variables impacting trading relations with Russia, such as impacts of economic integration or sanctions. The subjective factors included variables showing business environment of the hosting country and impacts of cultural and human factors of this environment. Based on the identified variables, we settled our data collection protocol. The second stage of research was based on in-depth qualitative interviews with Austrian, Japanese and German private companies. All these companies are operating in Russia in the sectors finance, construction, logistics, consumer products, engineering and technology. The interviews were conducted during the year 2014. We are aware that our interview results might be biased in comparison to large-scale surveys based on representative sampling. However, we tried to eliminate these biases by broadening our qualitative sample and including stakeholders from different economic sectors and different countries.

The interviews included questions on business environment, strategy, current operations, success factors, problems and procedures. All questions were open questions by providing interviewees enough room to express their opinion. The interviewees received the questionnaire before the date of interview and could select the questions to answer and to prepare themselves. Each interview lasted for approximately one - two hours. Prior to the interviews we asked opinion of the stakeholders if they would agree with the publication of results from interviews in an aggregated way. The interviews were conducted in a way that the response was spontaneous and reflected the perceptions of the respondent, which allowed us to limit the influence of the interviewer on the results (Hox and de Leeuw, 2002). The questions on objective factors included business environment within the Eurasian region, main uncertainties of development within the next three to five years, expect growth and how trade conditions changed with the formation of the Customs Union and if these changes were noticeable.

The questions on subjective factors included perceptions of influence of region, of unique features of this country from the point of view of business perspective, factors which facilitated operations within the region and which made this country to be more attractive for investment then other regions as well as perceptions of uncertainty of the regulatory and political environment. The questions were also focused on perceptions of procedures, namely, with which kinds of special procedures it was necessary to deal when establishing business within the area, special construction permits, problems with registration of property, special

requirements for arranging credits from financial institutions and input provides. These questions also included perceptions about regulations to protect investors and impacts of these regulations on business, if they slowed down or speeded up the business, what are the perceptions of complexity of taxation also in comparison to the head quarter country, of special features of contracts and of insolvency procedures. They also included perceptions of risks and problems such as visible and hidden risks as well as potential sources of risks, major obstacles for business and barriers for trade as well as perceptions of barriers for doing business in this area.

During the third stage of research we collected perceptions and concerns about barriers for FDI in the workshop "Trade Policy Regimes", which was organized to discuss trade relations between the Eurasian region and the European region. The workshop took place on the 6th and 7th of July 2015 at IIASA, Laxenburg, Austria. Stakeholders from policy, science and private sector communities from Austria, Azerbaijan, Belgium, Finland, Germany, Iceland, Kazakhstan, Russia, Ukraine and a number of international organizations were present[1] to discuss trade policies, conditions and practices in the Eurasian region. Additionally the scripts of interviews were analyzing with the help of such text mining programs as INVivo. These programs allow to search for frequency of key words in interviews and thus to understand the dominating discourses. The application of INVivo showed that key words, associated with such types of risks as political and regulatory risks, were used most frequently. At the same time key words associated with such risks, as force majeur circumstances, were almost not applied by interviews. Further on, we applied INVivo program on the text of the protocol with stakeholders' elicitations, which were collected during the workshop. Application of this additional analysis method allowed us to validate the results, which we gained during interviews and the workshop.

4. Results

Our results allowed us to identify a number of objective and subjective factors, which influence decision-making process on FDI in Russia. We derived our data from existing literature on trading relations and barriers for FDI and elicitations from workshops participants. Further on, we validated our results through data, which we received from interviews on perceptions of likelihood and seriousness of concern about risks for FDI in Russia. We identified the following objective factors connected with the issue of trading across borders, including documents requirements, custom procedures, port operations and existing infrastructure, which might lead to extra costs and delays. The Ease of Doing Business covers time and costs associated with logistical processes for exporting and importing goods and refer to a case study scenario of a warehouse in the largest business city of the country. Sadly, according to this index Russia stands on the place 170 out of 189 economies, even though there was a number of reforms to make trading across borders easier such as the reduction of the number of documents needed for transactions and lowering associated costs in 2012 or implementation of electronic system for submission of export and import documents and reduction of physical inspections in 2014. Here the most striking factor is the costs to export and import, including the border compliance, which makes around 1.125 dollars US in comparison to 219 dollars US average for Europe and Central Asia.

Sanctions, and mainly their intransparent character, were mentioned as another factor, which impacts FDI. However, the major perception was that the sanctions were a part of political and diplomatic discourse and did not have much impact on the everyday operations. As one interviewed stakeholder mentioned "we know

[1]The Russian participants were represented by the following organizations: Eurasian Economic Commission, JSC "Severstal", Gaidar Institute for Economic Policy, Eurasian Development Bank, Ministry of Economic Development of the Russian Federation, Russian Association of Public Relations, Institute for Economic Forecasting, Center for Economic and Financial Research, Permanent Mission of the Russian Federation to the International Organizations in Vienna, Trade Mission of the Russian Federation in the Republic of Austria. The participants from the European Union countries were represented by the DG Trade of the European Commission, European Council of Foreign Relations, Frankfurt School of Finance and Management, University of Helsinki, Bank of Finland's Institute for Economies in Transition, Centre for European Policy Studies (CEPS), University of Iceland, Vienna Institute for International Economic Studies, Austrian National Bank, Joint Vienna Institute, Vienna Institute for International Economic Studies. The participants from other countries were represented by employees of IIASA, Institute of Economics and Forecasting in Ukraine, Ministry of Economy and Budget Planning of the Republic of Kazakhstan, International Institute of Economics and Law of Kazakhstan, Kazakhstan Economic University, National Chamber of Entrepreneurs of Kazakhstan, Center for Economic and Social Development of Azerbaijan

that the Japanese government has a list of sanctioned Russian individuals, but this list is not public. So it does not have any pragmatic impact".

The mentioned current trade barriers included comparative advantages and of how trade barriers are impacting these advantages. For example, Japanese companies are making their investment decisions based on existing business opportunities in different potential markets and with dynamics of trade agreements. If a market provides opportunities for growth, then a company is willing to adjust to the regional features and is able to cover the additional costs. Regarding the trade dynamics, an interviewee from Japan mentioned that companies are closely following up the continuously evolving trade agreements' field, where various ongoing negotiations of free trade agreements and other arrangements are shaping the global trade environment.

The participants of the IIASA workshop also mentioned non-tariff barriers, however, rather as an impact on the trade flows in the Customs Union, then a barrier for FDI. They called them as "asymmetric barriers" when a trade barrier is imposed by at least one member of the Customs Union and when there is at least one member, which does not impose such barrier. The experts' elicitations show that reduction of non-tariff barriers may lead to an increase in efficiency, output and productivity within the Customs Union.

Our results allowed us to identify four types factors, which shape subjective risk perceptions. These are political, revenue operational and regulatory risks. The political risks were mentioned most frequently and by all interviewed stakeholders. When they spoke about political risks they mainly referred to instability of regulatory environment and weakness of the government to implement regulations. One of the interviewees was even describing the current political situation as "controlled confusion", namely "this confusion is generated by purpose. It serves those that either have the power dominance – or those that want to disrupt current regimes. The middle class will be the group that will lose most in this situation". Also results of interviews showed that perceptions of political risks are gaining their important and these types of risks are perceived as the most serious and likely for FDI. The perceptions of revenue risks were connected with the limited availability of local or international capital and the currency fluctuations, which increased the real costs and have reflections on pricing. Currency uncertainty also requires larger cost puffers, which raise the volumes of investment. Our interviewees mentioned that financing and re-financing becomes increasingly more difficult for Russian companies and foreign companies active in Russia.

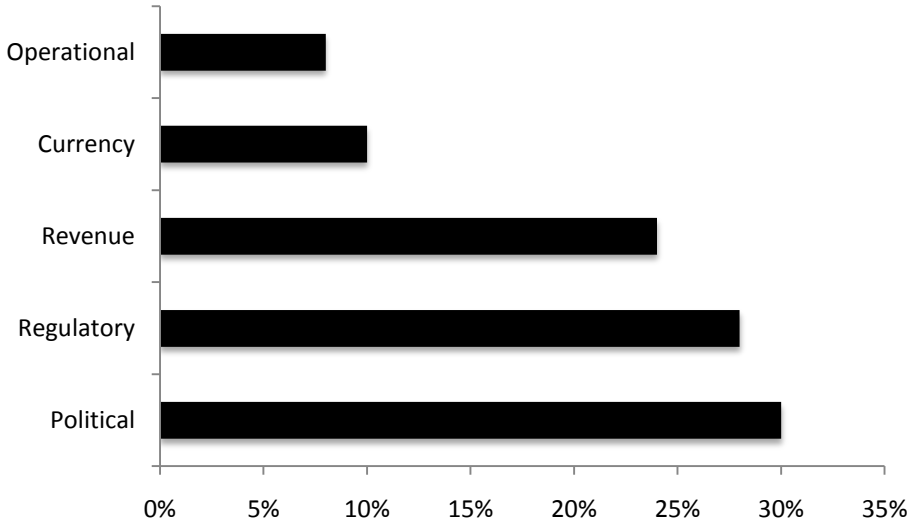
When stakeholders spoke about operational risks, they mainly described the lack of industrial ecosystem, when the local industrial ecosystems are not developed enough to provide production with right quality and type of raw materials and components, thus large amount of components and means has to be imported. Operational risks also often include the lack of local firms offering maintenance services, the lack of skilled and experienced local staff and the limited experience of grid operator with renewable electricity sources. The perceptions of regulatory risks included the lack regulations as well as complexity and corruption of bureaucratic procedures, complex processes and long time frames for obtaining permits and licenses for projects and instability of national regulations, such as regulations to start business, dealing with construction permits, registering property, protection of investors, enforcing contracts, resolving insolvency among other variables.

Objective facts show that Russia is doing pretty well on the majority of these indicators; however, subjectively investors perceive these risks as most serious and likely to happen. For example, it ranks above the regional average for starting business and for resolving insolvency Russia ranks the place51in comparison to China (55), Brazil (62) and Europe and Central Asia average (74). It takes in Russia 310 days in average to enforce contracts in comparison to the 481 days for the European and Central Asian average and the costs of resolving standardized disputes are also low. Globally, Russia stands on the place 5 on the ease of enforcing contracts; in comparison to the place 50 for the regional European and Central Asian average. Also the country ranks the place 8 for registering property, in comparison to the rank 49 for regional average. The high ranking is mainly due to the regulations, which were developed the last years and made registration of property transfers easier by computerizing land registries, introducing time limits for procedures and setting low fixed fees. Improvements are necessary in such areas as protecting minority investors, which relates to the ability of companies to raise capital they need to grow, to innovate, diversify and compete, where Russia ranks the place 66 in comparison to the 46 for the regional average. The dealing with construction permits

still remains a problematic area where Russia ranks the place 119, which still requires passing 19 procedures and takes in average 264 days. Interviews showed that five kinds of risks were perceived as being most likely and serious threat for FDI in Russia. Four of these risks are subjective risk perceptions connected with environment for doing business in Russia itself. Only one risk – currency risk – is perceived among external factors as being a threat for investment (figure 1).

The political risks, as the leading role of politicians in the business context, were mentioned most frequently. At another side, it was also connected with perceived political instability. This type of risk was also closely connected with existing regulatory structure and capacities of the government to implement regulations. Other frequently perceived risks were operational and revenue, which were connected with low economic growth and malfunctioning of investment market. Interviewees were even mentioning, "The demand on the Russian market became too low", that "the economy does not support our type of business" or that "current business can cover only costs of distribution".

Figure 1: Perceptions of risks for FDI in Russia



The perceptions of regulatory risks are also connected with the lack of industrial ecosystem regulations. One of the most common perceived barriers was the requirement to use contribution of local product and service providers however the principle of joint venture with local partners were perceived positively as a way to gain knowledge on specifics of the Russia market and local procedures. For instance, one of interviewees spoke about how joint ventures could address existing political and regulatory risks as following: "The tendering process is here very difficult for us. The government is providing us with a very detailed specification and the budget, called "smeta", which is a feature of central planned economy. This is extremely difficult for a foreign player to fit with this budget. The local players know how to get additional costs accepted during the implementation process, which lead to significant increase of the costs of the project, low efficiency and asymmetric information for foreign players giving advantages for local players". During the last years Russia also made significant progress by addressing regulatory risks. In the year 2015 Russia ranked the place 21 in the Ease of Doing Business, which was above the European and Central Asia average rank (55) and much better than China (84), Brazil (116) or India (130). But some of the existing regulations such as dealing with construction permits, protecting minority investors or customs regulations, still need significant simplifications and are perceived as regulatory risks by FDI investors.

The results of interviews show that the majority of risks perceived as a threat for FDI in Russia are connected with subjective risks perceptions of environment within the country, as political, regulatory, revenue or operational risks. These risks were a typical feature of the Russian economy in the last decades and there is no evidence that they were affected by creation of the Eurasian Customs Union or current international

relations. Political risks relate to the leading role of politicians in the business context. Political risk is also often understood as the low level of political stability, lack of support from local government, poor rule of law and institutions and poor governance. There is a clear link identified by previous research between political factors and FDI. Harms and Ursprung (2002) identify that autocracies are perceived with a greater risk of policy reversals and therefore attract less FDI. However, further evidence is controversial. For instance, Kolstad and Villanger (2008) find that the democratic structures matter only for FDI in developing countries and in specific sectors, such as services. Adam and Filippaios (2007) find out that there is a link between civil and political liberties and that FDI go rather to the countries with low civil but high political liberties. Also it seems that the countries with lower levels of democracy receive higher FDI (Kim, 2010) but these results could be biased by in proportionally high investment flows to China. However, there is a homogenous opinion across several studies that political stability is extremely important. Tuman and Emmert (1999) find that certain types of regime changes, such as revolutions, have negative impacts on FDI.

The analysis of our results on political risks and their comparison with available evidence shows that the majority of perceptions about political risks emerge from existing asymmetries on the market. From the business perspective, the challenges will emerge when political decision-making has dominance on business environment. It can also emerge when some economic players have a dominant role on the market or when one region or regulation has a dominant role.

Our results correspond with available evidence from the global studies conducted by UNCTAD (2015), World Bank (2013), World Economic Forum (2014) or Bleyzer Foundation (2002) on the impacts of uncertainties connected with regulatory and political risks in Russia. They also identify currency risk as an important barrier, which appeared during the last years but in contrary to the global studies, our research did not identify that force majeure risks, such as wars or local conflicts, are perceived as a likely risk for FDI investment at a current time period in Russia. Our results allow the statement that even though significant progress was done during the last years to mitigate regulatory risks for investment and to improve investment climate, still significant work should be done to address such regulatory risks as the process of issuing construction permits or complex customs regulation. Also further efforts would allow addressing existing market asymmetries and the power relationship between business and politics by addressing existing uncertainties and creating more stable investment environment.

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Factors Affecting Demand Planning in the South African Clothing Industry

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Abstract: The decline in the number of clothing manufacturers and the effect of globalisation have contributed to complexities in estimations and the scheduling of demand, as well as lead time management in the South African clothing industry. This article explores demand planning factors affecting the South African clothing industry, with specific reference to Gauteng. The study was necessitated due to demand planning challenges facing the South African clothing industry as well as economic factors which contribute to inaccuracies in clothing demand planning. The study makes an impact in the garment production factories of Gauteng in South Africa and adds to the philosophy of demand planning practices. It uncovers key factors affecting demand planning practices in the Gauteng clothing industry, South Africa. The study is explorative and descriptive in nature and it uses SPSS to analyse data. The findings revealed that there were factors affecting how demand planning practices were conducted in the clothing industry. The factors that have a significant influence on clothing demand planning include the scheduling of the manufacturing of customers' orders, planning for fashion clothes, the use of the POS system, clothing imports, estimating future clothing requirements, recession and the effect of the late arrival of clothes. Therefore, clothing industry stakeholders should take these factors into consideration when planning for their demand to ensure customer needs can be fully met, thus improving the performance of the clothing industry.

Keywords: *Demand planning, demand planning approaches, manufacturer, fabric suppliers, fashion designers, clothing industry, Gauteng, South Africa*

1. Introduction

Since 2004, when the South African government lowered tax duties which are paid when goods/services are imported into the country, the South African clothing industry has been declining (Nattrass & Seekings, 2012:10). This decline had a negative effect on the level of sales, employment, gross domestic product (GDP), as well as on the accuracy of demand planning (Kim, 2012:1285; Rotunno, Vèzina & Wang, 2013:2). In SA the fashion industry is one of the fifth major employment segments in the country. The SA clothing industry also makes a significant contribution to the country's growth in terms of sales (Gauteng Growth and Development Agency (GGDA), 2014). Hence, demand planning is critical in the SA clothing industry. Demand planning is critical in the clothing industry. Globally, the clothing industry is associated with a minimum period of garment existence, unstable customer needs and a variety of fashion styles with extensive lead times (Wong & Guo, 2010:614). According to Jonson and Tolstoy (2012:62), proper application of demand planning activities is required for organisations to achieve a competitive advantage. Demand planning, however, is subject to discrepancies and complexities, and this is one of the greatest challenges faced by the SA clothing industry (Aksoy et al., 2012:222; Bhardwaj & Fairhurst, 2010:165). The decline in the figure of garment production factories in the country and the effect of globalisation have contributed to complexities in estimations, scheduling, as well as lead time management (Sekerden, 2011:7). In addition, the influx of Chinese products into the country has affected the accuracy of demand planning in the clothing industry of the country (Rotunno et al., 2013:2).

The clothing industry has also experienced a reduction in the quantity of clothing organisations, a reduction in manufacturing output figure as well as fluctuating employment as reflected in section 1.2.3 (GGDA, 2014:3; IQ Business, 2014:3; Nattrass & Seekings, 2012:2). Numerous studies have been conducted on demand planning in the clothing industry. Authors such as Priest (2005), Sen (2008), Wark (2006) and Steytler and Powell (2010:6) explored selected components of demand planning such as fashion, clothing estimations and recession. In South Africa, authors such as Volk (2006), Nattrass and Seekings (2012) and Oberhofer (2012) also explored various components of the SA clothing industry, such as clothing imports, wage setting implications and fashion designing. However, these studies investigated selected components or elements of demand planning in the clothing industry. Hence, there is a gap and a need for an empirical investigation

through a comprehensive study on factors affecting demand planning in the clothing industry. Given the importance of demand planning to the competitive performance of the clothing industry, the study explored demand planning in the SA clothing industry with specific reference to Gauteng, based on a cross-section study.

This article therefore explores factors affecting demand planning in the clothing industry in Gauteng, South Africa. The article makes a contribution to the improvement of demand planning, not only to the Gauteng clothing industry but to the South African industry at large. Through the application of proper demand planning practices, customer needs can be fully met, thus improving the performance of the clothing industry. The remaining parts of this article discuss the literature review, research design and methodology, the findings and conclusion.

2. Literature Review

This section of the article presents a review of demand planning practices in the South African context. The section concludes with a review of the factors affecting demand planning.

Demand planning in perspective: Demand planning is critical to the success of organisations (Rexhausen, Pibernick & Kaiser, 2012:269). In the 1980s, organisations were relying on their own decisions when they planned for customer demands. However, with the changing business conditions, organisations have become flexible in demand planning (Bhardwaj & Fairhurst, 2010:165; Pretorius, 2013:1). Proper demand planning exists when organisations are able to succeed in obtaining correct items, at reasonable costs and at the correct time (Mason-Jones, Naylor & Towill, 2000:4061). The implementation of demand planning is affected by factors such as huge market demand for certain products, demand location, supplier distance, product variety, different data technology systems, matching demand and supply, as well as bulk product ordering that has a significant effect on planning (De Villiers, Nieman & Niemann, 2011). In the midst of all these factors organisations, including the clothing industry, have to prevent errors when planning for customer needs (Gauteng Growth and Development Agency (GGDA), 2014; Nattrass & Seekings, 2012; Oberhofer, 2012; Volk, 2006). Demand planning creates product value for customers by providing products according to customer needs and preferences (Priem and Swink, 2012:48).

Demand planning in the clothing industry: Demand planning is critical in the South African (SA) clothing industry. Chaudhary (2011:2) asserts that clothes are one of the basic requirements of human beings and that the demand will continue to exist. The demand planning process for customer clothing starts at the producers of raw materials and continue to fabric suppliers, clothing manufacturers and finally to the end customer (Oberhofer, 2012:66; Nattrass & Seekings, 2012:17; GGDA, 2014:2) The demand planning process of the clothing industry indicates how material production supply is communicated within the supply chain (SC) partners (Larsson, Peterson & Mattila, 2012:72). Surchi (2011:258) affirms that communication is crucial for proper demand planning in the clothing industry. Therefore, clothing manufacturers and retailers are required to work together in order to meet customer demand (Castelli & Brun, 2010:26; Nenni, Guistiniano & Pirolo, 2013:4). The clothing industry is multifaceted and there are several manufacturing lines involved in each stage of the production process (Nattrass & Seekings, 2012:17). Also, the types of customers involved complicate the demand planning process (Aksoy, Azturk & Sucky, 2012:222). Thomassey (2010:471) indicated that the demands of fashion customers differ from the demand for basic clothes. Hence, there are discrepancies and complexities in demand planning for clothing. Gereffi and Frederick (2010:17) mentioned that the complexity of clothing production is increasing as garments are produced. This on its own poses a challenge for demand planning in the clothing industry, including the SA clothing industry. Therefore, demand planning remains a major issue for the SA clothing industry.

Review of the South African clothing industry: The SA clothing industry has existed since the Second World War (Salm, 2002:7). The production operation in this sector requires more physical work and it employs people who are less educated and less skilled (Nordås, 2004). The clothing industry is often seen as a low income payer with fewer possibilities for research innovations and it is associated with strong workforce legislations (Nattrass & Seekings, 2012:8). According to Vlok (2006:227), the industry remains a critical division with regards to employment development. Having realised the importance of demand planning, in

1994 the city of Johannesburg established centres where various clothing styles are produced with the aim of improving clothing demand (Oberhofer, 2012:7). The SA clothing industry consists of three key stakeholders, namely fabric suppliers, fashion designers and clothing manufacturers (GGDA, 2014:2; Oberhofer, 2012:65; Staritz & Morris, 2013:9). It is critical to note that, in the process of satisfying customers' clothing demands, the SA clothing industry is faced with opportunities as well as challenges (Nattrass & Seekings, 2012:6). Due to the lack of proper demand planning, there are inconsistencies that have affected the industry in the following ways:

- **Changes in the number of clothing production organisations in South Africa: There have been changing:** trends in the number of clothing organisations in South Africa over the years. In 1998, there were 784 clothing manufacturers. By 2000, there was a decline to 672, while there was an increase to 1008 clothing production organisations in 2006 (GGDA, 2014:3). These trends may have emanated from the effect of inconsistencies in demand planning, as well as other factors, such as clothing imports and the recession (Gereffi & Lee, 2012:28; Steytler & Powell, 2010:2).This clearly indicates that there are changing trends in the number of clothing production organisations in South Africa.
- **Decline in manufacturing output:** The clothing industry makes a significant contribution to the manufacturing sector of a country. In 2005, the clothing industry in SA grew by over R12 500 million and then there was a sharp decline to less than R11 500 million in 2006 (IQ Business, 2014:3). From 2007 to 2012, the industry was stable, and in 2013 there was a slight growth to almost R13 500 million (IQ Business, 2014:3). The decline in the contribution of the manufacturing sector in this industry from 2006 to 2012 may be the reason for a decline in employment in the clothing industry (IQ Business, 2014:3).
- **Fluctuation in employment:** Over the years, the clothing industry has also experienced fluctuations with regard to employment (GGDA, 2014:3). According to Nattrass and Seekings (2012:2), there is evidence of fluctuations in the number of employees within the SA clothing industry. In 1950, the level of employment in the industry was at 50 000 workers, in 2005 the employment figure was at 142 865 workers, while in 2013, the figure was at 80 000. This decline indicates that the employment level may be the result of material shortages, as well as a rise in the import of clothing from China.

As indicated in the discussion above, the productivity of the SA clothing industry can be affected by changing trends in the number of clothing production organisations, the decline in manufacturing output, as well as fluctuations in employment. This indicates that better approaches are required to improve planning for clothing demands.

Factors affecting demand planning in the clothing industry: There are challenges that have an effect on demand planning in the clothing industry in South Africa. These challenges stem from the incorrect scheduling of clothing material, planning for fashion clothes, incorrect use of the point of sale (POS) system, an influx of clothing imports, incorrect estimations of clothes, the recession as an unfavourable economic condition, and the late arrival of clothing material (Aksoy et al., 2012:223; Nattrass & Seekings, 2012:17). These challenges have an effect on demand planning in the SA clothing industry. The challenges are briefly explained below.

- **Incorrect scheduling of clothing material:** The scheduling of clothing material is one of the challenging aspects that affect proper demand planning (Annadurai & Uthayakumar, 2010:3465). Scheduling is defined as the utilisation of correct and timely resources in manufacturing, fabric acquisition and production capabilities (Maravelias, 2012:1815). The scheduling of material can become multifaceted in the clothing industry due to the various stages involved in the production process, as well as the variation in clothing and the types of customers involved (Aksoy et al., 2012:222). Gereffi and Frederick (2010:17) mentioned that in South Africa, the complexity of clothing production is increasing as garments produced require more detailed trimming, especially with fashion clothing.
- **Planning for fashion clothes:** The fashion industry is a fast-moving industry with customers who are fashion-driven and who are not willing to compromise for the styles they demand (Wang, Gou, Sun & Yue, 2012:462). Customers' hesitation regarding fashion clothes has increased (Shen, Choi, Wang & Lo, 2013:266). This causes demand planning and prediction regarding fashion to become challenging. According to Wang et al. (2012:462), fashion clothes last for a short period. Bhardwaj and Fairhurst (2010:166) confirmed that fashion clothes change constantly and require constant follow-ups. Hence,

demand planning in the SA clothing industry becomes difficult. Alack of skills to analyse fashion trends is also a challenge, which affects demand planning in the Gauteng clothing industry. Barnes and Lea-Greenwood (2010:762) argued that fashion customers consult garment style magazines and watch garment style shows on television and search for new fashion designs when shopping for clothes. Hence, it becomes challenging to implement demand planning for fashion clothes with accuracy.

- **Incorrect use of the point of sale (POS) system:** POS is an automated system used by retail outlets to process the sale of items bought by customers (Karnin & Walach, 2015:1). According to Folk, Bohen, Sanders and Johnson (2011:5), the POS system reflects the history of sold inventories. This service technology, called the POS system, also assists SA clothing manufacturers to obtain sales data from retail clothing stores. This prevents human errors from happening when manual sales are recorded in retail stores (Pretorius, 2013:1). Hamister (2011:432) said that information distortion is a challenge when using the POS system. According to Chaudhry and Hodge (2012:70), it is questionable whether the POS systems of clothing retailers are linked to the demand planning system of clothing manufacturers. When the clothing industry's system is not linked to the customers' systems, errors are bound to occur in demand planning (Ni & Fan, 2011:1531).
- **Influx of clothing imports:** The influx of imports has reduced employment globally, as well as in South Africa (Ramdass, 2007:1). Imports are the merchandise or goods that enter a country (Ramdass, 2007:4). Laudal (2010:72) alluded that imports emanate from international trade, which is now affecting the economy of growing countries. According to GGDA (2014:4), the increase of imports in the Gauteng clothing industry affects the proper implementation of demand planning processes in the industry. This results in discrepancies in demand planning for clothes as additional clothing supplies in the country make it difficult to predict the market for clothes and to deal with competition in the clothing industry.
- **Incorrect estimations of clothes:** Estimating with accuracy affects the complexity of manufacturing processes (Thomassey, 2010:471; Aksoy et al., 2012:222). In order to know the quantities of clothes that will be required in future, estimations have to be implemented. The correct and accurate estimation of clothing requirements is crucial in the clothing industry. According to Bhardwaj and Fairhurst (2010:169), failure to estimate future clothing styles will affect demand planning as the industry will not be able to attract fashion-sensible customers.
- **Recession as an unfavourable economic condition:** The 2002 global recession destabilised the performance of the majority of organisations in South Africa (Simos, 2002:32). Sekerden (2011:7) defines a global recession as an international economic downturn. Steytler and Powell (2010:6) mentioned that the SA government suffered financially as a result of the global recession. Manufacturing operations in South Africa were deeply affected as a result of the global recession. In 2008, factories in the SA clothing industry, especially on the north coast of KwaZulu-Natal (KZN), diminished as a result of the international monetary crisisin the United States of America. These factories were exporting their clothing produce to the United States of America (Nattrass & Seekings, 2012:9).
- **Late arrival of clothes:** Thelate arrival of clothing material causes delays in the production schedule for clothes (Thomassey, 2010:471). Ordering fabrics from international suppliers might result in the late arrival of fabric and can affect the proper implementation of demand planning in the SA clothing manufacturing industry. Nenni et al. (2013:1) confirmed that it takes time for clothing fabrics to arrive at manufacturing plants. Delays in the arrival of fabric result from supplier distances (Aksoy et al., 2012:223; Thomassey, 2010:471), and this is a challenging issue in the SA clothing industry.

Based on the review above, there are factors that affect demand planning in clothing industries. These factors need to be managed properly to ensure effective and efficient management of demand planning in the clothing industry, especially in South Africa where the industry experiences fluctuations in the number of clothing manufacturers, manufacturing output as well as in employment(GGDA, 2014:3; IQ Business, 2014:3;Nattrass & Seekings, 2012:2; Volk, 2006:229; Media Club South Africa, 2015).

3. Research Design and Methodology

This article explores factors affecting demand planning in the clothing industry in Gauteng, South Africa. An exploratory and descriptive study was conducted. A mixed research approach (qualitative and quantitative) was used. A survey was conducted among clothing industry stakeholders in Gauteng. A survey involves obtaining data on situations, occurrences or events (Leedy & Ormrod, 2014:195).In South Africa, the clothing

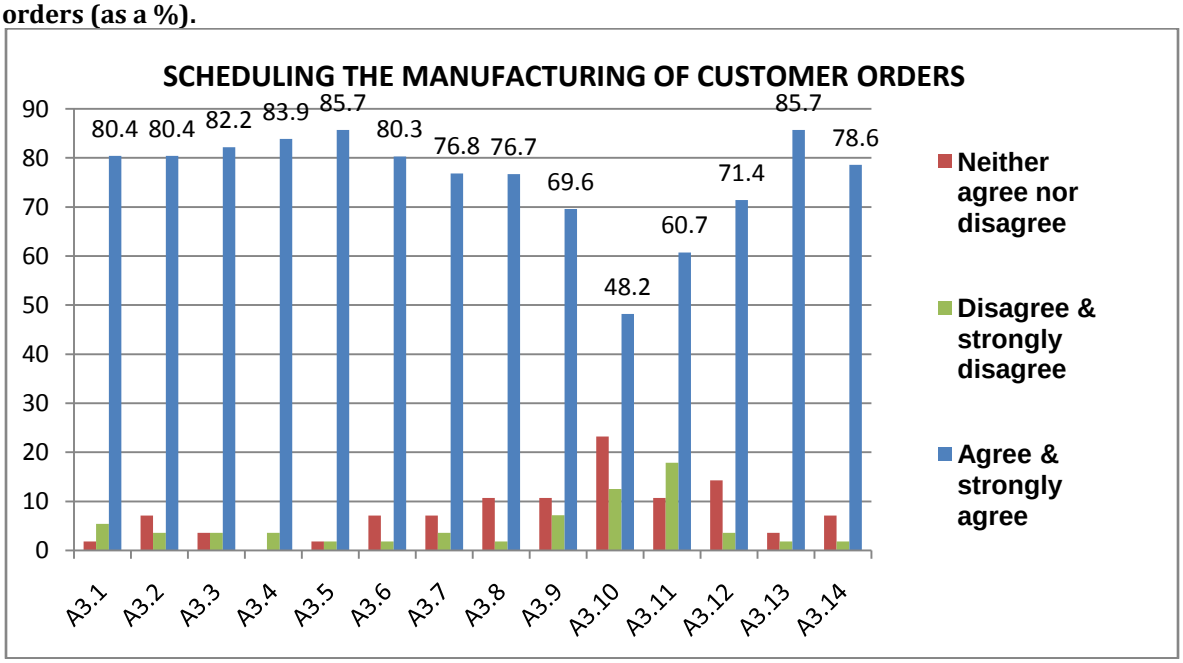
industries are found in the Western Cape, KwaZulu-Natal, the Free State and Gauteng. Gauteng was chosen because it was convenient and accessible to the researcher. A non-probability sampling technique was used. This means the researcher chose a sample size that was easily available and accessible. Convenient sampling was employed in this study. Population of study constituted 306 key stakeholders in the clothing industry: fabrics suppliers, fashion designers and clothing manufacturers. A total sample of 56 key clothing industries was chosen Managers, supervisors and specialists constituted the sample of the study based on convenience. A semi-structured questionnaire was mailed and hand-delivered to the respondents, who were based in Pretoria and Johannesburg. The questionnaire was measured using a Likert scale format. The structured questions were analysed descriptively using the statistical package for the social sciences (SPSS) and are presented in this article by means of tables and figures.

4. Results

This section of the article presents the findings on the factors affecting demand planning in the Gauteng clothing industry. Respondents were asked to indicate their level of agreement on the following factors that affect demand planning in the clothing industry: scheduling, planning for fashion, point of sale (POS) systems, imports of clothes, estimating future clothing requirements, the influence of a recession and the effect of the late arrival of clothes.

Scheduling the manufacturing of customers' orders: Respondents were asked to indicate their level of agreement on fourteen (14) statements relating to scheduling the manufacturing of customers' orders. Figure 1 below shows the percentage of respondents of the clothing industry stakeholders who strongly disagreed or disagreed, who neither agreed nor disagreed and who agreed or strongly agreed with statements regarding the scheduling of the manufacturing of customers' orders. Table 1 presents the description of the statement numbers in Figure 1.

Figure 1: The perception of respondents regarding scheduling the manufacturing of customers' orders (as a %).



* Note: some of the percentages do not add up to 100% on account of missing values, because some of the respondents did not answer specific statements relating to factors affecting demand planning.

As is shown in the graph (see Figure 1), a large majority (above 70%) of the clothing industry stakeholders agreed or strongly agreed with 11 of the 14 procedures that need to be followed when scheduling the manufacturing of customers' orders. However, with regard to the statement whether retailers' demands

regarding low cost charges on orders should be accommodated, only 48,2% of the respondents agreed or strongly agreed with the statement, indicating that more than half of the responses were neutral or in disagreement with the statement. In addition, only 60,7% of the respondents agreed or strongly agreed with the statements about clothing materials or fabrics needed in the manufacturing process that may arrive late, also indicating that a high 40% of the respondents were neutral or in disagreement with this statement. There was strong agreement (85,7%) that communicating customers' orders in terms of size, colour and clothing styles is crucial and that follow-ups should be conducted on material shortages with suppliers (80,3%). A very high level of agreement (85,7%) was also found with regard to the importance of manufacturers informing retail stores about stock shortages or any production problems, as well as the continual reviewing of the product process of the supply of clothes (82,2%). The following statements had very high levels of agreement:

- Communicating customers' orders in terms of size, colour (85,7%)
- Follow-ups on material shortages with suppliers (80,3%)
- Manufacturers informing retail stores about stock shortages or any production problems (85,7%)
- Continual reviewing of the product process of the supply of clothes (82,2%)

Table 1: Description of statements relating to scheduling the manufacturing of customers' orders

Statement	Description of statement
A2.1	Historical clothing sales information is considered.
A2.2	The development of a team that plans for customer needs is crucial.
A2.3	Continual reviewing of the product process of the supply of clothes is important.
A2.4	Manufacturing processes that are not properly managed will result in continuous rework.
A2.5	It is important for manufacturers to inform retail stores about stock shortages or any production problems.
A2.6	It is necessary to conduct follow-up on material shortages with suppliers.
A2.7	Manufacturing processes can only be finalised when customers' orders and specifications are confirmed.
A2.8	Fabric orders must be placed before the sales season starts.
A2.9	The manufacturing of clothes must be completed before the sales season starts.
A2.10	Retailers' demands regarding low cost charges on orders should be accommodated.
A2.11	Clothing materials or fabrics needed in the manufacturing process may arrive late.
A2.12	Meeting customers' orders on time is affected by the late arrival of clothing materials or fabrics.
A.2.13	Communicating customers' orders in terms of size, colour and clothing styles is crucial.
A2.14	Manufacturers should communicate orders with the retail stores before manufacturing begins.

Source: Questionnaire

Planning for fashion clothes: Respondents were asked to indicate their level of agreement on fifteen (15) statements relating to planning for fashion clothes. Figure 2 below shows the percentage of respondents of the clothing industry stakeholders who strongly disagreed or disagreed, who neither agreed nor disagreed and who agreed or strongly agreed with the statements regarding planning for fashion clothes. Table 2 presents the description of the statement numbers in Figure 2.

Figure 2: Perception of the respondents regarding planning for fashion clothes (as a %)

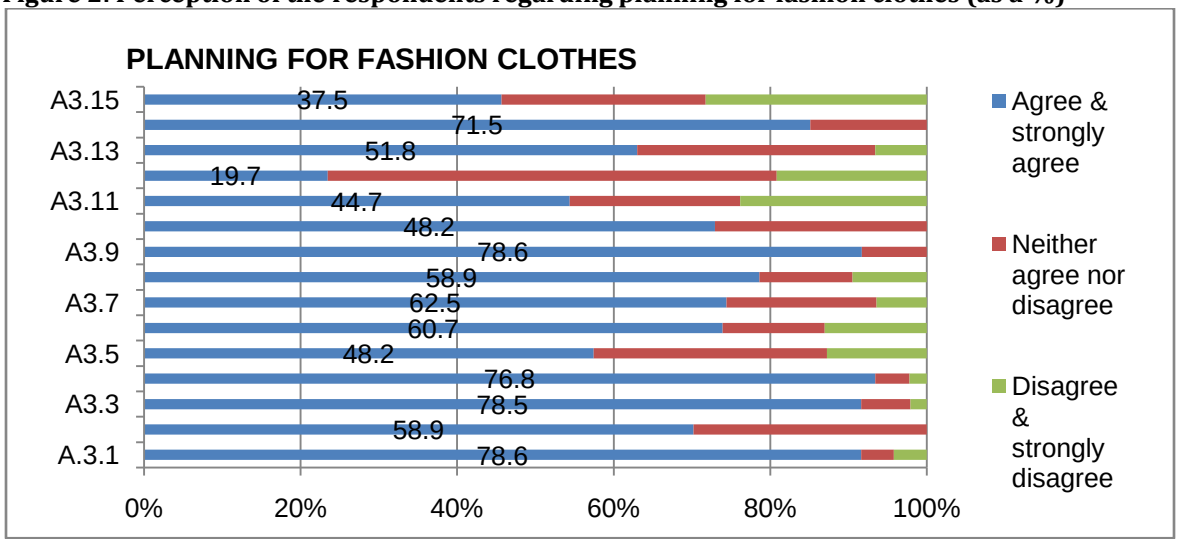


Table 2: Description of the statements relating to planning for fashion clothes

Statement	Description of statements
A3.1	Customers' changing needs regarding fashion clothes should be considered when planning and estimating future clothing needs.
A3.2	The expertise of estimators in manufacturing should be considered when planning and estimating future customer needs.
A3.3	Monitoring fashion movements is important.
A3.4	Historical sales information should be updated continuously for timely and accurate planning.
A3.5	It is not easy to plan for fashion clothes, because their lifespan is short.
A3.6	It is easy to plan for basic clothes, because their lifespan is long.
A3.7	It is important to have short manufacturing plans for fashion clothes.
A3.8	Long manufacturing plans may exist for basic clothes.
A3.9	Having manufacturers who think upfront and react to market changes, is crucial.
A3.10	Recognising fashion trends has never been easy due to multiple styling levels being available.
A3.11	It is not easy to plan for fashion clothes due to constant changes in fashion.
A3.12	Fashion styles may change 8–10 times a year.
A3.13	Manufacturers take lots of pressure from retail stores demanding more fashion variety.
A3.14	Tracking and recording of customer changes regarding clothing needs are crucial.
A3.15	It is not easy to keep track of fashion trends due to constant changes in fashion.

Source: Questionnaire

The level of agreement varied with 10 of the statements where respondents indicated agreement of more than 50%. Statements with a low level of agreement were:

It is not easy to plan for fashion clothes due to constant changes in fashion (44,7%).
Fashion styles may change 8–10 times a year (19,7%).
It is not easy to keep track of fashion trends due to constant changes in fashion (37,5%).
Recognising fashion trends has never been easy due to multiple styling levels available (48,2%).
It is not easy to plan for fashion clothes because their lifespan is short (48,2%).

The following statements had very high levels of agreement:

- Customers' changing needs regarding fashion clothes should be considered when planning and estimating future clothing needs (78,6%).

- Having manufacturers who think upfront and react to market changes is crucial (78,6%).
- Monitoring fashion movements is important (78,5%).
- Historical sales information should be updated continuously for timely and accurate planning (76,8%).
- Tracking and recording customer changes regarding clothing needs are crucial (71,5%).

The point of sale (POS) system usage: Respondents were asked to indicate their level of agreement on eleven (11) statements relating to the POS system. Figure 3 below shows the percentage of respondents of the clothing industry stakeholders who strongly disagreed or disagreed, who neither agreed nor disagreed and who agreed or strongly agreed with statements on the POS system usage. Table 3 presents the description of statements in Figure 3.

In terms of the perception of the respondents on the POS system in Figure 4.6, on average half (50%) of the respondents were in agreement with seven of the 11 statements relating to the usage of the POS system. These statements were:

- Having a system that communicates clothing information among participants in the clothing industry faster is crucial (57,2%).
- Incorrect sales information captured in the POS system will result in incorrect manufacturing plans (53,5%).
- A clothing manufacturer should store historical sales information of clothes on the mainframe computer (53,7).
- Manufacturers can use data on the POS system of retail stores to plan future clothing needs (51,8%).
- The POS system information of retail/customers provides a history about clothing sales (57,1%).
- Access to the POS system information of retail stores/customers is crucial for manufacturers (50%).
- The importance of sharing sales information among suppliers, manufacturers and the end user customers (48,2%).

Figure 3: Perception of the respondents regarding the point of sale (POS) system (as a %)

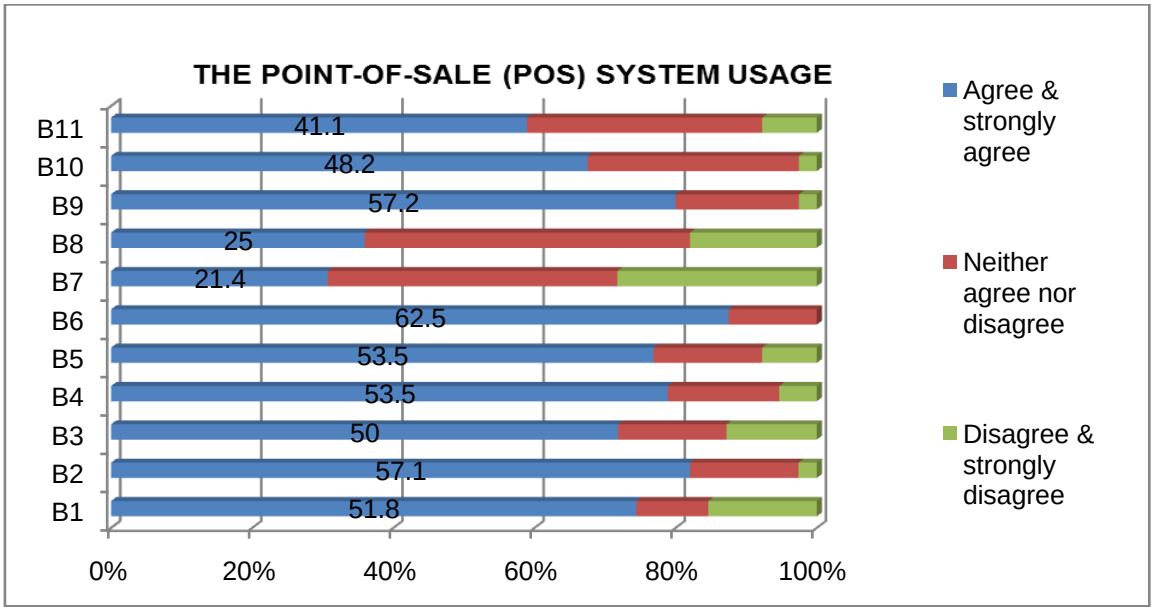


Table 3: Description of statements in Figure 4.6 relating to the point of sale (POS) system

Statements	Description of statements
B1	Manufacturers can use data on the POS system of retail stores to plan future clothing needs.
B2	The POS system information of retail/customers provides history about clothing sales.
B3	Access to the POS system information of retail stores/customers is crucial for manufacturers.
B4	Incorrect sales information captured in the POS system will result in incorrect manufacturing plans.
B5	A clothing manufacturer should store historical sales information of clothes on the mainframe computer.
B6	Storing garment details according to size, colour and design is crucial.
B7	Historical sales information used by manufacturers to plan future clothing needs can be purchased from marketing or advertising firms.
B8	Manufacturing factories can send company representatives to gather or collect historical sales information from retail stores manually.
B9	Having a system that communicates clothing information among participants in the clothing industry faster is crucial.
B10	The sharing of sales information among suppliers, manufacturers and the end user customers is crucial.
B11	Test the accuracy of historical sales information on a monthly basis before planning for future clothing production begins.

Source: Questionnaire

Storing garment details according to size, colour and design is crucial, and this statement had a slightly higher level of agreement (62,5%). A low level of agreement was found for testing the accuracy of historical sales information on a monthly basis before planning for future clothing production begins (41,1%). An alarming response (over 70%) of the clothing industry stakeholders revealed a neutral reaction or disagreement with regard to the following statements:

- Historical sales information used by manufacturers to plan future clothing needs can be purchased from marketing or advertising firms (only 21,4% agreement).
- Manufacturing factories can send company representatives to gather or collect historical sales information from retail stores manually (only 25% agreement).

Imports of clothes: When it comes to the imports of clothes, respondents were asked to indicate their level of agreement on twelve (12) statements relating to clothing imports. Figure 4 below shows the percentage of respondents who strongly disagreed or disagreed, who neither agreed nor disagreed and who agreed or strongly agreed with the statements on the importing of clothes. Table 4 presents the description of statements in Figure 4.

Figure 4: Perception of the respondents regarding the imports of clothes (as a %)

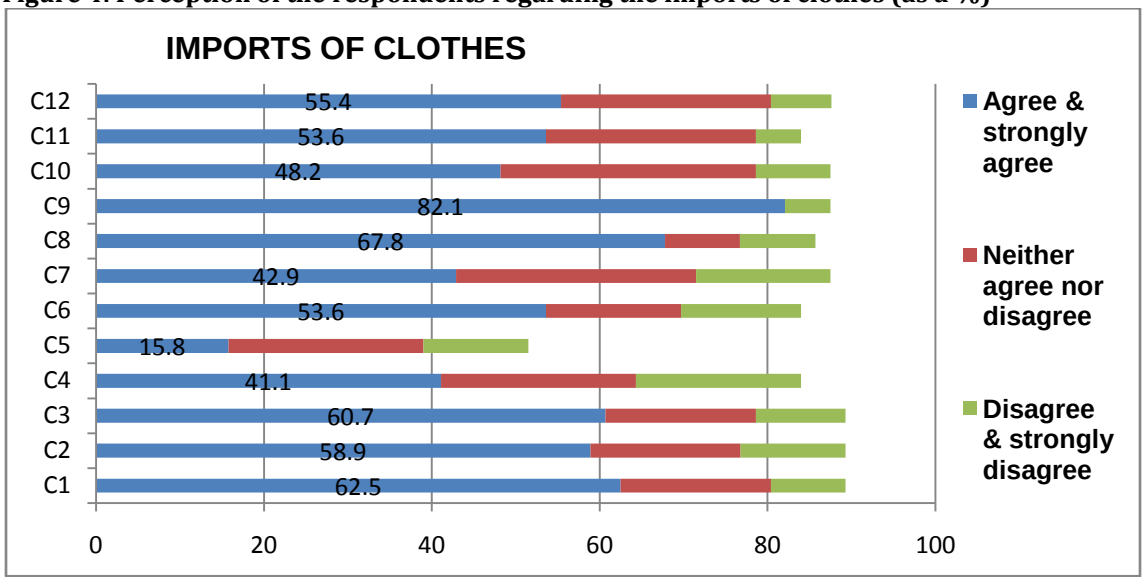


Table 4: Description of statements regarding the imports of clothes

Statements	Description of statements
C1	The influx of illegal and legal imports into South Africa results in inaccurate planning in manufacturing processes.
C2	The implementation of low tariff agreements on import rates by the South African government has contributed to an oversupply of clothes in the country.
C3	Chinese imports contribute to an oversupply of clothes in the clothing manufacturing firms.
C4	Manufacturing firms do not have enough resources to supply large volumes of orders to the clothing retail stores in South Africa.
C5	The oversupply of clothes has resulted in high levels of unsold stock for manufacturers and wholesalers and in retail stores.
C6	There is a lack of demand for SA clothes because of a high number of clothing imports from China.
C7	Manufacturing processes need to be reduced to avoid the piling up of clothes in manufacturing factories.
C8	There is a need for government subsidies in the SA clothing manufacturing industry.
C9	There is a need for SA clothing retailers and wholesalers to support local clothing manufacturers.
C10	Currently, the SA government is not financing the clothing manufacturing industry.
C11	There is a lack of capital equipment in SA clothing manufacturing industries.
C12	Currently, SA retailers are not supporting local clothing manufacturers.

Source: Questionnaire

The statement with the highest level of agreement was that regarding the need for SA clothing retailers and wholesalers to support local clothing manufacturers (82,1%). In addition, the majority (67,8%) of the clothing industry stakeholders were in agreement that the SA government should support local clothing manufacturers by subsidising the clothing manufacturing industry. However, less than half of the respondents (48,2%) were in agreement that the SA government is currently not financing the clothing manufacturing industry, while only (41,1%) of the clothing industry stakeholders were in agreement that manufacturing firms do not have enough resources to supply large volumes of orders to the clothing retail stores. In addition, only 42,9% were in agreement that manufacturing processes need to be reduced to avoid the piling up of clothes in manufacturing factories. In terms of the influx of clothing imports, more than half of the respondents were in agreement about the following:

- The influx of illegal and legal imports into South Africa results in inaccurate planning in manufacturing processes (62,5%).
- The implementation of low tariff agreements on import rates by the SA government has contributed to an oversupply of clothes in the country (58,9%).
- Chinese imports contribute to the oversupply of clothes in the clothing manufacturing industry (60,7%).
- There is a lack of demand for SA clothes because of the high number of clothing imports from China (53,6%).

In addition, the responses of the clothing industry stakeholders on the above statements relating to the influx of clothing imports match the arguments indicated in the study literature (Chapter 2) pertaining to the influx of clothing imports.

Estimating future clothing requirements: The estimation of future clothing requirements was one of the factors that were perceived to have an effect on demand planning. Respondents were asked to indicate their level of agreement on ten (10) statements relating the estimating of future clothing requirements ranging from 1 = strongly agree to 5 = strongly disagree. Figure 4.8 below shows the percentage of respondents who strongly disagreed or disagreed, neither agreed nor disagreed and who agreed or strongly agreed with the clothing industry stakeholders regarding estimating future clothing requirements. Table 5 presents the description of statements in Figure 5.

Figure 5: Perception of the respondents regarding estimating future clothing requirements (as a %)

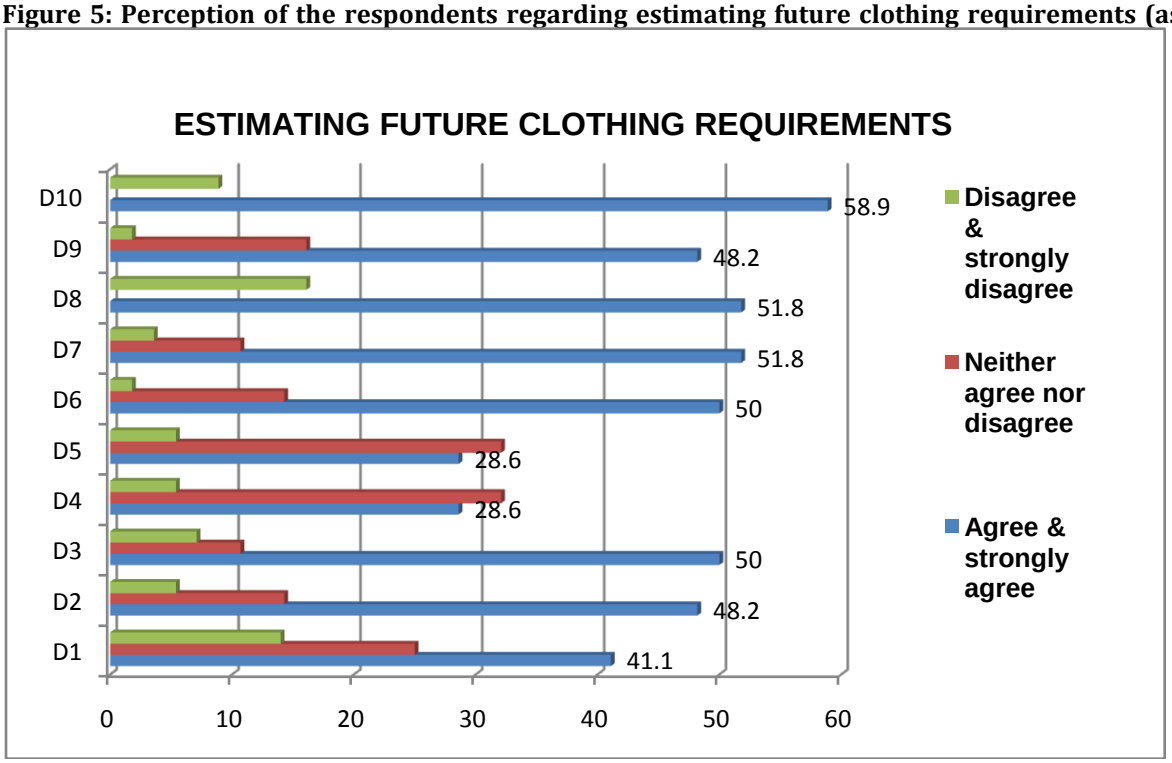


Table 5: Description of statements regarding estimating future clothing requirements

Statements	Description of statements
D1	The implementing of different methods of estimation for basic and fashion clothing styles is required.
D2	Attendance of international trade exhibitions in order to plan ahead for the season.
D3	Estimators of clothes should undergo formal training to improve their skills.
D4	The tool used for estimating future clothing needs can lose track of clothing sales information.
D5	Fashion clothes change constantly, which results in errors when estimating trends.
D6	Basic clothes are stable and result in low variances when predicting the future demand.
D7	Manufacturers should conduct estimations of future customer needs according to the number of sizes sold previously.
D8	Variance that exists regarding future clothing estimations should be investigated.
D9	Manufacturers should conduct estimations of future customer needs on each clothing style.
D10	Balancing the demand and supply of clothes is crucial to avoid high or low estimations.

Source: Questionnaire

Figure 5 indicates that, on average, half (50%) of the respondents were in agreement with seven (7) of the ten (10) steps listed on the estimation of future clothing requirements. The highest level of agreement (58,9%) was on the statement relating to the importance of balancing the demand and supply of clothes to avoid high or low estimations. Furthermore, 51,8% were in agreement, which means that basic clothes are stable and result in low variances when estimating clothes, and with the statement indicating that manufacturing firms should conduct estimations on future customer needs according to the number of sizes sold previously (51,8%). In addition, clothing estimators should undergo formal training to improve their skills. Surprisingly, only 28,2% of the clothing industry stakeholders were in agreement that fashion clothes change constantly and result in errors when estimating trends, and that the tool used for estimating future clothing needs can lose track of clothing sales information.

Recession as an unfavourable economic condition: Respondents were asked to indicate their level of agreement on six (6) statements relating to recession. Figure 6 below shows the percentage of respondents who strongly disagreed or disagreed, who neither agreed nor disagreed and who agreed or strongly agreed with the clothing industry stakeholders regarding the recession as an unfavourable economic condition. Table 6 presents the description of the statements in Figure 6.

Figure 6: Perception of the respondents regarding recession (as a %)

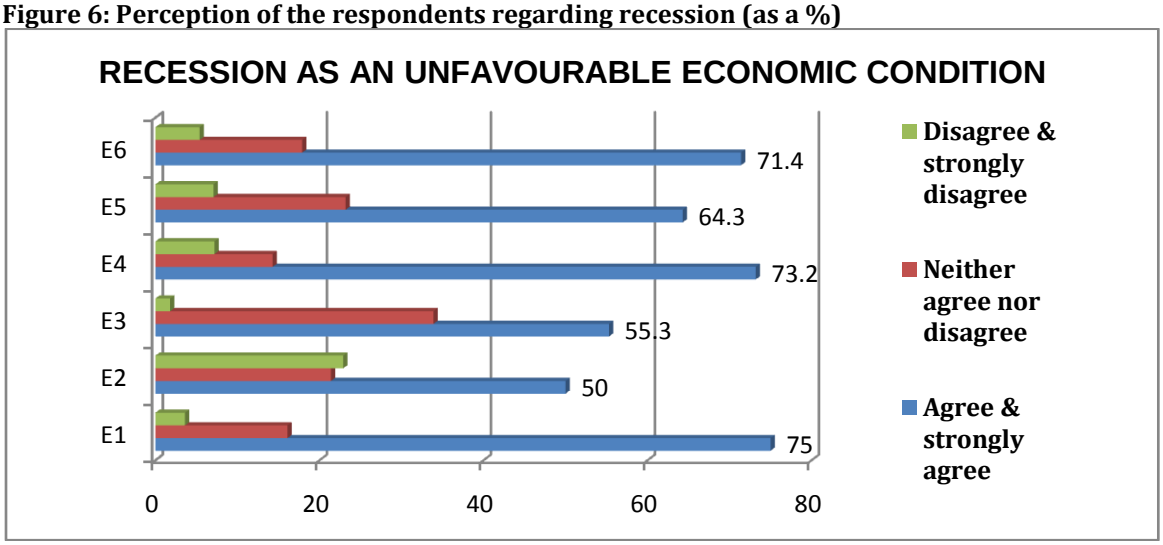


Table 6: Description of statements in Figure 4.9 regarding recession

Statements	Description of statements
E1	When the SA economy is stable, clothes will sell in large numbers.
E2	The use of historical clothing sales data does not assist in estimating accurate future clothing needs.
E3	Before a recession, the use of historical sales data contributes to the level of accuracy when estimating future clothing needs.
E4	The purchase of non-essential items, such as clothing, fell as a result of the recession.
E5	During the period of a recession, it is crucial to reduce future customers' orders as customers' needs decline.
E6	During the period of a recession, it is crucial to manufacture clothes in small batches.

Source: Questionnaire

Figure 6 reflects that the majority (over 70%) of the clothing industry respondents were in agreement (agreed or strongly agreed) with three of the statements relating to the recession. The highest levels of agreement were on the following statements:

- When the SA economy is stable, clothes will sell in large numbers (75%).
- The purchase of non-essential items, such as clothing, fell as a result of the recession (73,2%).
- During the period of a recession, it is crucial to manufacture clothes in small batches (71,4%).

For the other three statements, half or more than half of the respondents were in agreement as shown below:

- During the period of a recession, it is crucial to reduce future customers' orders as customers' needs decline (64,3%).
- Before a recession, the use of historical sales data contributes to the level of accuracy when estimating future clothing needs (55,3%).
- The use of historical clothing sales data does not assist in estimating accurate future clothing needs (50%).

The effect of the late arrival of clothes: Respondents were asked to indicate their level of agreement on twelve (12) statements relating to the effect of the late arrival of clothes. Figure 7 below shows the percentage of respondents who strongly disagreed or disagreed, neither agreed nor disagreed and who agreed or strongly agreed with the clothing industry stakeholders regarding the effect of the late arrival of clothes. Table 7 presents the description of the statements in Figure 7.

Figure 7: Perception of the respondents regarding the impact of the late arrival of clothes (in %)

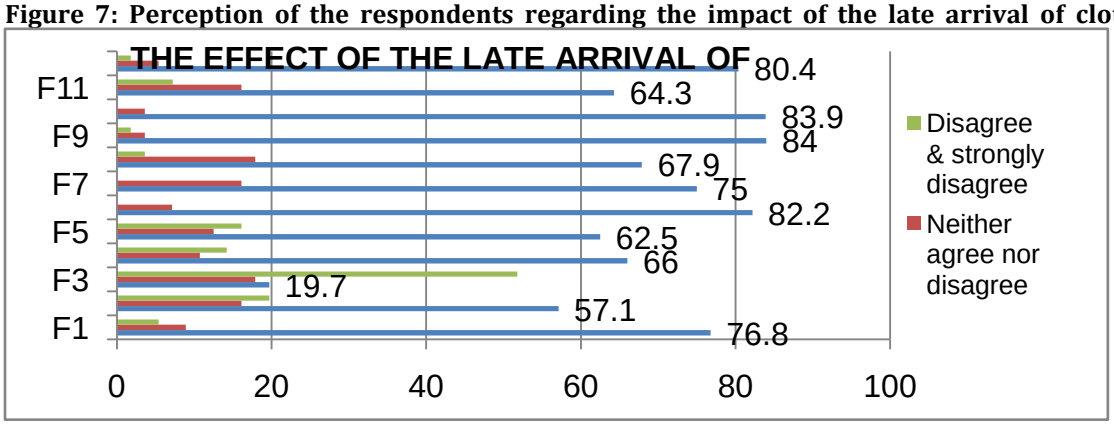


Table 7: Description of statements on the effect of the late arrival of clothes

Statements	Description of statements
F1	Manufacturers should order fabrics from both local and international suppliers.
F2	It is not possible to have control over the timely arrival of fabrics.
F3	Fabrics and clothing material used in clothing manufacturing can only be purchased overseas.
F4	Fabrics and clothing material used in clothing manufacturing can be purchased from local suppliers.
F5	Orders placed with overseas suppliers may arrive too late for manufacturing.
F6.	Late arrival of clothing materials or fabrics should be considered when estimating future clothing needs.
F7	The timely arrival of clothing material or fabrics may reduce the level of errors when estimations regarding future customer needs are implemented.
F8	Operating within tight schedules and waiting periods will assist manufacturers to manufacturer in advance.
F9	On-time deliveries assist in ensuring quick manufacturing processes.
F10	On-time agreements should be made with suppliers of fabrics to reduce the late arrival of fabrics.
F11	Clothing material or fabric orders may arrive while the sales season has started.
F12	Ordering fabrics before the sales season starts, is crucial to avoid lost sales on clothing garments.

As indicated in Figure 4.8, the majority (over 57%) of the respondents were in agreement with eleven (11) of the twelve (12) statements relating to the effect of the late arrival of clothes, as listed below:

- Manufacturers should order fabrics from both local and international suppliers (76,6%).
- It is not possible to have control over the timely arrival of fabrics (51,7%).
- Fabrics and clothing material used in clothing manufacturing can be purchased from local suppliers (66%).
- Orders placed with overseas suppliers may arrive late for manufacturing (62,5%).
- Late arrival of clothing materials or fabrics should be considered when estimating future clothing needs (82,2%).
- The timely arrival of clothing material or fabrics may reduce the level of errors when estimations regarding future customer needs are implemented (75%).
- Operating within tight schedules and waiting periods will assist manufacturers in the manufacturing process (67,9%).
- On-time deliveries assist in ensuring quick manufacturing processes (84%).
- On-time agreements should be made with suppliers of fabrics to reduce the late arrival of fabrics (83,3%).
- Clothing material or fabric orders may arrive when the sales season has already started (64,3%).
- Ordering fabrics before the sales season starts is crucial to avoid lost sales on clothing garments (80,4%).

It is important to note that the clothing industry stakeholders were in strong disagreement with only one of the twelve (12) statements that were tested in Figure 4.10. The clothing industry stakeholders were neutral or in disagreement with the statement regarding fabrics and clothing material used in clothing manufacturing that can only be purchased overseas (19,7%).

5. Conclusion

The clothing industry has also experienced a decline in the number of clothing organisations, a decline in the manufacturing output, as well as fluctuating employment. This article explored factors affecting demand planning in the clothing industry in Gauteng, South Africa. An exploratory and descriptive research design, based on the convenience sampling technique, was conducted among clothing industry stakeholders in Gauteng. From a theoretical point of view, the article discusses some of the factors affecting demand planning

in the clothing industry. The factors stem from the incorrect scheduling of clothing material, planning for fashion clothes, the incorrect use of the point of sale (POS) system, an influx of clothing imports, incorrect estimations of clothes, recession as an unfavourable economic condition, and the late arrival of clothing material. The overall findings indicated that the scheduling of the manufacturing of customer orders was perceived as the most important factor to consider when planning for clothing demand. From this finding, it was specified that more than half (above 50%) of the respondents perceived planning for fashion clothes, clothing imports, the recession and the effect of the late arrival of fabrics as factors that affect demand planning. The findings also highlight that half (above 50%) of the respondents perceived POS system usage and the estimation of customer clothing requirements as factors that have an effect on demand planning. Scheduling the manufacturing of customer orders was seen as the factor with the most profound influence on demand planning. The findings also specify that the POS system usage and the estimation of customer clothing requirements are factors with the least effect on demand planning.

This study is unique compared to previous studies which focus on individual factors affecting demand planning. The uniqueness of the study looks at different factors which affects demand planning in Gauteng clothing industry, in South Africa. From the research findings, it clear that product history and teamwork are crucial when scheduling customer clothing orders. The respondents indicated that planning for fashion clothes is a challenge due to their short life span as compared to basic clothes the respondents emphasised that clothing manufacturers should be proactive in reacting to market changes. The findings evidently indicates that correct sales information stored on the POS system assists manufacturers to plan for customers' needs. The research findings revealed that clothing manufacturers need to have access to the POS system of retail customers in order to plan for actual clothing demands. The findings also indicated that the influx of clothing imports into South Africa results in inaccurate planning in manufacturing processes. It is clear that during global recession, the purchase of non-essential items, such as clothing, decreases. Hence, the importance of small-batch manufacturing during a period of recession was emphasised greatly in the responses. The respondents agreed with the statements on the effect of the late arrival of clothes. The respondents agreed that on-time deliveries assist in ensuring quick manufacturing. It is suggested the clothing industry of Gauteng in South Africa consider these factors in their demand planning process for accuracy and proper planning to exist processes. It is evident that all these factors may be the reasons for the challenges faced by the clothing industry with regard to demand planning, or that they may contribute to it. It is imperative that clothing industry stakeholders take into considerations these factors when planning for their demand. Through the application of proper demand planning practices, customer needs can be fully met, thus improving the performance of the clothing industry.

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Counting the Cost? A Cautionary Analysis of South Africa's BRICS Membership

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Abstract: BRICS is a grouping of five major developing countries that includes Brazil, Russia, India, China and South Africa, all with the ambition of changing the governance architecture of international political-economy but with claims to speedy industrialization, fast growing economies and relatively strong regional and global influence. South Africa joined BRICS at the invitation of China in 2010 and has shown commitment to the group through friendly relations with other member countries. The country's extensive economic links with China and the other BRICS states underpinned its strategy of diversifying its external trade especially with regard to looking away from West. This article employs content analysis to reflect on South Africa's membership of BRICS, focusing specifically on the country's relations with China. It argues that, while South Africa's economic indicators do not fit well with the BRICS grouping, China is promoting this relationship in order to counter the West's neo-imperialism and neo-liberal rhetoric. South Africa's willingness to accept Chinese superiority in the African market and to act as a junior partner in the global power configuration makes the country the perfect choice for this project.

Keywords: *Africa, BRICS, China, Investment, Neo-imperialism, Neo-liberalism, South Africa, and Trade*

1. Introduction

BRICS is a grouping that includes Brazil, Russia, India, China and South Africa, all of which are countries that are developing but with claims to speedy industrialization, fast growing economies and relatively strong regional and global influence. Interestingly, all the BRICS members are also members of the G-20. The BRIC league of states held its first formal summit in Yekaterinburg in Russia on 16 June, 2009. China invited South Africa to join in December 10, 2010 (Centre for Chinese Studies, 2015). South Africa has shown commitment to the group through friendly relations with other member countries. The country's extensive economic links with China and the other BRICS states are part of its strategy of diversifying its external trade especially with regard to looking away from West which currently accounts for more than 40% of South African exports (Beeson et al., 2011). Beeson et al. (2011, 1381) argue that "South Africa regards China as indispensable to the pursuit of one of the country's key foreign policy objectives: the transformation of global governance institutions to reflect the changing balance of power in the international system". Its policy makers view China is a counterweight to Europe and American power and convinced that links with China will offer the African continent more opportunities in global trade relations. Hence, with increasing economic cooperation with Africa, stronger diplomatic ties will eventually be forged. Beeson et al. (2011) note that, while trade between South Africa and China has increased in recent years, the former has lagged behind the latter. Two-way trade between China and South Africa grew from US$14m in 1991 to US$800m in 1998 at the initial stage of formal relations between the two countries and rose to US$2b in 2002 and US$11.2b in 2007. In 2009 China was South Africa's single largest trading partner, with bilateral trade to the value of US$16.3b. Furthermore, representing about 25% of overall trade of China with Africa, South Africa has become China's biggest trading partner in the continent (Beeson et al., 2011). The country's pro-China stance in trade matters arises from its goal to move away from the West and Africa in the wake of the third wave of democratization on this continent.

In 2006, more than US$180m was invested by Chinese businesses in South Africa while South African companies on the other hand invested over US$330b in more than 200 projects in China. China's volume of investment in South Africa increased significantly following a US$5.6b (20% stake) investment and acquisition of Standard Bank of South Africa by the Industrial and Commercial Bank of China (ICBC) in 2007. The ICBC-Standard Bank deal represents the single largest Chinese investment in Africa (Beeson et al., 2011). South Africa's special relationship with China suggests that it regards China as an economic powerhouse that is much more attractive for bilateral trade than other African countries (Umezurike, 2016). This is despite the fact that China's economic growth and expansion is taking a similar route to that of Europe in encouraging

imperialism, colonialism and neo-imperialism. China accepts African countries only as junior partners that provide much desired markets (Umezurike, 2016). Indeed, the continent has become a dumping ground for inferior and pirated Chinese goods. South Africa's re-emergence at the dearth of legalised apartheid catapulted the state to the a prominent actor in sub-regional, continental and global politics wherein it was able to use its leadership profile to influence key decisions and promote the African Agenda especially at the Southern African Development Community (SADC) and African Union (AU), G20 and BRICS (Uzodike, 2016). A number of rationales have been submitted for defending South Africa's BRICS membership. One of such arguments is that South Africa possesses significant reservoir of natural resources including gold, diamonds and platinum. Also, in contrast to other African countries, South Africa is shoulders in terms of infrastructural development supported by adequate regulatory frameworks, while also inheriting an advanced corporate and financial architecture that makes for ease of doing business. A second factor advanced to legitimize South Africa's membership is the symbolism of its sole representation of Africa in important multilateral forums. In this regard, South Africa is the only African representative in the G20 and IBSA. In terms of progress towards development, democracy, constitutionalism, equal rights, women issues, economic empowerment and more, South Africa seem to represent the ideal of exceptionalism which other African countries aspire to. It is on the basis of the above that South Africa is often bandied as gateway for investment into the untapped potential of African markets from the BRICS countries (Modi, 2012).

Antagonists of South Africa in BRICS however contend that 'compared with the other BRICS countries, South Africa's size, population, and economy are quite small' and that Nigeria perhaps would be more representative of sub-Saharan Africa (Modi, 2012). South Africa also has one of the highest inequality rates in the world. It is also argued that China played a major role in pushing for South Africa's membership despite the latter not wielding significant economic clout in comparison to other BRICS members.[2]According to Uzodike (2016), the idea of 'gateway to Africa' which had political and economic implications was employed by the South African government to positively project the state to other BRICS states. This paper offers a contribution to existing discourse on South Africa in BRICS by exploring the implication of its membership in BRICS. A fundamental concern of this study is to explore the complex dynamics of South Africa's BRICS membership and its implication for the country's foreign policy. By offering a cautionary analysis of the cost and benefits of South Africa's membership of the group, a useful projection can be made of its rationality. The first part of the paper provides a context to South Africa's membership of BRICS by providing comparative insight into the economic profiles of BRICS vis-à-vis South Africa's economic position in the group. The second section examines the ensuing diplomacy between China and South Africa and the scramble for Africa's market while the third part offers an analysis of the motivation behind South Africa's soft stance towards China. The final part is the conclusion.

2. South Africa and BRICS in Context

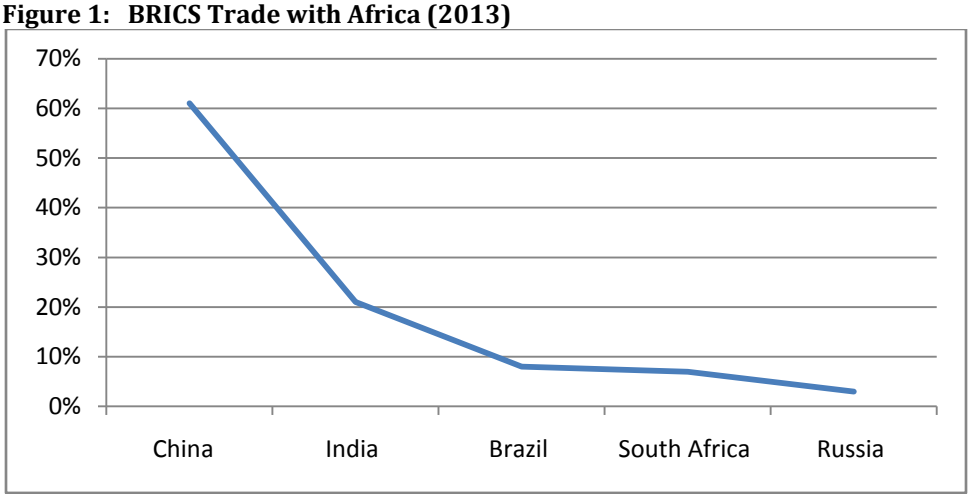
In the 1990s, BRICS countries controlled about 11% of global GDP; between 2000 and 2011, this increased to 25% (Gauteng Province, 2013). All the BRICS countries have recorded positive economic growth from the 1990s to date. From 2000 to 2011, China achieved GDP growth of more than 102%, while South Africa recorded 3.5% GDP growth during the same period, the highest and lowest, respectively, among the BRICS countries (Gauteng Province, 2013). BRICS countries received approximately 20% of global FDI, estimated at US$ 322b in 2013 (Centre for Chinese Studies, 2015).It is forecast that, by 2050, the Chinese economy will be the largest in the world, with total GDP projected at more than US$44.4b, followed by the US, India, Japan, Brazil and Russia (Gauteng Province, 2013; Onyekwena et al., 2014). In terms of geographical spread, Russia is the largest of the BRICS countries and South Africa is the smallest at 17.1m (km2) and 1.2m (km2), respectively. China has the largest population among the BRICS member countries and the largest population in the world at 1.34b and South Africa has the smallest population among the group at about 50m. India's population is 1.24b; Brazil 192m and Russia 142m (Gauteng Province, 2013). The large population of BRICS countries offers an economic advantage as it provides a large market for trade among the member countries. In this regard, South Africa's population of about 50m could be viewed as a major shortfall.

[2]Some analysts have argued that one of the ways South Africa have had to compensate for this vote of confidence into BRICS was continually refusing entry visa to the Dalai Lama and severing diplomatic ties with Taiwan. South Africa's BRICS membership has also witnessed a rising investment of Chinese businesses in South Africa making.

Savings and investment levels among BRICS countries have generally remained high. In 2009, China was in the lead, with 54% savings in relation to GDP, but this declined to 50% in 2012 and investment driven by savings stood at 48% in relation to GDP in 2012 (Gauteng Province, 2013). South African savings in relation to GDP stood at 16% and 15% in 2012, the lowest among the BRICS nations. In summary, South Africa aims to benefit from membership of BRICS by attracting increased FDI from other BRICS members and at the same time encourage South African firms and companies to invest in these countries. Other benefits include trade opportunities with BRICS especially in terms of South Africa's rich natural resources including platinum, diamond, gold, coal, and now oil (Onyekwena et al., 2014). South Africa's membership of BRICS will also expose the country to the global economy, improve its competitiveness via trade and investment and boost the country's potential as a major player in global affairs. All these factors could lead to economic growth which will assist in addressing persistent developmental problems such as unemployment, crime and poverty (Gauteng Province, 2013). Between 1995 and 2009, before it joined BRICS, South Africa had large trade deficits with member countries. While the country recorded steady and significant trade deficits with China, there was a dramatic turnaround after its inclusion in BRICS in 2010 (Onyekwena et al., 2014). In the same manner, South Africa's trade deficit with Russia changed to a comparative surplus in 2010, but trade with Brazil remained in deficit from 1997 to 2011 (Onyekwena et al., 2014). Nonetheless, South Africa's membership of BRICS has resulted in a drastic reduction in the aggregates of its general trade deficit in recent years.

In 2013, natural resources accounted for more than three-quarters of Africa's export trade (Gumade, 2014; World Bank, 2014) and most of the $43b FDI in African countries in the same year targeted extractive industries (World Bank, 2014). Given their hunger for natural resources to feed their industrial activities, BRICS countries are major investors in Africa. In 2013 alone, BRICS member countries' trade with Africa stood at $350b (Gumade, 2014; Standard Bank, 2014). Figure 1 shows that China's share of BRICS-Africa trade in 2013 was 61%, with India at 21%, Brazil 8%, South Africa 7% and Russia 3%. The BRICS countries' share of total global output was 20% in 2013 (Gumade, 2014). Over a 10 year period, Brazil cancelled the $US900m debt of 12 African countries in 2013 and increased its trade relations with Africa from $US4.2b to $US27.6b (Stolte, 2012; AFP, 2013; Gumade, 2014). Brazil's import from Africa is sourced mainly from natural resources which account for up to 90%. In turn, its export to Africa includes manufactured products such as vehicles, machinery and goods as well as agricultural goods such as dairy products, meat and sugar (Gumade, 2014).

Figure 1: BRICS Trade with Africa (2013)



The value of India's trade with Africa increased from $3b in 2002 to $62b in 2011 (Standard Chartered, 2012; Gumade, 2014). The Indian government aimed to increase this to $90b by 2015. Primary commodities made up about 91% of African countries' exports to India, and oil alone constituted 61% of exports in the 10 years from 2002- 2012 (Gumade, 2014). In 2012, Russia cancelled African countries' debt of over $20b (Pravada, 2012). Bilateral trade between Russia and Africa increased to the highest ever recorded from $740m in 1994

to $7.3b in 2008, a more than tenfold increase (AFDB, 2011; Fundira, 2012; Gumade, 2014). Eighty per cent of Africa's exports are agricultural products, mainly edible fruit and nuts (29%), cocoa (16%) and tobacco (9%) (Fundira, 2012; Gumade, 2014). According to Gumade (2014), Russian exports to Africa are mainly processed goods, especially cereals (31%), machinery (3%), wood (12%), iron and steel (11%), fertilizers (6%), and mineral oil and fuel (22%). Russia has also dramatically increased its military cooperation with Africa in the form of sales of arms and military equipment and providing military training to African countries. The country accounts for almost 15% of African arms purchases (Gumade, 2014).

In 2012, Africa – with the exception of South Africa – accounted for more than 15% of all BRICS imports, constituting over $US420b of $US2.8t (Industrial Development Corporation of South Africa, 2013; Gumade, 2014). However, most were sourced from a few countries producing minerals (primary goods). Algeria, Angola, Egypt, Libya and Nigeria provided crude oil and gas; the Democratic Republic of Congo and Zambia exported copper while Liberia, Mauritania and Sierra Leone exchanged iron ore and concentrates. In 2013, South Africa-Africa stood at $US25b (Gumade, 2014). South African exports to other African countries are mostly finished products because it remains the most industrialized country on the continent while Nigeria has been de-industrialized (Aremu, 2013; Umezurike and Asuelime, 2015). According to the report of the IDCSA 2013 report, the top five South African exports to Africa in 2012 were machinery (22%), base metals (14%), transport equipment (14%), chemical products (11%) and mineral products (10%) (Industrial Development Corporation of South Africa, 2013). An estimated 80% of all South African imports from other African countries were from extractive industries, especially oil and other minerals (Gumade, 2014).

BRICS' total trade with Africa now exceeds trade among BRICS member countries. For example, in 2012, BRICS' total trade with Africa stood at $340b but trade among BRICS member countries amounted to about $310b (Freemantle and Stevens, 2013; Gumade, 2014). In 2012, South Africa's trade with BRICS countries accounted for about 19% of the country's total trade. In 2011, South Africa recorded $US504m in trade with Russia, $US6.6b with India, $US2.2b with Brazil and $US22.6b with China, its largest trading partner (Freemantle and Stevens, 2013; Gumade, 2014). Interestingly South Africa was able to run a trade surplus with Russia of $120m in 2011 (Davies, 2012; Gumade, 2014), but it had a trade deficit of $2.2b with China in the same year. In similar vein, South Africa's trade deficit with Brazil and India stood at $732m and $588m, respectively, in 2011. As noted earlier, South Africa's main exports to China and India are minerals, especially iron-ore and concentrates, and coal (Davies, 2012). In 2012, about 46% of South Africa's exports to China were iron-ore and concentrates, and 11% were coal products (Gumade, 2014). In the same year, 53% of its exports to India were from iron-ore and concentrates, and 6% from coal (Gumade, 2014). Exports from South Africa to Brazil are more diversified and include finished goods which create jobs and higher income, as well as primary goods. Transport-related machinery, including vehicles, made up 28% of this trade while agro-industrial goods accounted for 40% of South Africa's exports to Russia in 2012 (Gumade, 2014).

The interest of BRICS members in Africa as a new investment destination has stimulated western countries including the US, Japan and the EU as well as oil-rich Middle Eastern states to accelerate business interest on the continent (Gumade, 2014). South Africa's inclusion in BRICS has acted as a stimulus for FDI in Africa. For South Africa and its colleagues in BRICS, Africa is the new desirable market. Arguably all these BRICS activities, especially the role and place of South Africa, have led to economic growth in Africa. Thus, it is not surprising that even though South Africa and BRICS engage in the anti-thesis of Western imperialism in the global order, they have engaged in similar notions of neo-liberalism and globalization that have continually disadvantaged Africa. A closer examination of the BRICS group's attractions and South Africa's soft stance in relation to China captures this perspective.

3. Methodology

This article is mainly a qualitative study and thus relies on secondary data ranging from published and unpublished manuscripts, newspapers, government report among others. Content analysis is employed to offer a critical reflective analysis on South Africa's membership of BRICS. Specifically, it focuses on South Africa's political-economic relations with China. The authors provide arguments, and supported by evidence suggesting that, while South Africa's economic indicators do not fit well with the BRICS grouping, China is promoting this relationship in order to counter the West's neo-imperialism and neo-liberal rhetoric.

4. China-South Africa Diplomacy and the Scramble for African Market

The African consumer market is attractive and estimated to reach $US1.4t by 2020, with approximately 128m households expected to have disposable income in the same year (Elumelu and Oppenheimer, 2013). African markets are regarded as investment friendly destination for South African companies to invest in as they offer high profits and are almost competition free. It is forecast that by 2030; close to 50% of Africa's population will be living in cities (Elumelu and Oppenheimer, 2013). However, challenges to Africa's development in the form of poverty, poor infrastructure, corruption and political instability could discourage potential investors. In a move to benefit from the African market and due to its impressive capacity, in 2009 alone South African multinationals invested $US1.6b in FDI outflows into other African markets including popular and lucrative telecommunications industry, MTN, dominating the African market with business presence in more than 21 countries on the continent (Elumelu and Oppenheimer, 2013). Regional efforts to create common economic markets resulted in the formation of the Common Market for East and Southern Africa (COMESA) and the East African Community (EAC) (Wentworth, 2012; Elumelu and Oppenheimer, 2013). A common customs union is planned by 2018 (Wentworth, 2012). This will widen the existing business opportunities for South African companies that already dominate the SACU. However, Ashman et al (2011) note, between 1994 and 2011, South Africa lost over 20% of its GDP either legally or illegally although attempts by the government to ease exchange controls have increased the legality of this capital outflow (Hart & Padayachee, 2013). The rationale is to encourage South African businesses to invest outside of the country. This would require a declaration of deals; formerly illegal deals have been granted amnesty. This opens the door for South African compradors to move capital from South Africa to invest elsewhere in Africa.

South African and Chinese economic and diplomatic relations can be viewed from two perspectives; divergence or competition, especially on the African continent. According to the Centre for Chinese Studies (2015), competition between China and South Africa is most visible in the manufactured products China markets in Africa. This led to South Africa losing more than US$ 900m in trade with African countries between 2001 and 2011 (Centre for Chinese Studies, 2015). South Africa's exports to its 10 major trading partners in Africa would have been roughly 10% higher from 2001 to 2010 were it not for market losses to China (Centre for Chinese Studies, 2015). On the other hand, Chinese exports to sub-Saharan Africa increased substantially from US$ 4.1b in 2001 to US$ 53.3b in 2011. South Africa lost major market share to China in Angola and Tanzania, while minor losses took place in Zimbabwe, Zambia, Mozambique and Malawi where South Africa has maintained its hold (Centre for Chinese Studies, 2015). However, this situation has not prevented a high level of co-operation between these two countries at both bi-lateral and multilateral levels. Their common vision for transformation of the world order binds China and South Africa together. Thus, in general, contestation for the African market has not led to friction or confrontation.

The Forum for China-Africa Cooperation (FOCAC) and BRICS has therefore been of special interest to South Africa and China and has provided special opportunities for China-Africa partnerships. China and South Africa are involved in a scramble for the African market, and the continent has been disadvantaged by unequal relations with both countries. China and South Africa have the capacity to produce finished goods and the African market remains an attractive one for these goods as well as the primary resources they require to feed their industries, especially the extractive industry. China-South Africa cooperation might not be problematic as they are happy to work together at both bilateral and multilateral levels and to share the African market. However, like any other country in Africa, South Africa remains a junior partner to China in terms of trade relations at both multilateral and bilateral levels. This is mainly expressed in South Africa's loss of markets to China in Africa, South Africa's membership of the BRICS group and South Africa's soft standpoint in relation to China.

South Africa's Soft Stance towards China: China supported the struggle against the apartheid regime. South Africa's freedom fighters engaged the world during this struggle especially through the anti-imperialism thesis. Russian and Chinese support may well have been based on the assumption that a free South Africa would follow the socialist path and remain anti-West. While this only happened at the level of rhetoric, China did not lose hope in South Africa. This could be one of the reasons why China has continued to draw closer to South Africa in global affairs. Jordaan (2008: 547) notes that "middle powers are supreme bridge-builders and multilateralists that characteristically perform two important tasks in the international system: they try

to increase order in the international system, which includes legitimizing the norms espoused by the hegemon; and they perform morally commendable tasks for the good of international society". Jordaan identified South Africa as a middle power based on the country's foreign policy in the Middle East in reference to its overall foreign policy strategy, its role as a bridge-builder and an advocate for multilateralism since 1994. South Africa has frequently offered itself as a mediator in the various conflicts in the Middle East region albeit with little impact. Jordaan maintains that South Africa's foreign policy is anti-imperialist, although it is at best limited to opposing US and Western allies on major issues around the world (Umezurike, 2016). Another good example of South African anti-imperialism is that, in Jordan's (2008) words, it talks left while walking right. According to Jordaan, this is clearly captured in the ANC government's neo-liberal economic policies, as well as by South Africa's role at the World Trade Organization.

South Africa's foreign policy has made it the most unsuitable candidate to be an impartial peace broker in the various Middle East conflicts. The country's stand on various issues in the Middle East has clearly shown that it cannot do much to ensure a peace deal. It has supported Iran's nuclear ambitions; it condemned the US invasion of Iraq in 2003; it supports the establishment of a Palestinian state in the Israeli-Palestinian conflict; and in recent events involving Lebanon, and in Hamas's 2006 electoral victory, it opposed the Israeli position (Jordaan, 2008). In the Middle East, South Africa speaks when it is not expected to or is unable to bear any costs and where quiet diplomacy could be interpreted by the Arab countries to mean support for Israel, South Africa speaks out. In return, it gains access to Arab markets and gains oil concessions from Arab countries. The anti-imperialism thesis may not be the only reason why China has maintained good relations with South Africa. Alden and Schoeman (2015) are of the opinion that South Africa's position in Africa constitutes 'Symbolic Representivity', using its membership of BRICS and G20 to make their point. Some scholars also note that Chinese calculations could be based on the fact that South Africa is generally regarded as the gateway to Africa. However, Alden and Schoeman (2015) observe that both India and China have proved this assumption incorrect, as many countries in Africa have the necessary capacity including the expertise and resources to occupy the gateway position (Alden and Schoeman, 2015). For example, following the re-calculation of its GDP towards the end of 2013, Nigeria is now rated the largest economy on the continent and it has a far larger population than that of South Africa. Nigeria therefore offers a bigger market than South Africa. For example, it has the largest market for the mobile communications business in Africa. South African telecommunications company, MTN has more than 52m customers in Nigeria, exceeding the entire population of South Africa (Chidozie et al., 2015).

In the days of apartheid, South Africa had close relations with Taiwan because both countries were facing isolation in global affairs; in the case of South Africa, this was due to the adoption of racial segregation as the official policy while Taiwan was isolated because of China's claim that the country is an integral part of China. In the 1970s, the United Nations Security Council withdrew its resolution supporting Taiwanese independence and recognized the country as an integral part of China (Grimm et al., 2014). As pariah states, South Africa and Taiwan had a successful relationship until the 1990s when the former gained freedom and established popular rule. China and Taiwan then entered into a race to determine who would win and maintain diplomatic ties with South Africa. China put pressure on South Africa and made it clear that it would not tolerate the country maintaining diplomatic ties with Taiwan, although it was prepared to accept other forms of relationships with Taiwan as long as the latter does not lay claim to sovereignty of any kind in its relationship with South Africa (Grimm et al., 2014). South Africa chose to severe former diplomatic ties with Taiwan (Schraeder, 2001). The pragmatic South Africa chose socialist China that does not share its ideology over Taiwan that has the same capitalist point of view. This demonstrates that South Africa is a realist state that makes choices in line with national and economic interests.

South Africa's foreign policy is very unsteady on several fronts. For example, its refusal to issue a visa to the Dalai Lama to attend Archbishop Emeritus Desmond Tutu's birthday party in Cape Town surprised Tutu as well as other human right activists (Umezurike, 2016). Tutu stressed that South Africa should be supportive of the Dalai Lama because it shared similar political history given that it recently emerged from a struggle against a repressive regime. South Africa refused the Dalai Lama a visa twice in two years (Fairbanks, 2012). Here South Africa clearly chooses economic ties with China over morality and human rights. Its trade relations with China must be maintained even at the expense of morality and human rights issues in Tibet in as much as such violations do not extend to South African territory. The new South African visa regulations

offer special concessions to BRICS member countries. The Minister of Home Affair, honourable Gigaba announced in February, 2015 that ports of entry visas will be issued to those from BRICS member countries (SAPA, 2015). The visa may not exceed 10 years. As a member of BRICS, China is likely to profit from this move.

Fairbanks (2012) notes that, by any standard, South Africa has the smallest economy among the BRICS nations. This implies that what South Africa enjoys most about its membership of BRICS is that its acceptance by other global emerging economies suggests that it is the most viable economy in Africa. Another reason for the current ANC leaders' fondness for BRICS might be that it represents a break from President Mbeki's dominant ideas in relation to foreign policy, especially in terms of the African Renaissance. Membership of BRICS is thus a milestone in South Africa's foreign policy and role in the global political economy. However, while the country is proud of this achievement and parades itself as the African representative, a close examination of socio-political indicators suggests that it does not fit well with this group. Alden and Schoeman (2013) observe that:

South Africa does not come anywhere near the other members by tangible power indicators in terms of territory, population size, size of the economy, and other related factors that mark the other four countries out as being 'special' and on their way to domination of the global economy within the next three to five decades. Thus its BRICS membership becomes both proof of its status and an instrument for reinforcing this status. It is also a new front in South Africa's foreign policy.

While South Africa has adopted overt strategies on how it engages with the world, including BRICS, this new alliance might not prove effective in reforming global power relations (Bond, 2013). For example, Bond (2013) suggests that the degree to which BRICS has recently accommodated imperialism, especially in terms of economic and ecological issues, is remarkable. This suggests the need to carefully analyse the general problem of the sub-imperial re-legitimization of neo-liberalism which BRICS may be part of. It is doubtful whether BRICS has the will power to change the world order as it claims. The decision to form a BRICS Bank parallel to the World Bank and International Monetary Fund (IMF), combined with its anti-imperialism rhetoric may not be sufficient to challenge current power relations. In other words, the modus operandi of the BRICS Bank will not differ much from the World Bank and the IMF. It is more about the formation of a sub-imperial organization and bank that could continue to exploit weaker economies, especially developing countries. This reflects South Africa's determination not to relinquish its sub-imperial position in the world order, even after the demise of apartheid. Bond suggests that the problem requires a theory of sub-imperialism that is sufficiently robust to cut through the internal and external policy claims made by the BRICS regimes, among which South Africa is the most compelling because of its post-apartheid leadership elite's ubiquitous 'talk of left, walk to right' tendency and the extremely high levels of social protest against injustice that are on-going in the country.

The leaders of the African National Congress (ANC) have been successful in reshaping the country's foreign policy and South Africa's profile as a regional and global player is rising. Ngubentobi (2004) for instance argues that South Africa has acted as a bridge between the South and North. It has trade relations with the European Union (EU) and the United States (US) and South-South co-operation features prominently in its foreign policy options. South Africa's global bilateral and multi-lateral relations are on the increase, while its membership of BRICS is of particular significance. In general terms, the real challenge confronting South Africa's foreign policy is not that the policy objectives are vague or unattainable but that the internal leadership struggle in the ANC is reflected in the conduct of the country's international relations. During Mandela's presidency, his international reputation dominated South Africa's foreign policy (see Umezurike, 2016). His ideals included morality based on respect for human rights and the rights of minorities, and the maintenance of the global status quo through good international citizenship (Fourie, 2013). When Mbeki, who is a philosopher and trained economist, took over, he used Marxist rhetoric to call for change in the global status quo (Fourie, 2013).

However, in practice, South Africa's foreign policy does not seek to change this status quo but to regain what was lost in the international political economy during apartheid isolation. For instance, under President Mbeki's leadership, South African companies' penetration of the world economy surpassed all previous efforts. They did so by exploiting weaker economies in both developing and developed countries, a strategy

that is similar to the West's approach to relations with Africa (Fourie, 2013). The end result of such relations is the continued unequal division of labour in the international market especially where South Africa is able to dominate markets in the Southern African sub-region and the continent in general. While President Zuma's administration has adopted a similar foreign policy stance as that of Mbeki, given the current ANC leadership's criticism of Mbeki while he was President, it does not do so in the open. It is felt that unabashed continuation of Mbeki's foreign policy position would be an indictment of the ANC leadership who fired him. Thus, the leadership allows events to unfold in the foreign policy realm while relying on the strategies of Mbeki's administration to resolve problems that may arise (Fourie, 2013). This has led to the current administration finding itself at serious odds with African countries. For example, the current administration has maintained Mbeki's approach of quiet diplomacy in response to the Zimbabwean crisis. In the case of the yellow fever diplomatic feud with Nigeria, South Africa realized that a diplomatic spat would not benefit the country; in light of strong business interests in Nigeria, an apology was quickly forthcoming (Umezurike and Asuelime, 2015). This was the same foreign policy strategy as that which prompted South Africa to oppose the late General Sani Abacha military junta's human rights abuses in Nigeria and the hanging of the Ogoni 9, including environmental activist, Ken Saro Wiwa in 1995 (Banjo & Omidiran, 2000; Adebajo, 2007; Banjo, 2010). President Mbeki's outstanding achievement in international affairs speaks for itself and dwarfs any efforts that the present leadership could make.

In the final analysis, South Africa's foreign policy is static, not because of the issues involved but because the current leadership does not want to further compromise its popularity which is already threatened. Promoting a political rival's work which it previously condemned would suggest that firing Mbeki was the wrong decision. However, President Zuma's administration has found a new foreign policy option in BRICS. When South Africa joined BRIC to form BRICS, this was regarded as an important moment in the country's branding (Fairbanks, 2012). BRICS remains the only major new front in South Africa's foreign policy since President Zuma took office. Indeed, the country's current leadership seems to be drunk on BRICS. For example, during Nelson Mandela's state funeral in December 2013, all the BRICS leaders delivered orations. Leading countries in Africa like Nigeria that played a crucial role in the struggle against apartheid were not given such an opportunity.

South Africa's claim to regional hegemony and leadership is often contradictory because of its internal shortcomings. For example, unlike any of the other BRICS members, South Africa's 'Great Power' and 'emerging economy' claims have their origins in its ability to act as a symbolic representative (Alden and Schoeman, 2015) rather than in its economic indicators such as Gross Domestic Product (GDP). The sources range from South Africa's military dominance in the first and second world wars, to its Cold War alliance with the Western block, its weight as Africa's largest economy, and its involvement in continental peace-making and peace-keeping efforts (Alden & Schoeman, 2013). Indeed, South Africa's capitalist outlook is ahead of any other African country when measured by its economic indicators — organized financial systems, investment capital, corporate presence, and infrastructure. These indicators may have been the reason why China chose South Africa as the African country to join BRICS. There have been suggestions that African countries, especially Nigeria, would fit better into BRICS. Nigeria's new GDP calculation towards the end of 2013 saw the country emerge as the biggest economy in Africa (Umezurike and Asuelime, 2015).

5. Conclusion and Recommendations

BRICS is a formation that is made up of five fast growing economies that claim to pursue a new world order. However, it is unlikely that its members will succeed in transforming global power relations. BRICS aims to create a forum that will enable the group and its members to play a bigger role in the international political economy. China hopes to use BRICS as one of its tools to emerge victorious as the largest economy in the world. In order to do so, China is in search of reliable partners who are willing and able to stand firm in creating a parallel institution to the IMF and World Bank. However, BRICS will not be able to change the way the world works and the BRICS Bank will not be able to alter the way the global economy operates. Both the BRICS group and its member countries' economies have incorporated elements of neo-liberalism and neo-imperialism, especially in their relations with Africa. This has continued to undermine weaker African economies, especially in their trade and investment relationships with BRICS members. As Mhandara et al. (2013) point out, the dynamism of China-Africa relations requires constantly monitoring and a reassessment

of various agreements in order to ensure consistency in the principles and practices of the long history of co-operation. Africa has become a major investment and trade destination for China and South Africa as well as other BRICS members. While South Africa lags behind China in investment and trade in Africa, the two countries are keen to cooperate at all levels in order to optimally exploit the opportunities offered by African markets. China's choice of South Africa to join BRICS does not mean that it is the best qualified country to occupy this position. South Africa's willingness to accept Chinese superiority in the African market and to act as a junior partner in the global power configuration makes the country the perfect choice for this project. In terms of economic and social indicators, South Korea, Malaysia, Indonesia or Nigeria may have been better qualified to join BRICS but China regards South Africa as the best junior partner because it is much more committed in terms of anti-West rhetoric. South Africa's concessions to China in the form of immigration visas, the Tibet question and sacrificing full-blown diplomatic relations with Taiwan are evidence that it is a junior partner that is committed to friendly relations with China, notwithstanding the cost. South Africa and China have adopted an anti-imperialism and anti-West stance in order to create opportunities for their entrance to the global economy; be it South-South or South-North. The anti-thesis of imperialism and neo-liberalism they propound is simply not realistic because of their economic ambitions in the global economy.

From the above discussion, we propose that the survival of South Africa in BRICS would in foreseeable future depend on the following recommendations:

- Addressing domestic impediments that question the legality of its BRICS membership– a claim which analyst believes disqualifies its membership.
- Adopting a firmer foreign policy posture that does not pay lip service to its commitment to the African Agenda.
- Faster economic growth that compares favourably with its BRICS counterparts.
- Deepening its claim to regional hegemony through greater political commitments and economic diplomacy in Africa.
- Showing a greater commitment to speak on behalf of Africa rather than secure its own economic national interest.
- Developing and implementing a more consistent foreign policy in its relations with its multiple partners.
- Building a soft power capacity that conveys credibility and legitimacy on its status.

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Structural Equation Modelling applied to proposed Statistics Attitudes-Outcomes Model: A case of a University in South Africa

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Abstract: The purpose of the study is to investigate the structural relationships among constructs of the statistics attitudes-outcomes model (SA-OM) using exploratory structural equation modelling (ESEM) methodology. The sample consists of 583 first-year undergraduate students enrolled for statistics courses at the university in South Africa. ESEM reveal that all but two of the nine constructs have well to excellent reliability. To enhance the model, we deleted the eight variables. All other indicators have a significant loading into a construct. Congruency of the SA-OM and expectancy value model (EVM) is noted. The SRMR for all modified models are less than 0.10 suggesting that all these models have acceptable fit. Moreover, all the modified models have RMSE values within the ranges of adequate fit. On the contrary, all the models have unacceptable fit according to PCF, CFI, AGFI and PGFI statistics, i.e. according to all parsimony fit indices except the RMSE. The results also reveal that all incremental fit indices but the BBNFI approve the modified models as acceptable since most of these indices are almost equal to a cut-off point of 0.9. However, BBNNI disapprove the ML3 and ML5 models as being acceptable. A host of inconsistencies in fit indices are noted.

Keywords: *Model fit index, Attitudes and perceptions, Self-Efficacy, Structural equation modelling*

1. Introduction

Students' achievement in statistics depends heavily on how they learn, understand and apply the course content in their careers of choice. More important is how they perceive the course, the effort they put in, and their ability to deal with its cognitive demands. Generally, one could tell if students have negative attitude towards a course or not. Studies by Carnell (2008), Dempster and McCorry (2009), and Wiberg (2009) suggest timely revision of statistics courses to motivate students. The degeneration of positive to negative perceptions escalate to negative attitudes which inhibit any learning of the course, as well as apprehension and application of the course content. Large bodies of research have focused on these individual constructs' relationship to statistics achievement rather than their interactive and mediating effect on it. Prevention of positive perception, a possibly snowballing into adverse attitudes towards students' statistics achievement becomes imperative. Negative perception often precedes a poor performance in statistics as highlighted by Galli et al. (2010). Very few studies in the area have attempted to uncover causal relationships and covariance among measured and latent variables. This also applies to how development of a positive outlook on statistics can help generate interest, relevance, motivation, effort, and the worth of the course. Most of the studies have focused primarily on relationships between attitudes and achievement, but have not investigated the underlying complex structural relationships (Dempster and McCorry, 2009).

In recent research, factor structure and correlations within structure models have been studied, leaving room for the studies to identify varying variables and constructs. It is for these reasons that an interaction between attitudinal affect and perception constructs, and relevance are viewed as concomitants of statistics achievement. The interaction between these constructs is of interest and there is a need to explore them with a view of suggesting remedial intervention strategies to be implemented at the beginning of every academic year or consistently and concurrently throughout the semesters. Structural Equation Modelling has the capability to do both single-level and multi-level analysis simultaneously, the duty which other first and second generation models failed to do. The method can perform analyses of comparisons of multi-groups using different multivariate techniques such as, multiple regression, multivariate analysis of covariance, confirmatory factor analysis (CFA) to mention a few.
Structural Equation Modelling (SEM) has the ability to calculate the prediction model and the associated power of analysis, and do path model analysis as well. Thus, SEM in this study helps to remedy deficiencies of past researches on students' attitudes towards statistics by looking at the significance of causal relationships

and possible confounding factors that may arise from the model. Specifically, the study aims to confirm underlying perceptions and attitudes constructs derived from ideas gathered from statistics students at a university in South Africa. The primary objective of the study is to determine the effect of students' perceptions and attitudes on statistics achievement or statistics outcome. We hope to be able to analyse causal links between manifest variables and constructs, and further among constructs. Furthermore, the study looks at the relationship between of students' attitudes on their self-efficacy. With SEM, one is able to simultaneously determine parsimony and spuriousness of the final prediction model. Though CFA has been proven to perform similar duties as the SEM (Suhr and Shay, 2009), its limitations have been well documented (see for *e.g*., Marsh et al., 2004; Hopwood and Donnellan, 2010). This study is expected to contribute to literature by suggesting ways to avert negative attitudes and promote positive perceptions. The results of the study would give an indication of basic constructs that need the instructors' attention. These constructs may be developed in students or used to improve instruction of the statistics subject to ensure students' achievement in related statistics courses. The study will serve as a guide to redesign programmes for statistics for non-majors and for the faculty at this university to relook the entrance requirements for degree programmes offered, paying more attention to how students learn statistics first rather than focus on the pedagogical content of the subject. The study will finally make a significant contribution to the advancement of SEM and its possible application in other disciplines.

2. Literature Review

Theoretical Framework: Bad experiences are often a precursor to debilitating statistics anxiety effects on academic achievement. Anxiety emanates not from a lack of proper instruction or training, and insufficient skills (Pan and Tang, 2004). Statistics courses are not only a terrible experience to the majority of non-majors, they also pose a threat to completion on time of their degrees (Onwuegbuzie and Wilson, 2003). Students' misperceptions and little or no proper mathematical background is contributory if not intermediary in students' achievement in statistics (Hulsizer and Woolf, 2009; Pan and Tang, 2004). Anxiety inducing factors are classified into three categories according to Baloğlu (2003). These are dispositional, course-related or situational, and person-related factors. Dispositional factors are emotional and psychological traits of students which include their perceptions, attitudes, and mathematical self-concepts according to Baloğlu (2003) and (Dykeman, 2011). Situational factors according to Onwuegbuzie and Wilson (2003), Pan and Tang (2004; 2005) and Dykeman (2011) are dependent on whether the course is mandatory or an elective, prior knowledge of statistical course and mathematical content. There is a growing body of research describing the relationship between students' attitudes towards statistics and statistics achievement (Emmioğlu and Çapa-Aydın, 2011; Sorge and Schau, 2002). Most studies focus on one aspect at a time and do not explore covariation or causality. The current study attempts to address this gap.

A meta-analysis study of students' attitudes toward statistics by (Emmioğlu and Çapa-Aydın, 2011) has cited positive relationships between *affect* and *perceived cognitive competence* and course grade. Reported by this study is that course *value* has a small but positive effect on *perceived difficulty.* It is evident that with a high correlation between Mathematics and Statistics (Onwuegbuzie and Wilson (2003); Onwuegbuzie, 2003), statistics anxiety may possibly be born from existing and prevalent Mathematics anxiety oftentimes accompanied by negative expectations. Many scholars and educators believe that negative perceptions and attitudes towards Statistics are important in a student's academic life. It is for this particular reason that Schau et al. (1995) developed SATS-28 (with four constructs) and later SATS-36 (with six constructs). Dauphinee et al. (1997) further researched the factor structure of the SATS-28 survey instrument. The instruments' constructs are congruent with Eccles' Expectancy-Value Model's (EVM) theoretical framework (Wigfield and Eccles, 2002; Eccles et al., 2005). Of interest to note is how Eccles' EVM is consistent with SATS-36 six components and other variables from the MPSP presented in the appendices, emphasizing the multidimensionality of perceptions, attitudes and motivation. The framework aids instructors and researchers alike to determine the factors that directly or indirectly affect the perception and attitudes of students toward statistics, their achievement related choices and the relationships among them. According to Ramirez et al. (2010), SATS-36 complements Eccles' EVM by demonstrating that some of the constructs are relevant to university students' statistics course. The EVM further allows for researchers to determine the interrelation between attitudinal and motivational factors, suggests (Ramirez et al., 2010). This framework additionally gives room for an extension into Statistics and Mathematics domain or other academic domains.

The EVM has been acknowledged as an appropriate instrument and theoretical framework- with its implications in pedagogy, evaluation and research, for investigating the complexity of students' perceptions and attitudes toward statistics subject. There is consistency between the EVM and SATS-36 and selected variables from the MPSP. Ramirez et al. (2010) suggest that when selecting an instrument, instructors and researchers aiming to measure students' perceptions and attitudes towards a statistics subject should consider SATS-36. This is due to its consistency with the EVM and its psychometric properties (Hilton et al., 2004 and Tempelaar et al., 2007). Another model of interest in the Statistics Attitudes-Outcome Model (SA-OM) is cited in Ramirez et al. (2012), Emmioğlu and Çapa-Aydın (2012) and Arumugan (2014). The latter applied the PLS algorithm to confirm the SA-OM. The SA-OM is also said to be congruent with many learning theories as it assumes that affective factors, besides cognitive factors play a pivotal role in the students' statistics outcomes attainment. The model is based on the Self-Efficacy theory (Wigfield et al., 2006), Self-Determination Theory (Deci and Ryan, 2002; Wigfield et al., 2006), and The Theory of Planned Behaviour (Ajzen, 2005). SEM tests, simultaneously, the validity of measures in a model and plausibility of theory (Chin, 1998; Gefen, Straub, and Boudreau, 2000). SEM has its foundations deeply rooted in the classical, path analysis (Wright, 1918) and CFA (Jöreskog, 1966). This text follows a two-step approach first described by Anderson and Gerbing (1988) and later Anderson and Gerbing (1992) and highlighted also by Chin (1998), for performing analysis of covariance structures.

The initial step involves developing an acceptable measurement model using CFA, based on theory and a priori specified causal hypotheses (Mueller and Hancock, 2008). The items' statements and sub-scales mentioned above are shown in appendices. Correlations, multiple regression, etc., cannot test for instrument convergent, discriminant, and nomological validity simultaneously, thus researchers have to follow a 'two-step approach' (Gefen et al., 2000). It is for this reason that the SEM method is followed for this study, as it also offers a solution to the two-step approach (Chin, 1998), with its capability to test convergent validity and discriminant validity simultaneously (Chin and Todd, 1995), reduce the likelihood of false negatives (Type 2 errors) (Chin, 1998) and better tests moderators (Lowry and Gaskin, 2014.).

Empirical Evidence: There is growing evidence on literature that points to the positive effect of perceptions on positive attitudes, with achievement in Statistics course. An SEM model including measures of mathematical aptitude, statistics anxiety and attitudes, motivation to learn statistics, and effort was tested by (Lalonde and Gardner, 1993) in predicting Statistics performance. Their study found that there is a direct positive relationship between aptitude and performance, and the relationship is negative in statistics anxiety, which in turn appeared to be positively related to both motivation and performance. The study also found that the path from Statistics anxiety to performance was statistically non-significant. In a replicated study by (Tremblay, Gardner, and Heipel, 2000), contrary to the expected outcome, there was a significant and negative relationship between statistics anxiety to performance, and a negative path from attitudes to anxiety. Misperception of statistics may give rise to consistent and increased avoidance of the subject. Statistics-related stress develops this avoidance, or poor performance on the subject. Cherney and Cooney (2005) in their study revealed that the lower the Mathematics and Statistics perceptions, the lower the final grade. Students' misperceptions about both Statistics and their Mathematical skill (or lack of it thereof) are due to anxiety and do not necessarily emanate from their limited skills or bad instruction received (Pan and Tang, 2004; Onwuegbuzie and Wilson, 2003). Another relevant work is the Anxiety-Expectation Mediation (AEM) model (Onwuegbuzie, 2003) where both statistics anxiety and achievement's expectation were expected to mediate the relationship between cognitive, personality, and person's characteristics, and performance.

Statistics anxiety and achievement are reported to play a pivotal and significant role in mediating the relationship between performance and anxiety, study behaviour, course load, and the number of statistics courses taken in an academic year (see for e.g. Chiesi and Primi, 2009; Chiesi et al., 2011). (Nasser, 2004) study obtained a high positive effect of mathematical aptitude and a lower, but significant, positive effect of attitudes on performance with a SEM approach. Anxiety was also found to be directly and negatively linked to attitudes and the path between anxiety and performance was non-significant, consistent with Lalonde and Gardner (1993). These findings were in contrast with Onwuegbuzie's (2003) and Tremblay et al. (2000) studies. Chiesi and Primi (2010) proposed an SEM model where mathematical background affects both

mathematical knowledge and attitudes toward Statistics. These two variables influenced statistics anxiety, which in turn was directly related to attitudes and performance. The results showed that both post-test attitudes and mathematical knowledge were directly and positively related to performance, but anxiety only indirectly affected performance through attitudes. The SEM approach showed attitude as the stronger direct predictor of performance, and played a full mediating role in determining the relationship between statistics anxiety and performance. Mathematics background also appeared as a negative predictor of anxiety. Finally, test anxiety was a positively direct predictor of statistics anxiety.

3. Methodology

This section discusses the proposed methods by the study and the related pertinent issues governing them. The section also reports and discusses the results.

Data description and assumptions: Used in this study is the altered SATS-36 and MPSP self-administered questionnaires as instruments for data collection from the university first-year undergraduate class who availed themselves for Statistics lectures on that particular day. A proportionate stratified random sampling method was used to select respondents from a population of about 1000 students during the 2015 academic year. Respondents were randomly selected from their respective classes. A random sample was selected within each stratum to make up the final sample of statistics students. The instrument was chosen due to the fact that it had recently been used to assess students' perceptions, attitudes and achievements towards statistics (Emmioğlu, 2011). The psychometric properties of SATS-36 are well documented (e.g. Chiesi and Primi, 2009). The subscales are based on Eccles and Wigfield's (1995) EVM and Sorge and Schau's (2002) statistics attitudes-achievement structural model. The hypothesised model (Figure 1) in the next sections consists of nine latent constructs, as opposed to seven in previous studies.

Sample size: Structural equation modelling is based on large sample theory (Lehmann, 1999), and minimum sample requirement is asserted to reliably conduct an SEM study. The reader is reminded that the initial step involves finding an acceptable measurement model using *confirmatory factor analysis* (CFA) (Mueller and Hancock, 2008). Some authors recommend a sample of minimum 200 observations while others say a threshold of 300 is more appropriate. According to Hair et al. (2010), a sample size of 50 observations suffices under ideal conditions using maximum likelihood estimation (MLE). However, Hair et al. highlighted that a sample size of 200 provide a sound basis for estimation. Researchers vary in their elucidations, in terms of the number of cases required. Ratios of 5:1 (about 200 cases) and 2:1 (about 100 cases) respectively of subjects to variable are proposed by Kline (2011). The sample size for the present study is 583 from four first year Statistics classes. This sample size is in agreement with Hair et al. sample size requirements and fulfils the minimum sample and ratio of subjects per variable requirements (Kline, 2011). The observed KMO 0.884 reported in Table 1 further confirmed that the sample used in this study is adequate and suitable for the proposed methods. Pett et al. (2003) recommended a sample adequacy measure of at least 0.70 to less than 0.80 as middle. Values in excess of 0.80 are meritorious.

Table 1: Factorability and Multivariate Normality

Mardia's Multivariate Kurtosis	371.7651
Mean Scaled Univariate Kurtosis	-0.2807
Determinant	3.704E-9
KMO	0.884

Multicollinearity and Factorability: One other assumption concerns the extent of correlations between the variables. Though a certain degree of collinearity between the variables is allowed, it is of importance to protect the assumption of multicollinearity. This assumption may not be valid as far as social science, psychometric or psychological data is concerned. This study analyses a psychometric or psychological data and did not check the violation of this assumption as it is highly expected that some or most of the variables are highly correlated. A correlation matrix is not invertible if its determinant is equal to zero, that is, it is not factorable as cited in (Field, 2013). Shown in Table 1 also is that the determinant of the correlation matrix is not zero, but very close to zero. This suggests a hint of multicollinearity but at the same time confirms that the data is factorable.

Normality Assumption: The univariate analysis of data was run, to determine the *skewness and kurtosis*, this includes their normality. All variables showed no issues with regard to skewness (< 2) and kurtosis < 3, although most variables have a negative kurtosis (*platykurtic)*, that is, the responses are highly dispersed or most responses share about the same amount of frequency. This kind of distribution is less peaked than the *mesokurtic* (normal) distribution. Table 2 shows the mean scaled univariate kurtosis as -0.2807, smaller than lower bound of -0.0392. This is mainly due to *leptokurtic* cases where most respondents selected four for "Neither agree nor disagree" for most of the items, and sometimes sparseness in responses throughout the questionnaire. Multivariate kurtosis given by Mardia's Multivariate Kurtosis equals 371.7651 in Table 1 also reveals that the data were *multivariate kurtose*, that is, they presented a multivariable 226 deviation from normality, as this value is expected to be as close to zero as possible. These are no surprising result given the type of data from the behavioural sciences, which is psychometric or 226 psychological in nature.

Table 2: Simple Statistics

Variable	Mean	Std Dev	Skewness	Kurtosis	Variable	Mean	Std Dev	Skewness	Kurtosis
A1	4.33448	2.03482	-0.32187	-1.05403	A26	3.99485	1.75030	-0.01334	-0.67270
A2	3.61235	1.92398	0.24339	-1.00905	A27	3.71527	1.96566	0.16716	-1.09578
A3	3.61578	1.99481	0.16172	-1.15193	A28	4.18525	1.92112	-0.09713	-1.00375
A4	4.06346	2.06037	-0.07127	-1.27371	A29	3.64322	2.34476	0.19785	-1.50460
A5	3.44940	2.16512	0.32087	-1.25438	A30	5.50772	1.66308	-1.11779	0.55642
A6	3.50772	2.03057	0.30571	-1.09083	A31	5.48542	1.61161	-1.03263	0.34828
A7	4.08233	2.15070	-0.08930	-1.33235	A32	5.71184	1.54963	-1.27129	1.00019
A8	4.65352	1.86485	-0.46574	-0.70227	A33	5.86964	1.64144	-1.47186	1.24056
A9	3.31218	2.13029	0.40782	-1.21931	A34	5.16123	1.86432	-0.80114	-0.38514
A10	3.21955	2.01792	0.44585	-0.99640	A35	4.85420	1.97084	-0.61226	-0.74376
A11	3.65180	2.17069	0.19996	-1.34802	A36	5.26244	1.78426	-0.94223	0.05379
A12	3.50257	2.04828	0.31049	-1.11473	A37	4.99485	1.99698	-0.71382	-0.67509
A13	4.25043	1.97207	-0.18965	-1.03638	A38	3.61750	2.18307	0.21750	-1.33372
A14	3.60720	2.13587	0.21252	-1.30879	A39	4.07719	2.04399	-0.12766	-1.13822
A15	3.98456	2.10173	-0.09321	-1.26528	A40	4.01029	2.08823	-0.02392	-1.24210
A16	3.97256	1.80661	0.03228	-0.80254	A41	3.91424	2.00502	0.02318	-1.13122
A17	3.59177	1.94284	0.22197	-0.98429	P2	4.33791	1.81083	-0.22535	-0.81379
A18	4.30703	2.10548	-0.21951	-1.23446	P3	4.30875	1.84000	-0.14288	-0.96071
A19	3.71355	1.99534	0.15669	-1.08543	P4	4.09262	1.82244	-0.11724	-0.95344
A20	4.00515	1.96664	-0.01536	-1.12758	P12	4.42710	1.64695	-0.26212	-0.45730
A21	3.57976	2.17058	0.26658	-1.29250	P13	4.89880	1.72561	-0.54567	-0.44949
A22	3.99314	1.81913	-0.00698	-0.88798	P14	4.56775	1.73159	-0.37060	-0.62890
A23	4.45455	1.98125	-0.34740	-1.05677	P15	4.16981	1.81356	-0.16043	-0.86885
A24	4.24357	1.87927	-0.21674	-0.92476	P16	4.75815	1.83929	-0.48552	-0.72216
A25	3.64494	2.02115	0.18158	-1.12859					

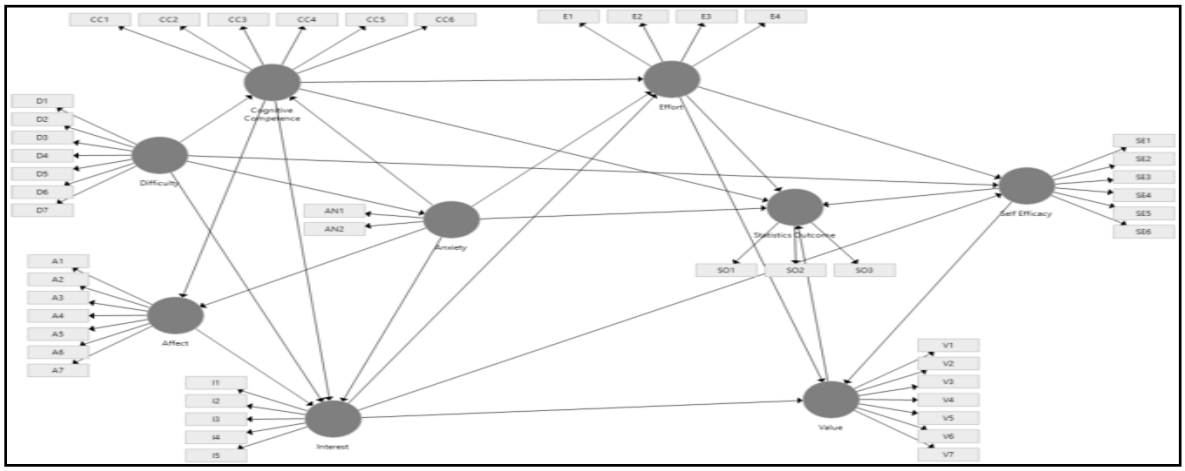
Structural equation modelling procedure: This section outlines the algorithm to be executed from the sample data to the final structural model. These steps give an account of the steps from model conceptualization to model identification, through to model modification and the final model. Jackson et al. (2009) suggest model modification only when they are theoretically plausible and parsimonious. SEM is an inherently a confirmatory technique, as a result, computing a structural model is based on theoretically conceptualised underlying *causal* or *path model*. Maximum likelihood estimation (MLE) method is widely used, and assumes underlying *multivariate normality*. CFA and SEM assumptions are applied and adhered to in developing the measurement models and later the structural model. In SEM, a *multivariate normal distribution* determines what parameter estimation method the researcher would use, and the extent to which the parameter estimates are trustworthy. These methods are further used when responding to the researcher's hypotheses and research questions as listed below:

H_1: *Affect has a positive relationship with Cognitive Competence.*
H_2: *Difficulty has a positive relationship with Cognitive Competence.*
H_3: *Value is predicted by Interest.*
H_4: *Affect has a positive relationship with Interest.*
H_5: *Cognitive Competence has a positive relationship with Interest.*
H_6: *Difficulty has a positive relationship with Interest*
H_7: *Interest has a positive relationship with Effort.*
H_8: *Statistics Anxiety has a relationship with Statistics Outcomes.*
H_9: *Statistics Anxiety has a relationship with Effort.*
H_{10}: *Statistics Anxiety has a relationship with Affect.*
H_{11}: *Statistics Anxiety has a relationship with Difficulty.*
H_{12}: *There is a relationship between Statistics Anxiety has a relationship with Interest.*
H_{13}: *Difficulty has a relationship with Self-efficacy.*
H_{14}: *Effort has a relationship with Self-efficacy.*
H_{15}: *Self-efficacy has a relationship with Interest.*
H_{16}: *Self-efficacy has a relationship with Value.*
H_{17}: *Effort has a positive relationship with Value.*
H_{18}: *Effort has a positive relationship with Cognitive Competence.*
H_{19}: *Self-Efficacy has a significant positive relationship with Statistics Outcomes.*
H_{20}: *Statistics Outcomes is predicted by Value.*
H_{21}: *Statistics Outcomes is predicted by Effort.*
H_{22}: *Statistics Outcomes has a positive relationship with Cognitive Competence.*
H_{23}: *Statistics Anxiety has a positive relationship with Cognitive Competence.*

Research questions:

Research Question 1: *Is there is a relationship between the perceptual and attitudinal constructs?*
Research Question 2: *Is there a relationship between students' attitudes and their self-efficacy?*
Research Question 3: *Does Statistics Anxiety have a negative effect on a students' Statistics Outcome?*

Figure 1: Modified Hypothesised Structural Model (adopted from Ghulami et al., 2014:12)



Model Specification: The SEM model is based on relevant theoretical framework outlined under theoretical framework section of this paper. The model is based on the hypothesized model (Figure 1), of which the variables are from a validated SATS-36 and MPSP questionnaires. Confirmatory factor analysis (CFA) ensures as per SATS-36 (Schau, 2003a) that each construct has three or more variables per construct (identified constructs). The exception to this condition is mentioned in Hair et al. (2010), that is, an unidentified construct maybe be seen in analysis involving large samples with many constructs. O'Rourke and Hatcher (2013) outlines the rules to be followed in specifying the model (see Saris et al., 2009).

Model Identification: A topic believed to be most often confusing and difficult in SEM is identification. According to (Suhr, 2006), a model is said to be identified if there exist numerical solutions for every parameter in the model. Estimation is only possible with identified models. A hypothesized model where it is possible to express parameters as functions of variance and covariance of the observed or manifest variables is said to be *identified.* To attain a solution, number of known parameters in the sample covariance matrix must be greater than or equal to the number of free parameters q. This is denoted as $\frac{p*(p+1)}{2}$where p is the number of measured variables as per sample covariance matrix, $q \leq p*$. A model is *just-identified* if$q = p*$, that is, a parameter can be estimated through only a single manipulation of the data. If the number of estimated parameters is greater than the unique variance and covariance, where $q > p*$, the model is *under-identified*. This implies, one or more unique estimations of free parameters are possible from the data. When a model is over-identified, $q < p*$, it implies that free parameters can be estimated in multiple ways from the sample data.

Parameter estimation: The sole aim of parameter estimation is to obtain numerical values for free (unknown) parameters through an estimation technique, as discussed in (Bollen, 1989) for a technical approach, and Ullman (2006) for an applied viewpoint. In SEM, MLE method is widely used. This method is adopted in this study as the sample parameter estimates are approximate in value to the population parameters and robust. The discrepancy function criterion for parameter estimation aims to optimize the difference between the population as estimated sample covariance estimates and the covariance matrix derived from the hypothesised model. The error variance of each latent variable and the parameter value associated with one of the paths from the latent variable to the indicator variable should be fixed at 1.0, suggests (O'Rourke and Hatcher, 2013). The disturbance is on the endogenous latent variable. According to Suhr (2006), the significance of the variable is set at the 0.05, and the value should exceed t ≥ 1.96 or 0.10 level of significance if t ≥ 2.56. Effect size or weight is the value of the path coefficient. Standardised coefficients ≤ 0.10 may indicate a small effect, values ± 0.30 a medium effect, and ≥ 0.50 a large effect.

Measurement Model Validity: The first stage of SEM is CFA, where a measurement model is estimated through the parameter estimation model and evaluated via the Cronbach's alpha threshold of α ≥ 0.70. This

includes *convergence, discriminant, construct and nomological validity.* Cronbach's alpha ≥ 0.70 are employed by the study to assess convergent reliability. Discriminant validity is defined as the extent to which constructs are distinct from one another (Hair et al., 2006); this includes a simple factor structure with virtually no cross-loadings. This is assessed through inter-factor correlations. Nomological validity is the degree to which a construct correlates or covariance with other construct with the structural model (Bagozzi, 1980). It is established when the correlations or covariance within the structural model makes contextual sense (Hair et al., 2006). If the initial or hypothesized model (CFA) fails, i.e. no clear factor structure, EFA is performed followed by iterative exploratory structural equation modelling (ESEM until the best model is selected using the model fit indices.

Model fit assessment: A model of best fit is recognized by looking at individual fit indices for each model during analysis. Several types of these indices have been distinguished by many authors in the last three decades (see Mulaik et al., 1989; Bentler, 1990; Tanaka, 1993; Byrne, 1998), among others. The ability of the hypothesized or *a priori* model to reproduce the covariance structure of variables of interest is assessed by *absolute fit indices* (McDonald and Ho, 2002). The other batch of indices concerned with the ability of the hypothesized model to account for the sample data relative to a restricted model which is less complex are called *comparative* (Miles and Shevlin, 2007) *or incremental fit indices.* The final batch selects or identifies better fit of a model by an increment of the number of estimated parameters. These are termed parsimonious fit indices. Steiger and Lind (1980) proposed the root mean squared error approximation (RMSEA), which measures the discrepancy between the fitted model and the inferenced covariance matrix of the population. RMSEA value falls within a certain specified confidence value. The model fit indices that are widely used presented in Appendix B, adapted from Hair et al. (2010) show the goodness-of-fit across different model situations. These were based on simulation research that considers model complexity, degrees of error in model specification for different sample sizes (Marsh et al., 2004).

4. Results

We run Confirmatory factor analysis on the proposed statistics attitudes-outcomes model (SA-OM) and SATS-36 structure. The results summarised in Table 4 are for the hypothesised and modified models. The usual cut-off criterion is used, and is set at absolute 0.3 for factor loadings as cited in (Howell et al., 2012). SAS 9.3 PROC FACTOR with PROMAX rotation resulted in PCF < 0.001; implying that the null hypothesis that the hypothesised model fits the sample data be rejected in favour of the alternative hypothesis that it does not. The null hypothesis asserts acceptable to good fit if $PCF > 0.80\ to\ 1.00$, respectively, but bad to unacceptable fit if $PCF < 0.80$. The results discussed here are with regard to the estimated model as discussed in previous sections.

Hypothesized model: The researcher used MLE to obtain all models in Table 4. Table 4 also presents model assessment indices obtained from the SAS 9.3. According to the output, the hypothesized model indices fall way below the acceptable levels. A χ^2 value < 0.0001 **(**significant) implies bad model fit. The model has an SRMR that is > 0.08, RMSEA is > 0.05 but less than 0.08 suggesting adequate fit, the probability of close fit (PCF) is < 0.0001 that is a sign of no fit at all. The other fit indices such as the GFI = 0.7040, AGFI = 0.6701, CFI = 0.6783 and BBNFI = 0.6145 are below the suggested acceptance value of 0.90. Owing to the discrepancies reported by the results with only one of the indices (RMSEA) suggesting good fit whilst the rest suggest otherwise. The study concluded that the hypothesised model does not fit the sample data. The next step was to run an exploratory factor analysis (EFA) to determine the factor structure of the sample data. A simple sample factor matrix calculated has eight of the forty-nine redundant loadings, that is, with loadings less than the cut-off value of |0, 3|. The researcher deleted all such loadings as a result. The study used significant constructs of EFA to fit a modified ESEM model. The results of the modified constructs were found to be acceptable (coefficients more than 0.7) except the "Difficulty' and "Value" constructs which were reported to be mediocre according to Cronbach and Shavelson (2004).

Table 3: Reliability Results

Construct According to SATS-36/MPSP	Initial Reliability values after CFA	Comment	Construct after EFA	Reliability values after EFA	Comment
Affect	0.6181	Questionable	Affect	0.8271	Very good
Cognitive Competence	0.4252	Unacceptable	Self-Efficacy	0.8647	Very good
Difficulty	0.5511	Poor	Interest	0.8709	Very good
Effort	0.7975	Good	Effort	0.7975	Good
Interest	0.6918	Questionable	Difficulty	0.6113	Questionable
Self-Efficacy	0.8647	Very good	Motivation	0.7614	Good
Value	0.4670	Unacceptable	Anxiety	0.8137	Very Good
Statistics Outcome	0.5145	Poor	Statistics Outcome	0.7971	Good
Anxiety	0.4978	Unacceptable	Value	0.6370	Questionable

Modified models: This step is a result of under-fitting or over-fitting the hypothesised structural model. The step involves either truncating or re-specifying the model, deleting cases or deleting variables that were marked during the preliminary data analysis process. Due to the unacceptable fit of the hypothesized model. We performed EFA to determine the factor structure of the sample data. We made improvements to the hypothesised model as reported in Table 4. All modified models (ESEM) (ML1-ML7) have a significant chi-square value < 0.0001, implying bad fit. The SRMR < 0.08 for acceptable to good fit, whilst the RMSEA ranges between 0.05 and 0.08 for good fit. The result $0.60 \leq PCF < 0.0001$ with a small probability implies bad to no fit, whereas $PCF = 0.6684$ or 66.84% suggests a better fit than the rest of the models. The fit indices range from 0.8400 to 0.8806, obtained from deletion of observations that contributed immensely to the overall negative impact of the kurtosis on data. From the results in Table 4, SRMR for all modified models are less than 0.10 suggesting that all these models have acceptable fit (Hu and Bentler, 1995). Moreover all the modified models have RMSE values within the ranges of adequate fit. On the contrary, all the models have unacceptable fit according to PCF, CFI, AGFI and PGFI statistics, i.e. according to all parsimony fit indices except the RMSE. The results also reveal that all incremental fit indexes but the BBNFI approve the modified models as acceptable since most of these indexes are almost equal to a cut-off point of 0.9. However, BBNNI disapprove the ML3 and ML5 models as being acceptable.

The overall best model is not clear from the results due to inconsistent modification indices across all competing models. Since all standardized linear equations for ML6 (see Appendix C) are statistically significant with $6.7275 \leq t \leq 25.2993$, this means all the indicators of this model are a real measure of the constructs in which they load. The standard errors of the paths equations range between $0.0164 \leq$ standard error ≤ 0.0526 for ML6. The standardized covariance among exogenous (Factors or Latent) variables represent covariance among constructs in ML6. These showed only two statistically insignificant of the model. The results (in Appendix D) suggest that there is no significant covariance ($t = -0.37519$) between Factor 1 (*Affect*) and Factor 5 (*Difficulty*) and ($t = 0.30096$) between Factor 4 (*Effort*) and Factor 7 (*Anxiety*). This makes ML6 the best candidate model due to fewer statistically insignificant linear equations between indicator and latent variables. These results suggest that when one's *affect* deteriorates, then statistics subject content becomes difficult. It also means that the more *effort* students put into dealing with the statistics content, the lesser the anxiety they experience.

Table 4: Model Fit Assessment under SEM

Index	Hypothesised model	Modified model ML1	ML2	ML3	ML4	ML5	ML6	ML7
Number of Variables	49	41	41	41	35	37	41	35
Number of Cases	583	583	583	583	583	583	448	547
Absolute Fit Indices								
χ^2	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
SRMR	0.11327	0.0569	0.0587	0.0673	0.0611	0.0708	0.0585	0.0569
GFI	0.7040	0.8574	0.8547	0.8400	0.8622	0.8475	0.8534	0.8589
Parsimony Fit Indices								
AGFI	0.6701	0.8303	0.8316	0.8171	0.8358	0.8207	0.8301	0.8250
PGFI	0.6579	0.7548	0.7744	0.7689	0.7650	0.7595	0.7733	0.7269
RMSEA	0.0714	0.0502	0.0518	0.0528	0.0553	0.0571	0.0491	0.0528
PCF	< 0.0001	0.4391	0.1438	0.0383	0.0040	< 0.0001	0.6684	0.0669
Incremental Fit Indices								
CFI	0.6783	0.8741	0.8710	0.8528	0.8728	0.8539	0.8792	0.8751
BBNFI	0.6145	0.8071	0.8062	07837	0.8161	0.7946	0.7927	0.8114
BBNNI	0.6557	0.8570	0.8576	0.8392	0.8566	0.8370	0.8667	0.8525
BBNNI-rho 1	0.5875	0.8755	0.8721	0.8540	0.8739	0.8552	0.8806	0.8770

Discussion of Findings: This section discusses the findings in relation to the objectives and the hypotheses. Primarily, this study applied the SEM to investigate the effect of students' perceptions and attitudes on their self-efficacy and statistics outcome. Exploratory and confirmatory factor analyses were applied to the sample data collected during the second semester of the 2015 academic year. Respondents were 538 students registered for first year Statistics modules at the university in South Africa. The findings of this study are intended to give guidance to instructors, policy makers and researchers in identifying variables (including somewhat redundant variables) that need to be developed further, monitored and require student-instructor attention. Moreover, the study has identified shortcomings of large data volumes with many observed variables.

5. Conclusion

Research Question 1: *Is there is a relationship between the perceptual and attitudinal constructs?*
To answer this question, the study considered the SA-OM by Ramirez *et al.* (2012) which has been deemed congruent to EVM and The Theory of Planned behaviour for selecting variables for use in the study. The study identified the relationships between students' attitudes, their statistics self-efficacy and statistics outcome. The construct validity results have shown the difference in factor structures between the SA-OM and SATS-36. From the twenty-three hypotheses tested, only fourteen were supported and were found to be statistically significant owing to the t-values obtained. Construct and convergent validity and reliability of the measures were also examined. According to theory and literature, all the constructs are related. These findings bring a new dimension to the students' attitudes research area, as far as South Africa is concerned.

Research Question 2: *Is there a relationship between students' attitudes and their self-efficacy?*
The results showed statistical significant relationships between all students' attitudinal indicators measuring their self-efficacy construct. The results confirmed relationship between current statistics self-efficacy and statistics outcome measures and this is consistent with Bandura's (1996) claim as cited in (Finney and Schraw, 2003). This study highlights the fact that students with high self-efficacy may see the relevance of the subject in the degree programme of their choice.

Research Question 3: *Does Statistics Anxiety have a negative effect on a students' Statistics Outcome?*
Regards to this question, it has been established according to the findings that there is virtually no effect of anxiety on statistics outcomes. This is in contradiction to the findings by Onwuegbuzie (2000; 2004), Pan and Tang (2005), Keeley et al. (2008), and Hamid and Sulaiman (2014) that statistics anxiety is a strong predictor of academic performance. It is important to note that a decrease in anxiety throughout a student's academic life has an impact in terms of the heightened perceived usefulness and statistics achievement.

Recommendations: Based on the findings of this study, the following recommendations should be considered.

Implications for Further Research: The current study was based on undergraduate students enrolled in different sections of statistics courses in a public university in South Africa. Therefore, the results do not make general conclusion to the target population of the study outside the country and possibly to the world or other universities in the country. It is suggested that further studies should examine structural relationships in a nation-wide context; so that, the hypothesised relationships can be further generalised by extending the current study to different student populations in developing countries. In addition, the authors suggested that further studies should make cross-cultural comparisons as also suggested by Mvududu's (2003). This may generate new insight into statistical pedagogy. The current study also suggests further studies to use direct measures, such as Mathematics and Statistics tests and quizzes, for assessing students' self-efficacy and statistics outcome. This is consistent with Arumugam's (2014) findings that mathematics achievement and self-efficacy both have a positive significant relationship with statistics outcomes.

Based on the findings we propose to the university to monitor students' attitudes continuously. The proposed relationships generated by the results were static rather than longitudinal. It is suggested that further research should expand on the current study by using a longitudinal design in which the data are collected prior to, during, and after taking statistics courses. For example, Eccles and her colleagues (Eccles and Wigfield, 2002; Wigfield and Eccles, 2000; 2002) suggested that individuals' performances and achievement choices influence their previous achievement-related experiences across time. We suggest further studies that will test their proposal to extend the findings of the current study. Although, the current study revealed that the hypothesized "Statistics Attitudes-Outcomes Model" did not fit well to the data, it does not mean that this model is the only best possible model. We further suggest methodological research to determine the effect of sample size, number of constructs, under-identification of constructs, free parameters and observed variables on the fit of the measurement and structural models. Further studies may also evaluate redundant variables of a valid construct; construct interactions and moderations to determine the gravity of their effect on the overall SEM performance.

We suggest that further research should investigate alternative models. The current study based the hypothesised and tested "Statistics Attitudes-Outcomes Model" on Eccles and colleagues' application of expectancy value theory to mathematics education (Eccles and Wigfield, 1995; 2002; Wigfield and Eccles, 2000). The study also highlighted imminent congruence between the Eccles' Expectancy-Value Framework and the SATS-36 and some MPSP constructs. The data used in this paper explained the adaptation of Eccles' Model to the statistics education context very well. Further studies could expand on the present findings by adapting "Statistics Attitudes-Outcomes Model" to different subject domains. Due to the lack-of-good fit of the model to the data, the study suggest further research be carried out to determine the effect of sample size, validity and reliability on the overall global model fit. This paper used ML and suggests that further research be done using real life data and different estimation methods such as, the weighted least squares (WLS), full information maximum likelihood (FIML), and/or asymptotic distribution free method (ADF).

Implications Practice of Statistics Education: This study has demonstrated that affective domain is important for explaining students' statistics outcomes. As a result, the university should give students' attitudes a high priority when designing and implementing statistics curricula. It is highly important to suggest that students' positive attitudes toward statistics should be among the main goals of the statistics education; and accordingly, a statistics curriculum should involve various instructional practices, which enhance students' positive attitudes toward statistics. The authors also suggest the evaluation of effectiveness

of the statistics curriculum by assessing students' attitudes toward Statistics as well as by assessing short term and long-term outcomes.

Statistics instructors in universities should enrol for training that will inform them about the importance of their students' attitudes. This also includes how to implement and evaluate the instruction in a way aimed at enhance students' positive attitudes. The study formulates suggestions for instructors to give statistics activities that are interesting, enjoyable and fun for students to participate. This would help students to have more interest and positive affect toward statistics (Lesser and Pearl, 2008). These may range from possible aptitude checks prior to students' registration, continuous remedial mathematics skills classes, and development of students' interest, worth or value, and appreciation of statistics by giving immediate feedback and have them provide solutions to real-life problems statistically in groups and give feedback as suggested by numerous researchers.

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Appendices

Appendix A: Items on the Statistics-Outcomes Model

Constructs	Labels
Affect	
Af_1	I like learning about statistics
Af_2	I feel insecure when I have to solve statistics problems
Af_3	I get frustrated with my statistics tests results
Af_4	I am under stress during statistics class

Af_5	I enjoy taking statistics courses
Af_6	I am scared by statistics
Af_7	I would deregister statistics anytime
Af_8	I feel anxious when taking a statistics test or examination*
Af_9	I feel anxious when interpreting statistical results to a friend or the lecturer*
CC_1	I have trouble understanding statistics because of the way I think
CC_2	I have no idea of what is going on in this statistics course
CC_3	I make a lot of mathematical errors in statistics
CC_4	I can understand most of the statistical ideas
CC_5	I understand equations related to statistics
CC_6	I find it difficult to understand statistical concepts
Value	
V_1	Statistics is not useful in my daily routine
V_2	Statistics is required in my professional training
V_3	Statistical skills will make me more employable
V_4	Statistics is not useful at the workplace
V_5	Statistical thinking is not applicable outside my career/profession
V_6	Use statistics in my everyday life
V_7	Statistics knowledge are rarely applied in daily life
V_8	I have no application for statistics in my future profession
V_9	Statistics is irrelevant in my life
Difficulty	
D_1	Statistics formulas are easy to understand
D_2	Statistics is a complicated subject
D_3	Statistics is a subject quickly learned by most people
D_4	Learning statistics requires a great deal of discipline
D_5	Statistics involves massive computations
D_6	Statistics is highly technical
D_7	Most people have to learn a new way of thinking to do statistics
I_1	I am interested in being able to communicate statistical information to others
I_2	I am interested in using statistics
I_3	I am interested in understanding statistical information
I_4	I am interested in learning statistics
I_5	I do not want to learn to like statistics*
Effort	
E_1	I plan to complete all of my statistics assignments
E_2	I plan to work hard in my statistics course
E_3	I plan to study hard for every statistics test
E_4	I plan to attend every statistics class session
Self-Efficacy	
SE_1	Can identify the scale of measurement for a variable
SE_2	Can identify if a distribution is skewed.
SE_3	Can select the correct statistical procedure to be used to answer a question
SE_4	Can communicate statistical results without any problem
SE_5	Can read a value from any statistical table.
SE_6	I am confident that I have mastered introductory statistics material up to this point in the present academic year
SO_1	If I could, I would choose to take another statistics module
SO_2	In the field in which I hope to be employed when I finish school, I will use statistics.
SO_3	As I complete the remainder of my degree program, I will often use statistics

** Added items*

Appendix B: Model Fit Indices

Category	Index name	Level of acceptance	Literature
Factor Loading	Standardized Regression Weight	weight 0.6	Hair *et al.* (2006)
Absolute Fit	Chisq	P > 0.05	Wheaton *et al.* (1977)
	RMSEA	RMSEA < 0.08	Steiger & Lind (1980), Steiger (1990), Browne & Crudeck (1993)
	GFI	GFI > 0.9	Jöreskog & Sorbom (1984)
Incremental Fit	AGFI	> 0.9	Tanaka & Huba (1985)
	CFI	> 0.9	Bentler (1990), Hu & Beltler (1999)
	TLI	> 0.9	Bentler & Bonett (1980)
	NFI	> 0.9	Bentler (1989)
Parsimonious fit	Chisq/df	Chisq/df < 5.0	Marsh & Hocevar (1985)

The (RMSEA) is said to be bounded below by zero. Steiger (1990) and Browne & Cudeck (1993) have defined "close fit" of a model, as a model with a RMSEA ≤ 0.05. RMSEA ≤ 0.05 can be considered as a *good* fit, values between $0.05 \leq \text{RMSEA} \leq 0.08$ as an *adequate* fit, and values between 0, 08 ≤ RMSEA ≤ 0, 10 as a *mediocre* fit, whereas RMSEA values > 0.10 are *not acceptable*. Although there is general consensus that RMSEA ≤ 0.05, for a good model, Hu & Bentler (1999) suggested an RMSEA ≤ 0, 06 as a cut-off criterion. As a rule of thumb SRMR ≤ 0.05 suggests a good fit (Hu & Bentler, 1995), whereas $values < 0.10$ may be interpreted as an *acceptable* model fit.

Appendix C: Standardized Results for Linear Equations

Variable	coefficient	Std error	t-value	Comment	Variable	coefficient	Std error	t-value	Comment
CC_1	0.5362	0.0379	14.1342	Significant	**Af_9**	0,7648	0,0337	22,6636	Significant
CC_2	0.6475	0.0320	20.2061	Significant	**I_1**	0,7537	0,0239	31,4826	Significant
CC_3	0.4564	0.0415	10.9853	Significant	**I_2**	0,8691	0,0167	51,8962	Significant
Af_6	0.6681	0.0309	21.6502	Significant	**I_3**	0,8330	0,0189	44,1490	Significant
Af_4	0,5610	0,0367	15,2800	Significant	**I_4**	0,6793	0,0287	23,7002	Significant
CC_6	0,5299	0,0382	13,8550	Significant	**Af_7**	0,5274	0,0433	12,1701	Significant
Af_3	0,5966	0,0349	17,1173	Significant	**V_8**	0,6294	0,0395	15,9152	Significant
D_2	0,5038	0,0395	12,7619	Significant	**V_9**	0,6457	0,0391	16,5356	Significant
V_1	0,4783	0,0406	11,7768	Significant	**E_1**	0,5148	0,0399	12,9151	Significant
Af_2	0,4151	0,0432	9,6088	Significant	**E_2**	0,8092	0,0256	31,6344	Significant
V_5	0,5275	0,0384	13,7518	Significant	**E_32**	0,7808	0,0267	29,1993	Significant
D_5	0,3538	0,0526	6,7275	Significant	**E_4**	0,6720	0,0320	21,0293	Significant
D_6	0,5323	0,0476	11,1807	Significant	**SE_6**	0,6503	0,0302	21,5317	Significant
D_7	0,4802	0,0490	9,7912	Significant	**SE_1**	0,6552	0,0299	21,9071	Significant
D_4	0,6636	0,0454	14,6238	Significant	**SE_2**	0,6818	0,0283	24,0979	Significant
Af_1	0,7010	0,0296	23,6453	Significant	**SE-3**	0,8221	0,0191	43,0380	Significant
CC_5	0,6137	0,0345	17,7929	Significant	**SE_4**	0,8633	0,0164	52,5067	Significant
Af_5	0,7068	0,0293	24,1063	Significant	**SE_5**	0,6950	0,0275	25,2793	Significant
CC_4	0,6710	0,0313	21,4123	Significant	**SO_2**	0,7484	0,0275	25,3920	Significant
V_6	0,4699	0,0414	11,3434	Significant	**SO_3**	0,8560	0,0270	31,6876	Significant
Af_8	0,8693	0,0333	26,1266	Significant					

Appendix D: Standardized Results for Covariance among Exogenous Variables

Exogenous Variable 1	Exogenous Variable 2	Parameter Estimate	Standard Error	t _Value	Comment	Exogenous Variable 1	Exogenous Variable 2	Parameter Estimate	Standard Error	t _Value	Comment
Affect	Self-Efficacy	-0.20701	0.05301	-3.90498	Significant	Interest	Value	-0.33100	0.05837	-5.67055	Significant
Affect	Interest	-0.28469	0.05154	-5.52348	Significant	Effort	Difficulty	0.34002	0.06149	5.52941	Significant
Affect	Effort	-0.15200	0.05623	-2.70350	Significant	Effort	Motivation	0.38563	0.05205	7.40845	Significant
Affect	Difficulty	-0.02477	0.06602	-0.37519	Insignificant	Effort	Anxiety	0.01734	0.05763	0.30096	Significant
Affect	Motivation	-0.30883	0.05425	-5.69303	Significant	Effort	Statistics Outcome	0.30765	0.05408	5.68826	Significant
Affect	Anxiety	0.52659	0.04540	11.59950	Significant	Effort	Value	-0.15947	0.06424	-2.48246	Significant
Affect	Statistics Outcome	-0.18992	0.05647	-3.36335	Significant	Difficulty	Motivation	0.39952	0.06128	6.52015	Significant
Affect	Value	0.75588	0.04213	17.94070	Significant	Difficulty	Anxiety	0.29999	0.06288	4.77123	Significant
Self-Efficacy	Interest	0.39005	0.04618	8.44621	Significant	Difficulty	Statistics Outcome	0.21628	0.06530	3.31236	Significant
Self-Efficacy	Effort	0.28480	0.05144	5.53686	Significant	Difficulty	Value	-0.27545	0.07239	-3.80516	Significant
Self-Efficacy	Difficulty	0.26388	0.06070	4.34710	Significant	Motivation	Anxiety	-0.18274	0.05752	-3.17709	Significant
Self-Efficacy	Motivation	0.61556	0.03914	15.72836	Significant	Motivation	Statistics Outcome	0.68678	0.03947	17.39864	Significant
Self-Efficacy	Anxiety	-0.19892	0.05359	-3.71172	Significant	Motivation	Value	-0.32667	0.06234	-5.24014	Significant
Self-Efficacy	Statistics Outcome	0.56988	0.04161	13.69490	Significant	Anxiety	Statistics Outcome	-0.23162	0.05616	-4.12452	Significant
Self-Efficacy	Value	-0.13276	0.06196	-2.14271	Significant	Anxiety	Value	0.30971	0.06160	5.02774	Significant
Interest	Effort	0.44839	0.04623	9.70013	Significant	Statistics Outcome	Value	-0.26464	0.06334	-4.17829	Significant
Interest	Difficulty	0.27775	0.06075	4.57224	Significant	Interest	Value	-0.33100	0.05837	-5.67055	Significant
Interest	Motivation	0.67335	0.03616	18.62111	Significant	Effort	Difficulty	0.34002	0.06149	5.52941	Significant
Interest	Anxiety	-0.16939	0.05438	-3.11493	Significant	Effort	Motivation	0.38563	0.05205	7.40845	Significant
Interest	Statistics Outcome	0.59010	0.04094	14.41213	Significant	Effort	Anxiety	0.01734	0.05763	0.30096	Insignificant

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Multivariate Dynamic Co-integration and Causality Analysis between Inflation and its Determinants

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Abstract: This paper investigates the impacts of money supply, government expenditure, velocity, industry value addition and economic growth on inflation of Bangladesh using time series data from 1978-2014. The ADF test results suggest that the variables are of I(1). It is found that there exist five co-integration equations. The outcome of the Granger Causality test suggests the short-run unidirectional causality running from industrial value addition to money supply, from inflation, money supply, velocity, industrial value addition and economic growth to government spending. Bidirectional causality has been found between economic growth and industrial value addition. Finally, short-run and long-run effects of money supply, government spending, velocity, industry value addition and economic growth on inflation are estimated. It is found that the speed of adjustment for short-run to approach to the long-run equilibrium level is significant at any significance level. It has been found that it will take about 1.25 years for a complete convergence process to approach its equilibrium. Therefore, in case of any shock to the inflation equation, the speed of adjustment is significantly faster. It has also been found that the long-run effects of money supply and velocity have positive significant effects while the economic growth has significant negative effect on inflation in Bangladesh economy. It has been found that the long-run effects of money supply and velocity are more than short-run effects meaning that over the time more money supply and velocity increase the more and more inflation in Bangladesh but economic growth decreases the inflation.

Keywords: *ADF Test, Co-integration, Bound Test, Granger Causality, Short-Run and Long-Run Effects, Money Supply, Government Spending, Velocity, Industry Value Addition, and Bangladesh Economy*

1. Introduction

Attaining sustainable economic growth is a key purpose of every country of emerging economy. Bangladesh despite having a steady economic growth rate over a long tenure is still struggling to maintain that growth level and increase it in the long run. A major problem to keep steady economic growth rate is that many factors either separately or collectively affect economic growth. Inflation rate and economic growth rate is the dominant subject of macroeconomic policy in any country apart from money supply growth, velocity growth, government expenditure growth, and industry value addition growth. Over the long-time period, it has been a debatable issue that actually what type of relationship exists between inflation rate and economic growth rate including the causality relationship between inflation and economic growth. The predicting power of inflation rate for economic growth rate and vice versa has been controversial also. The rate of inflation is affected by the money supply growth rate, velocity growth rate, government expenditure growth rate, and industry value addition growth rate. Over time increases in money supply causes increases in the prices, in other words, the inflation, by increasing expenditures (consumption, government, and investment). It is also notable that velocity growth rate causes inflation rate to go up. The argument between government expenditure growth rate and inflation rate is still continuing. The argument had placed on whether or not the growing public expenditure has the likelihood to persuade inflation. Some researchers are of the acceptance that swelling public expenditure boosts inflation; others are of the view that inflationary force causes the growth rate of government expenditures (Ezirim, Muoghalu and Elike, 2008).

Another area of interest might be to investigate the relationship between inflation rate and industry value addition growth rate. Like economic growth rate it is apparently assumed that industry value addition growth rate is negatively related with the inflation rate. To figure out the relationship between inflation and economic growth, different studies have found the mixed results(Sidrauski (1967), Fischer (1993) and Mallick and Chowdhury (2001), Barro (1997)).Thus considering the inflationary rate in Bangladesh economy, this raises to an important question on the effectiveness of money supply on inflation including other important macro-economic variables namely: government expenditure, velocity, industry value addition and

economic growth both in short-run and long-run. Therefore, to find the answer of this type of question, this paper investigates the cointegrating and causal relationships between money supply, government spending, velocity, industry value addition, economic growth and inflation. In this paper, another attempt has been made to find the long-run and short-run determinants of inflation in Bangladesh economy using time serried data from 1978-2014. All the variables are expressed in growth rate except inflation. This paper surely helps the policy makers to formulate appropriate and effective economic policies for decision making. The paper is organized as follows: Section II presents a review of empirical literature, Section III discusses the data sources and some descriptive statistics, Section IV discusses econometric methodology with their findings, and Section V discusses concluding remarks and policy implications.

2. Literature Review

A bulk of empirical studies has been conducted at the relation between inflation and its determinants. Most empirical studies provide mixed evidence of effectiveness of the determinants of inflation. As for example, Sidrauski (1967) has found no relationship between inflation and economic growth, Fisher (1993) has found negative relationship between inflation and economic growth, and Mallick and Chowdhury (2001) have found positive relationship between inflation and economic growth. It is also found that inflation is the determinant of economic growth (Barro, 1997). Wang (2008) has depicted that economic growth positively relates to inflation with above three quarters' lag. Mohammad et al. (2009) have revealed that in the long run public expenditure and inflation are negatively associated with economic growth while broad money positively affects economic growth. Patra and Sahu (2012) have found that there is adverse relation between inflation and variations in money supply in Bangladesh, Nepal and Pakistan but favorable relation in Nepal and Sri Lanka. Bozkurt (2014) investigated the relationship among money, inflation and growth in Turkey by using co-integration test. Based on the findings, money supply and velocity of money is a main determinant of inflation in the long run in Turkey.

Two key debatable issues are the causality relationship between inflation and economic growth including other determinants of inflation and the predicting power of inflation for economic growth rate and vice versa. Regarding causality analysis between inflation and economic growth including other determinants of inflation a large number of empirical studies have been conducted also the results are very mixed. See for example Paul, Kearney and Chowdhury (1997) have found no causality relationship between inflation and economic growth in 40% of the countries; bidirectional causality in about 20% of countries and a unidirectional (either inflation to economic growth or vice versa) relationship in the rest of the countries. Gokal and Hanif (2004) have drawn that granger causality runs one way from growth to inflation but not from inflation to growth meaning that it is unidirectional. Mubarik (2005) has investigated the causal relationship between inflation and economic growth where the test result has suggested that the causality runs from inflation to economic growth but not vice versa. Erbaykal and Okuyan (2008) have scrutinized the causal relationship between inflation and economic growth in the framework of the causality test and their findings have denoted that there is no causal relationship from economic growth to inflation where as there is a causality relationship from inflation to economic growth. Datta and Mukhopadhyay (2011) have found that causality remains between inflation and economic growth in the short run and direction of causality is from inflation to economic growth but in the long run economic growth causes inflation. Ayo et al. (2012) have examined the causal association between economic growth, government expenditures, and inflation rate in Nigeria over the period 1970 to 2010. They have found the existence of bi-directional causal relationship between government expenditures and economic growth both in the short run and in the long run as well. It was also exposed that in the short run the Granger Causality runs from economic growth and government expenditure to inflation rate while no response from inflation rate was perceived. Ojarikre and Ezie (2015) have found not statistically noticeable relation between government expenditure growth and inflation in Nigeria.

The existing literatures expose that as a result of the application of different econometric methodologies and different sample sizes the empirical results are very mixed and even vary for the same country and same panel and are not conclusive to present policy formulation that can be applied over the countries. Thus, this study tries to overcome the shortcoming of literatures related with the linkages between inflation and money supply including other determinants of inflation namely: economic growth, velocity, industry value addition,

and government expenditure using time series data from 1978-2014 in Bangladesh economy. Also, this empirical study will be important to formulate policy recommendation from the point of view of inflation, money supply, government spending, velocity, economic growth in Bangladesh economy. We believe that this study will be a decent participation into literatures with respect to Bangladesh economy by using the Vector Error Correction Model (VECM). Therefore, the main purpose is to examine the co-integration and causality analysis between money supply, government spending, velocity, industry value addition, economic growth and inflation. Another important attempt has also been made to estimate the long-run and short-run effects of money supply, government spending, velocity, industry value addition, and economic growth on inflation using modern econometric techniques.

3. Methodology

This study uses annual time series data from 1978-2014of Bangladesh in order to investigate the co-integration and causality relationships between money supply, government spending, velocity, industry value addition, economic growth and inflation and also to find the long-run and short-run effects of money supply, government spending, velocity, industry value addition, and economic growth on inflation using modern econometric techniques. The variables in the model are money supply growth rate (MSGR), government spending growth rate (GEXGR), velocity growth rate (VEGR), industry value addition growth rate (INVGR), GDP growth rate (GDPGR), and inflation rate (INFR).[3]For simplicity, money supply is the amount of money circulating in the economy at a definite period of time, government expenditure is the general government final consumption expenditure and expressed as percentage of nominal GDP, velocity is the ratio between nominal GDP and money supply at a time period, the value added of an industry usually referred to GDP of the industry is the contribution of a private industry or government sector to total GDP. It encapsulates employee compensation, taxes on production and imports less subsidies, and gross operating surplus. It is also referred as the simple differential (change) between an industry's aggregate output and the cost of its in-between inputs, and by inflation we mean a sustainable increase in price level. In the Keynesian sense, true inflation begins when the elasticity of supply of output in response to rise in money supply dropped to zero or when output is not responsive to alteration in money supply. The data sources are UNCTAD Statistics and Word Bank development indicator. Some descriptive statistics namely: mean, standard deviation (Std. Dev.) coefficient of variation (CV), range, skewness and kurtosis of these variables are given below in Table (1).

Table 1: Descriptive Statistics

Descriptive Statistics	MSGR	GEXGR	VEGR	INVGR	GDPGR	INFR
Mean	17.7625076	4.849655	-3.820266	7.0544200	4.8800405	7.802080
SD	6.4598163	0.533913	5.450329	3.6236064	1.4515471	5.165006
CV	36.3677046	11.0092986	-142.6689	51.3664681	29.744570	66.20037
MIN	8.2397785	4.0306333	-20.48060	-5.1736420	0.8191419	0.1555182
MAX	42.1755790	6.2837686	15.05194	21.1330198	7.2339437	25.618885
Range	33.9358005	2.2531353	35.53254	26.3066618	6.4148018	25.4633668
Skewness	1.759006	0.493349	0.641879	0.535497	-0.616171	1.738881
Kurtosis	4.697213	0.596073	5.790763	8.666050	0.511426	3.513893

From the reported values in Table (1), it is found that the variability is highest for the variable velocity growth rate followed by inflation rate, industrial value addition growth rate, money supply growth rate, economic growth rate and government expenditure growth rate. The results also support that the variables MSGR, GEXGR, VEGR, INVGR and INFR are positively skewed while the variable GDPGR is negatively skewed.

[3] Inflation Rate = $\left[\frac{\text{Cirrent Year GDP Deflator}}{\text{Previous Year GDP Deflator}}-1\right]\times 100$; GDP Deflator = $\frac{\text{Nominal GDP}}{\text{Real GDP}}\times 100$; Velocity Growth Rate = $\left[\frac{\text{Current Year Velocity}}{\text{Previous Year Velocity}}-1\right]\times 100$

3

Velocity = $\frac{\text{Nominal GDP}}{\text{Money Supply}}$; Money Supply Growth Rate = $\left[\frac{\text{Cirrent Year Money Supply}}{\text{Previous Year Money Supply}}-1\right]\times 100$; GDP Growth Rate = $\left[\frac{\text{Cirrent Year Real GDP}}{\text{Previous Year Real GDP}}-1\right]\times 100$

The results also support that the curves of the variable MSGR, VEGR, INVAGR and INFR are leptokurtic and the curves of the variables GEXGR and GDPGR are platykurtic.

4. Results

The dynamic co-integration and causal relationships between money supply, government spending, velocity, industry value addition, economic growth and inflation are examined using modern econometrics techniques. The long-run impacts of money supply, government expenditure, velocity growth rate, industry value addition rate and economic growth on inflation are examined by estimating the following model:

$$INFR_t = \beta_0 + \beta_1 MSGR_t + \beta_2 GEXGR_t + \beta_3 VEGR_t + \beta_4 INVGR_t + \beta_5 GDPGR_t + \varepsilon_t \quad (1)$$

Here, $\beta_1, \beta_2, \beta_3, \beta_4$ and β_5 represent the long-run effects of money supply, government expenditure, velocity growth rate, industry value addition and economic growth on inflation.

To investigate, at first we have tested whether each variable contains unit root problem. Next the co-integration relationships between the variables are investigated if unit root problem is found for each variable. The existence of long run relationship supports to investigate the causal relationship between the variables using VEC model. At the final step, the Generalized Method of Moments (GMM) is applied to evaluate the short-run and the long-run relationships between the variables.

Unit Root Tests: If variables under investigation contain stochastic trend, the typical techniques of regression analysis can result in derailed conclusion (Stock and Watson (1988), Granger and Newbold (1974)). More specifically if the dependent variable and no less than one independent variable hold stochastic trend and there is no co-integration between them, the regression results will be counterfeit (Phillips (1986) and Granger and Newbold (1974)). To spot the appropriate specification of the model, an examination of the existence of stochastic trend in the variables is required. To investigate whether each variable contains stochastic trend or not, the ADF test has been applied. The estimation procedure has been outlined below:

$$\Delta X_t = \alpha_0 + \alpha_1 t + \theta X_{t-1} + \sum_{i=1}^{m} \phi_i \Delta X_{t-i} + u_t \quad (2)$$

Here X_t is the series under examination, Δ stands for first difference and the lagged difference terms on the right-hand side of the equations are used to correct auto-correlation problem of disturbance terms. The AIC and SBIC criteria have been used to select the optimal lagged differences. The stochastic variable X is said to be a I(1) process if θ = 0.If it is found that X is I(1) process then the second order unit root problem needs to be investigated considering the following the following equation:

$$\Delta^2 X_t = \beta_0 + \lambda \Delta X_{t-1} + \sum_{i=1}^{m} \gamma_i \Delta^2 X_{t-i} + \varepsilon_t \quad (3)$$

Table 2: ADF Test Results

	ADF Test [Level Form] Case1				**ADF Test [Level Form] Case 2**			
	Test	**Lags**	**AIC**	**SBIC**	**Test**	**Lags**	**AIC**	**SBIC**
INFR	-2.9329	1	2.7407	2.9166	-3.0112*	1	2.7011	2.8331
MSGR	-3.1169	1	3.6604	3.8826	-3.1639*	1	3.5570	3.6890
GEXGR	-2.1839	3	-3.4648	-3.1955	-2.1800	2	-2.3925	-2.2147
VEGR	-3.6794*	1	3.3985	3.6207	-3.714**	1	3.3354	3.4674
INVGR	-3.2116	2	1.2487	1.4709	-2.49953	4	1.0487	1.3208
GDPGR	-4.7421**	3	-0.4760	-0.2066	-0.35314	5	-0.2047	0.1159
	ADF Test [Differenced Form] Case 1				ADF Test [Differenced Form] Case 2			
	Test	Lags	AIC	SBIC	Test	Lags	AIC	SBIC
ΔINFR	-4.91975**	1	3.0187	3.1965	- 4.892**	1	2.9831	3.1164
ΔMSGR	-5.84979**	1	3.7779	3.9557	-5.953**	1	3.7219	3.8553
ΔGEXGR	-5.46669**	2	-3.3610	-3.1365	-5.861**	2	-3.4150	-3.2355

ΔVEGR	-5.63967**	1	3.7387	3.9164	-5.713**	1	3.6853	-3.8186
ΔINVGR	-10.1045**	1	1.4958	1.6736	-10.58**	1	1.4395	1.5728
ΔGDPGR	-5.13295**	4	-.2088	0.1118	-5.195**	4	-0.2620	0.0128

Case 1: Constant and trend terms are included in the model; Case2: Only Constant term is included in the mode

Here, Δ^2 stands as the second-difference operator. X_t is referred to be of I (2), If $\lambda = 0$. Let, P denotes times that X_t requires to be differenced in order to culminate at the stationary level. Thus, X_t is referred to be of I(P). As the estimated θ does not possess the typical asymptotic distribution, the table values given by MacKinnon (1991) are used. These values are more precise than the those of Fuller (1976) and Dickey & Fuller (1979). The ADF test results are outlined below in Table (2). In differenced form the trend value will be reduced from the equation but here we estimated the equation for both with and without trend value in the differenced form equation. From the test results it can be concluded that all the variables are integrated of order 1.

Test of Co-integration: Bounds test method for co-integration, the Auto-Regressive Distributed lag (ARDL) of Pesaran et al. (2001), has become more widespread. Compared to other single equation co-integration procedure, It possesses certain econometric advantages- (i) relationship between explanatory variables and random error terms and failure to test hypotheses on the projected coefficients in the long-run related to the Engle-Granger approach have been evaded; (ii) long-run and short-run parameters of the model are projected at the same time; (iii) to test the presence of long-run relationship between the variables in level forms, it is suitable even though the time series variables are completely I(0), I(1) or partially integrated; (iv) small sample properties of this method are superior to those of multivariate analysis. To implement the bounds test for co-integration, the following unrestricted regression equations have been constructed:

$$\Delta INFR_t = \alpha_0 + \sum_{i=1}^{p}\alpha_{1i}\Delta INFR_{t-i} + \sum_{i=0}^{p}\alpha_{2i}\Delta MSGR_{t-i} + \sum_{i=0}^{p}\alpha_{3i}\Delta GEXGR_{t-i} + \sum_{i=0}^{p}\alpha_{4i}\Delta VEGR_{t-i} + \sum_{i=0}^{p}\alpha_{5i}\Delta INVGR_{t-i} + \sum_{i=0}^{p}\alpha_{6i}\Delta GDPGR_{t-i}$$
$$+\alpha_7 INFR_{t-1} + \alpha_8 MSGR_{t-1} + \alpha_9 GEXGR_{t-1} + \alpha_{10} VEGR_{t-1} + \alpha_{11} INVGR_{t-1} + \alpha_{12} GDPGR_{t-1} + \varepsilon_{1t} \quad (4)$$

$$\Delta MSGR_t = \beta_0 + \sum_{i=0}^{p}\beta_{1i}\Delta INFR_{t-i} + \sum_{i=1}^{p}\beta_{2i}\Delta MSGR_{t-i} + \sum_{i=0}^{p}\beta_{3i}\Delta GEXGR_{t-i} + \sum_{i=0}^{p}\beta_{4i}\Delta VEGR_{t-i} + \sum_{i=0}^{p}\beta_{5i}\Delta INVGR_{t-i} + \sum_{i=0}^{p}\beta_{6i}\Delta GDPGR_{t-i}$$
$$+\beta_7 INFR_{t-1} + \beta_8 MSGR_{t-1} + \beta_9 GEXGR_{t-1} + \beta_{10} VEGR_{t-1} + \beta_{11} INVGR_{t-1} + \beta_{12} GDPGR_{t-1} + \varepsilon_{2t} \quad (5)$$

$$\Delta GEXGR_t = \delta_0 + \sum_{i=0}^{p}\delta_{1i}\Delta INFR_{t-i} + \sum_{i=0}^{p}\delta_{2i}\Delta MSGR_{t-i} + \sum_{i=1}^{p}\delta_{3i}\Delta GEXGR_{t-i} + \sum_{i=0}^{p}\delta_{4i}\Delta VEGR_{t-i} + \sum_{i=0}^{p}\delta_{5i}\Delta INVGR_{t-i} + \sum_{i=0}^{p}\delta_{6i}\Delta GDPGR_{t-i}$$
$$+\delta_7 INFR_{t-1} + \delta_8 MSGR_{t-1} + \delta_9 GEXGR_{t-1} + \delta_{10} VEGR_{t-1} + \delta_{11} INVGR_{t-1} + \delta_{12} GDPGR_{t-1} + \varepsilon_{3t} \quad (6)$$

$$\Delta VEGR_t = \theta_0 + \sum_{i=0}^{p}\theta_{1i}\Delta INFR_{t-i} + \sum_{i=0}^{p}\theta_{2i}\Delta MSGR_{t-i} + \sum_{i=0}^{p}\theta_{3i}\Delta GOEXGR_{t-i} + \sum_{i=1}^{p}\theta_{4i}\Delta VEGR_{t-i} + \sum_{i=0}^{p}\theta_{5i}\Delta INVAGR_{t-i} + \sum_{i=0}^{p}\theta_{6i}\Delta GDPGR_{t-i}$$
$$+\theta_7 INFR_{t-1} + \theta_8 MSGR_{t-1} + \theta_9 GEXGR_{t-1} + \theta_{10} VEGR_{t-1} + \theta_{11} INVGR_{t-1} + \theta_{12} GDPGR_{t-1} + \varepsilon_{4t} \quad (7)$$

$$\Delta INVGR_t = \gamma_0 + \sum_{i=0}^{p}\gamma_{1i}\Delta INFR_{t-i} + \sum_{i=0}^{p}\gamma_{2i}\Delta MSGR_{t-i} + \sum_{i=0}^{p}\gamma_{3i}\Delta GEXGR_{t-i} + \sum_{i=0}^{p}\gamma_{4i}\Delta VEGR_{t-i} + \sum_{i=1}^{p}\gamma_{5i}\Delta INVGR_{t-i} + \sum_{i=0}^{p}\gamma_{6i}\Delta GDPGR_{t-i}$$
$$+\gamma_7 INFR_{t-1} + \gamma_8 MSGR_{t-1} + \gamma_9 GEXGR_{t-1} + \gamma_{10} VEGR_{t-1} + \gamma_{11} INVGR_{t-1} + \gamma_{12} GDPGR_{t-1} + \varepsilon_{5t} \quad (8)$$

$$\Delta GDPGR_t = \phi_0 + \sum_{i=0}^{p}\phi_{1i}\Delta INFR_{t-i} + \sum_{i=0}^{p}\phi_{2i}\Delta MSGR_{t-i} + \sum_{i=0}^{p}\phi_{3i}\Delta GEXGR_{t-i} + \sum_{i=0}^{p}\phi_{4i}\Delta VEGR_{t-i} + \sum_{i=0}^{p}\phi_{5i}\Delta INVGR_{t-i} + \sum_{i=1}^{p}\phi_{6i}\Delta GDPGR_{t-i}$$
$$+\phi_7 INFR_{t-1} + \phi_8 MSGR_{t-1} + \phi_9 GEXGR_{t-1} + \phi_{10} VEGR_{t-1} + \phi_{11} INVGR_{t-1} + \phi_{12} GDPGR_{t-1} + \varepsilon_{6t} \quad (9)$$

Pesaran et al. (2001) have suggested that the joint F-test of the lagged level variables in equations (4), (5), (6), (7) (8) and (9) are used to test the existence of long-run equilibrium relationship. In equation (4) the variables are said to be co-integrated if $H_0: \alpha_7 = \alpha_8 = \ldots\ldots\ldots = \alpha_{12} = 0$ is rejected by using the F-test. The similar procedure would be applied for the remaining equations ((5), (6), (7), (8), (9)) for checking the existence of

the long-run equilibrium relationships.

The F-statistic's asymptotic distribution initially derived and tabularized by Pesaran et al. (2001) and modified down the line by Narayan and Russel (2005) to accommodate small sample sizes is not standard under null hypothesis. Between the two sets of critical values- one is suitable given I(0) of all the series and the other is suitable given I(1) of all the series. Pesaran et al. (2001) have suggested a irrefutable inference can be drawn concerning co-integration without getting informed whether the series are I(0) or I(1), if the calculated value of F-statistic falls above the upper critical value. Therefore, the variables are said to be co-integrated hence presence of long-run relationship between the variables. In another way, if the computed F-statistic lies beneath the lower critical value, co-integration does not exist whether the series are I(0) or I(1). We have to draw inconclusive inference if the calculated F-statistic lies in between lower and upper critical values unless becoming informed whether the series are I(0) or I(1). The estimated results are outlined below in Table (3):

Table 3: The Results of F-Test for co-integration Relationship

Functional Forms	F-test Value	Lags	AIC	SBIC
f(INFR|MSGR, GEXGR, VEGR, INVGR, GDPGR)	4.4267*	1	-1.5372	-0.7373
f(MSGR|INFR, GEXGR, VEGR, INVGR, GDPGR)	14.016**	1	-0.9592	-0.3815
f(GEXGR|INFR, MSGR, VEGR, INVGR, GDPGR)	8.5080**	1	-3.0890	-2.5113
f(VEGR|INFR, MSGR, GEXGR, INVGR, GDPGR)	3.8873	2	-1.5344	-0.7345
f(INVGR|INFR, MSGR, GEXGR, VEGR, GDPGR)	25.333**	1	0.9561	1.5338
f(GDPGR|INFR, MSGR, GEXGR, VEGR, INVGR)	4.8917*	1	-1.5452	-0.9675

*Significant at 5% level, and **Significant at 1% level. The critical value ranges of F-statistic are 4.614-5.966, 3.272-4.306, and 2.676-3.586 at 1%, 5% and 10% level of significance respectively. See Narayan and Russel (2005).

From the above results (Table-3), it can be said that there exist five co-integration relationships. The first, second, third, fifth and sixth long-run relationships refer to the situation where INFR, MSGR, GEXGR, INVGR and GDPGR are the dependent variables respectively. The result is inconclusive where VEGR is dependent variable at 5% level of significance but it is significant at 10% level.

Granger Causality Test: The results of the co-integration test cannot say the direction of causality between the variables. Therefore, causal relationship between the variables has been investigated by using the Engle and Granger (1987) causality F-test on the first differenced form of variables by including an Error Correction Term (ECM) to capture the long-run relationship. The augmented form of the Granger Causality Test involving the Error Correction Term has been developed in a multivariate P^{th} order Vector Error Correction Model which is given below:

$$\begin{bmatrix} \Delta INFR_t \\ \Delta MSGR_t \\ \Delta GEXGR_t \\ \Delta VEGR_t \\ \Delta INVGR_t \\ \Delta GDPGR_t \end{bmatrix} = \begin{bmatrix} C_1 \\ C_2 \\ C_3 \\ C_4 \\ C_5 \\ C_6 \end{bmatrix} + \sum_{i=1}^{p} \begin{bmatrix} \beta_{11i} & \beta_{12i} & \beta_{13i} & \beta_{14i} & \beta_{15i} & \beta_{16i} \\ \beta_{21i} & \beta_{22i} & \beta_{23i} & \beta_{24i} & \beta_{25i} & \beta_{26i} \\ \beta_{31i} & \beta_{32i} & \beta_{33i} & \beta_{34i} & \beta_{35i} & \beta_{36i} \\ \beta_{41i} & \beta_{42i} & \beta_{43i} & \beta_{44i} & \beta_{45i} & \beta_{46i} \\ \beta_{51i} & \beta_{52i} & \beta_{53i} & \beta_{54i} & \beta_{55i} & \beta_{56i} \\ \beta_{61i} & \beta_{62i} & \beta_{63i} & \beta_{64i} & \beta_{65i} & \beta_{66i} \end{bmatrix} \begin{bmatrix} \Delta INFR_{t-i} \\ \Delta MSGR_{t-i} \\ \Delta GEXGR_{t-i} \\ \Delta VEGR_{t-i} \\ \Delta INVGR_{t-i} \\ \Delta GDPGR_{t-i} \end{bmatrix} + \begin{bmatrix} \lambda_1 \\ \lambda_2 \\ \lambda_3 \\ \lambda_4 \\ \lambda_5 \\ \lambda_6 \end{bmatrix} ECM_{t-1} + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \\ \varepsilon_{3t} \\ \varepsilon_{4t} \\ \varepsilon_{5t} \\ \varepsilon_{6t} \end{bmatrix} \quad (10)$$

In equation (10) the term Δ denotes first difference, the C's, β's and λ's are the parameters to be projected. ECM_{t-1} represents the one period lagged error-term derived from the co-integration vector and ε's are independently and identically distributed with mean zero and constant variance. Each variable is treated as endogenous. Here, to analyze the direction of any causal relationship between the variables, F test has been applied. In equation (10) the variable money supply does not granger cause the inflation in the short run if all

the coefficients- β_{12i}'s $\forall$ i are zero. Similarly, the inflation does not Granger cause money supply in the short run if and only if all the coefficients β_{21i}'s $\forall$ i are not significantly different from zero. The long-run causal relationships between the variables in equation (10) would be studied by testing the significance of the coefficients of ECM's. The short run and long run granger causality test results are reported below in Table (4).

The findings in Table (4) indicates that short-run unidirectional causality running from industrial value addition to money supply, from inflation, money supply, velocity, industrial value addition and economic growth to government spending, Bidirectional causality is found between economic growth and industrial value addition. It has been found that the error correction term is statistically significant at 10% level when government spending is endogenous variable.

Table 4: Granger F-Test Results

	ΔINFR	ΔMSGR	ΔGEXGR	ΔVEGR	ΔINVGR	ΔGDPGR	ECM
ΔINFR		1.3191 (0.2608)	0.0544 (0.8173)	0.8181 (0.3737)	0.7937 (0.3808)	1.6405 (0.2111)	-0.5391 (0.5942)
ΔMSGR	0.2125 (0.6485)		0.0050 (0.9444)	0.1766 (0.6776)	5.3273* (0.0289)	1.0750 (0.3090)	0.0734 (0.9419)
ΔGEXGR	5.0382* (0.0332)	5.7253* (0.0239)		4.7819* (0.0376)	13.7792* (0.0009)	6.2264* (0.0190)	-1.7634** (0.0891)
ΔVEGR	0.0342 (0.8547)	0.0464 (0.8311)	0.0034 (0.9539)		1.3773 (0.2508)	0.0069 (0.9344)	0.5926 (0.5584)
ΔINVGR	1.8062 (0.1902)	1.6845 (0.2053)	1.3651 (0.2529)	1.9269 (0.1764)		5.0840* (0.0324)	-1.3243 (0.1965)
ΔGDPGR	0.7472 (0.3950)	0.3426 (0.5632)	1.2144 (0.2801)	0.6455 (0.4287)	38.2822* (0.0000)		-0.0402 (0.9682)

The figures in the parenthesis are the p-values. * and** indicate test statistics that are significant at 5% and 10% level respectively.

Short-Run and Long-Run Effects: The following co-integration equation is projected to study the long-run sensitivity between the variables:

$$\mathrm{INFR}_t = \delta_0 + \sum_{i=1}^{p}\delta_{1i}\mathrm{INFR}_{t-i} + \sum_{i=0}^{p}\delta_{2i}\mathrm{MSGR}_{t-i} + \sum_{i=0}^{p}\delta_{3i}\mathrm{GEXGR}_{t-i} + \sum_{i=0}^{p}\delta_{4i}\mathrm{VEGR}_{t-i} + \sum_{i=0}^{p}\delta_{5i}\mathrm{INVGR}_{t-i} + + \sum_{i=0}^{p}\delta_{6i}\mathrm{GDPGR}_{t-i} + \omega_t \quad (11)$$

As lag order selection in ARDL model is highly sensitive, the selection has been accomplished by using two criteria- AIC and SBIC. The short run association among the variables can be calculated considering the following error correction model:

$$\Delta\mathrm{INFR}_t = \psi_0 + \sum_{i=1}^{p}\psi_{1i}\Delta\mathrm{INFR}_{t-i} + \sum_{i=0}^{p}\psi_{2i}\Delta\mathrm{MSGR}_{t-i} + \sum_{i=0}^{p}\psi_{3i}\Delta\mathrm{GEXGR}_{t-i} + \sum_{i=0}^{p}\psi_{4i}\Delta\mathrm{VEGR}_{t-i} + \sum_{i=0}^{p}\psi_{5i}\Delta\mathrm{INVGR}_{t-i}$$
$$+ \sum_{i=0}^{p}\psi_{6i}\Delta\mathrm{GDPGR}_{t-i} + \lambda\mathrm{ECM}_{t-1} + \mathrm{u}_t \quad (12)$$

Here, ECM_{t-1} is the error correction term which is obtained from the following estimated co-integration equation:

$$\mathrm{ECM}_t = \mathrm{INFR}_t - \delta_0 - \sum_{i=1}^{p}\delta_{1i}\mathrm{INFR}_{t-i} - \sum_{i=0}^{p}\delta_{2i}\mathrm{MSGR}_{t-i} - \sum_{i=0}^{p}\delta_{3i}\mathrm{GEXGR}_{t-i} - \sum_{i=0}^{p}\delta_{4i}\mathrm{VEGR}_{t-i} - \sum_{i=0}^{p}\delta_{5i}\mathrm{INVAGR}_{t-i} - \sum_{i=0}^{p}\delta_{6i}\mathrm{GDPGR}_{t-i} \quad (13)$$

Here λ denotes the speed of adjustment for short-run to reach in the long-run equilibrium. The estimated long-run and also the short –run effects of money supply, government spending, velocity, industry value addition, and economic growth on inflation are given below in Tables (5) and (6):

Table 5: Long-Run Coefficients

Dependent Variable INFR	Coefficient	t-Test	Probability
Constant	0.8583	0.8592	0.3973
MSGR	0.8254*	31.64723	0.0000
GEXGR	0.2197	1.1125	0.2751
VEGR	1.0816*	34.3508	0.0000
INVGR	-0.0320	-0.87721	0.3876
GDPGR	-0.9523*	-10.34161	0.0000

*Significant at any significance level

From estimated results in Table (6), it has been found that money supply, velocity, and industrial value addition have significant positive effects on inflation while government spending and economic growth have negative effects but the effect of economic growth is statistically significant in the short-run. The error correction mechanism (ECM) is employed to check the short-run relationship among the variables.
The speed of adjustment for short run to reach in the long-run equilibrium is statistically significant which is suggested by the estimated coefficient of ECM (-1). The error correction term -0.80 with the expected sign suggests that whether inflation is above or below its equilibrium level, it adjusts by almost 80% within the first year. The full convergence process to its equilibrium level takes about1.25 years. Thus, the speed of adjustment is significantly faster in the case of any shock to the inflation equation. From the estimated results in Table (5) it has also been found that in the long-run the variables money supply, government spending, and velocity have positive effects on inflation but the effects of money supply and velocity are statistically significant while the variables industrial value addition and economic growth have negative effects but the effect of the variable economic growth is statistically significant. Since the long-run effects of the variable money supply and velocity are higher than short-run effects meaning that over time higher money supply and velocity will increase more inflation in Bangladesh economy. But in respect of other variables economic growth, and industrial value addition, the inflation will be declined over time.

Table 6: Short-Run Coefficients

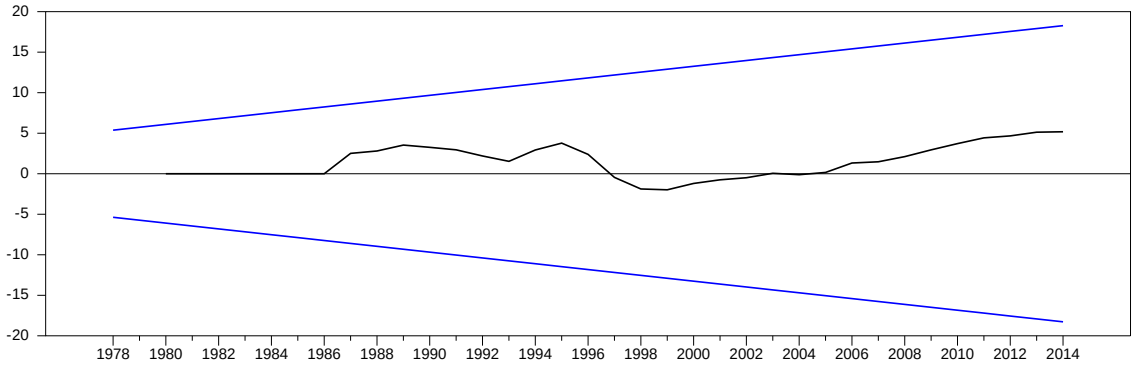
Dependent Variable ΔINFR	Coefficient	t-Test	Probability
Constant	-0.0425	-0.53331	0.5992
ΔMSGR	0.7278*	23.9723	0.0000
ΔGEXGR	-0.5883	1.5172	0.1435
ΔVEGR	1.0505*	42.2932	0.0000
ΔINVGR	0.1213*	2.4032	0.0251
ΔGDPGR	-1.0636	8.4883	0.0000
ECM{-1}	-0.80086*	-3.37518	0.0027
Sensitivity Analysis	Diagnostic Test Results		Probability
LM Test for Autocorrelation	1.6927		0.1932
LM test for Heteroscedasticity	5.5892		0.3483
ARCH Test	0.0124		0.9112
JB Test for Normality of Errors	1.2083		0.5466

*Significant at any significance level

Sensitivity Analysis: The diagnostic tests results indicate there is no problem of serial correlation, autoregressive conditional heteroscedasticity, and heteroscedasticity. The test results also support that there is no problem of normality of random error terms in equation (12).

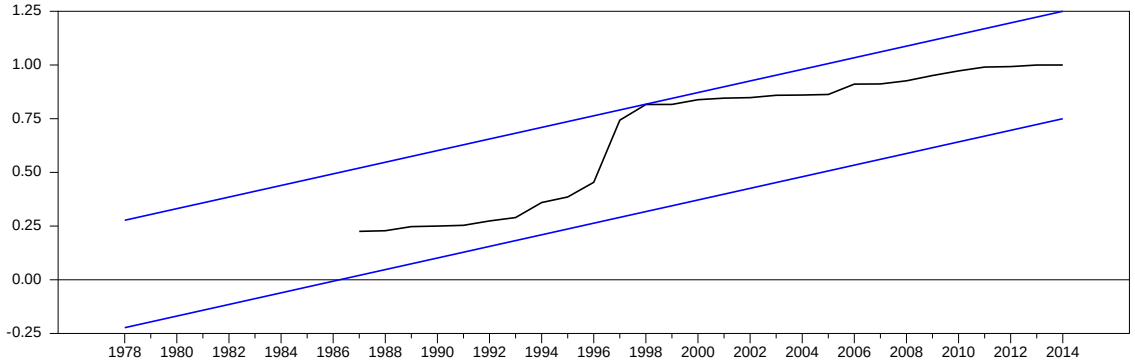
CUSUM and CUSUMSQ Tests: The cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) tests suggested by Borensztein et al. (1998) have been used to investigate the stability of the long-run parameters together with the short-run movements for the equations. The associated graphs of these tests are depicted below in Figures 1 and 2:

Figure 1: Plot of Cumulative Sum of Recursive Residuals



The straight lines represent critical bounds at 5% significance level

Figure 2: Plot of Cumulative Sum of Squares of Recursive Residuals



The straight lines represent critical bounds at 5% significance level.

It has been observed from figures (1) and (2) that all coefficients in the error correction model are stable. Thus, the favored INFR model can be used for formulation of appropriate policies and taking effective decisions so that the effect of policy changes by taking into account the explanatory variables of INFR equation will not cause major alteration in the level of INFR as the parameters in this equation appear to follow a stable pattern during the period of estimation.

5. Conclusion and Policy Implications

This paper has tried to investigate empirically the dynamic co-integration and causal relationships between money supply, government expenditure, velocity, industry value addition, economic growth and inflation using time series data from 1978-2014. The investigation procedure involves five steps. At the first step, the ADF test is applied to investigate the unit root problem. The test results support [see Table 2] that the variables money supply, government expenditure, velocity, industry value addition, economic growth and inflation are of I(1). Since all the variables are of I(1), there is a co-integration relationship among the variables. Therefore, at the second step, the Bounds Testing method for co-integration has been used in order to examine the presence of long-run equilibrium relationship between inflation and its determinants. The test results support [see Table 3] that there exist five co-integration equations. This implies that the explanatory variables money supply, government expenditure, velocity, industry value addition, and economic growth are merging with inflation to achieve their steady-state equilibrium in the long-run, even though nonconformities may occur in the short-run. The co-integration relationship indicates the existence of causal relationships between variables but it cannot say anything about the direction of causal relationship between variables. To detect the causal relationship between variables, the Engle and Granger test has been applied. Thus, at the third step Granger F-test is applied to VECM to investigate the causal relationships between different pairs of variables. The Granger causality test results support [see Table 4] the short-run unidirectional causality from industrial value addition to money supply, from inflation, money supply, velocity, industrial value addition

and economic growth to government spending, Bidirectional causality is found between economic growth and industrial value addition. Finally, short-run and long-run effects of money supply, government spending, velocity, industry value addition and economic growth on inflation are estimated. At the fourth step, GMM is applied to estimate the long-run and short-run effects of money supply, government expenditure, velocity, industry value addition, economic growth on inflation in Bangladesh economy. From estimated results [see Table 6] it has been found that money supply, velocity, and industrial value addition have significant positive effects on inflation while government spending and economic growth have negative effects but the effect of economic growth is statistically significant in the short-run.

The Error Correction Mechanism (ECM) is employed to check the short-run relationship among the variables. The test results suggest that the coefficient of ECM (-1) is statistically significant at 5% level of significance meaning that speed of adjustment for short-run to reach in the long-run equilibrium is significant. The error correction term is statistically significant and its magnitude is quite higher indicating a faster return to equilibrium in the case of disequilibrium. The error correction term is -0.80 with the expected sign, suggesting that when inflation is above or below its equilibrium level, it adjusts by almost 80% within the first year. The full convergence process to its equilibrium level takes about 1.25 years. Thus, the speed of adjustment is significantly faster in the case of any shock to the inflation equation. Also from the estimated results [see Table 5] it has also been found that in the long-run the variables money supply, government spending, and velocity have positive effects on inflation but the effects of money supply and velocity are statistically significant while the variables industrial value addition and economic growth have negative effects but the effect of economic growth is statistically significant. Since the long-run effects of money supply and velocity are higher than short-run effects meaning that over time higher money supply and velocity will increase more inflation in Bangladesh economy. But in respect of other variables namely economic growth, and industrial value addition, the inflation will be declined over time. The diagnostic tests results [see Table 6] indicate that there is no evidence of serial correlation, and there is no problem of heteroscedasticity. Also, the autoregressive conditional heteroscedasticity is not present in the short-run model. The test results also support that there is no problem of normality of random error terms in equation (12). The CUSUM and CUSUMSQ tests results suggest that all the coefficients in the error correction model are stable. Therefore, the preferred INFR model can be used for formulation of appropriate policies and proper decision making purposes so that the impact of policy changes considering the explanatory variables of INFR equation will not cause major distortion in the level of INFR, as the parameters in this equation seem to follow a stable pattern during the estimation period. Since it has been found that in the long-run as well as in the short run, the variables money supply and velocity have significant positive effects on inflation also in the long run the variable government spending has positive effect on inflation, therefore it is very essential to apply some sort of mechanisms to control money supply, velocity and government spending which may control the inflation in Bangladesh economy. It has also been found that the variable economic growth has significant negative impact on inflation both in the sort-run and in the long-run. Thus, the government has to formulate policies in favor of the liberal trade policies for FDI, and trade openness, policies for domestic investment, research and development expenditure, to reduce dependency on foreign aid which plays significant role for economic development in Bangladesh as a result inflation will be reduced over time in Bangladesh economy.

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