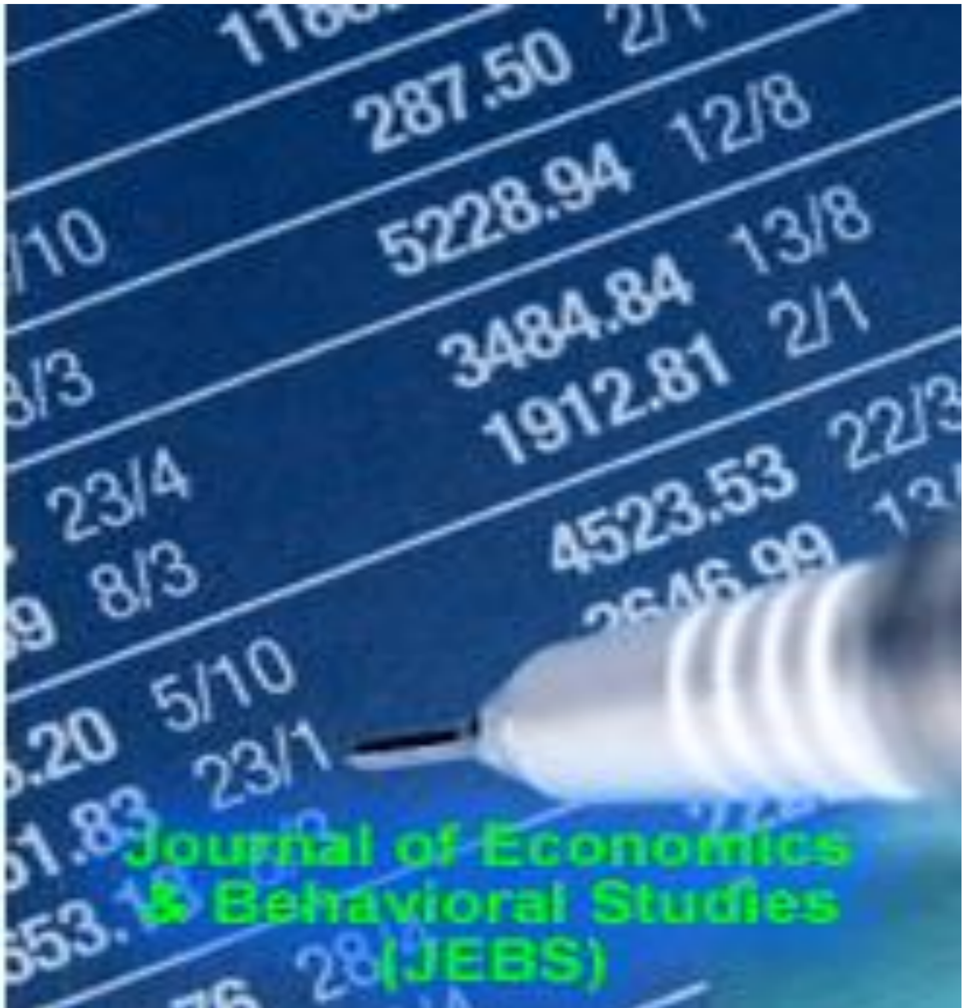

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Editorial

Journal of Economics 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 conceptualization of economics and behavioral developments but comprise interdisciplinary and multi-facet approaches to economics and behavioral theories and practices as well as general transformations in the fields. 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 Nigeria, South Africa, Zimbabwe, Tunisia and USA. Training, organisational commitment and turnover intention, relationship amongst customer satisfaction, loyalty, demographic and tripographic attributes, examining the impact of antecedents of firm performance, financial inclusion and the trade-growth nexus, impact of environmental turbulence on product innovation, use of modern technology for rural industrialization, determinants of social entrepreneurial intentions, manager-employee relationships, relationship between health outcomes and household socio-economics characteristics, investor sentiment and crash risk in safe havens, organisational commitment and job satisfaction, measuring literacy gap in the world, performance management, nexus between macro-prudential banking regulation, interest rate spread and monetary policy, relationship between occupational stress and organizational citizenship behavior, modelling financial contagion and use of RONA/WACC as a proxy for investment quality 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.

Prof. Sisira R N Colombage, Ph. D.
Editor In Chief

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PAPERS

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Training, Organisational Commitment and Turnover Intention among Nigerian Civil Servants

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Abstract: This article reports on a study that focused on analysing the impact of training and development (T&D) on organizational commitment and turnover intention among Nigerian public workers. The main objective of the study was to determine whether T&D influences employees' commitment to the organization and the intention to stay or to leave the organization. Using a survey questionnaire and personal interview, data was collected from 297 civil servants and 8 departmental heads in Nigeria. Statistical analytical methods such as regression analysis were used to test the two hypotheses formulated, which were focused on determining the relationship between T&D and turnover intention; as well as T&D and the perceived impacts on employees' commitment. The result suggests a positive correlation between T&D and organizational commitment and turnover intention. The result implies that investing in human capital is a critical strategic initiative for contemporary organizations because the ability of any organization to compete successfully is a function of the ability to retain their skilful and committed employees. The study contributes to knowledge in the field, as not much research has been done on the effects of T&D on public servants in Nigeria. Most of the studies have been carried out in Europe, America, Asia and largely in the manufacturing and service sectors.

Keywords: *Competence, development, learning, management, Nigeria*

1. Introduction

Competing in the 21st century requires that organizations identify and retain the best talent. The retention of employees is a significant factor in determining the returns to employers providing employee training and development (T&D) and remains an integral part of the pursuit of improved growth and productivity (Panagiotakopoulos, 2011; Rabey, 2007). The need to invest in the current labour force is more urgent than ever before, as the ability to compete is dependent on knowledge development, how well that knowledge is managed and utilised and recognizing the unique competencies needed to survive in the 21st century. Therefore, the goal of T&D should be to enhance constant knowledge acquisition and innovation (Kumpikaitė & Čiarnienė, 2008) Organisations should create a situation where knowledge is shared in order to promote their strategic plan (Hatala & Fleming, 2007). It has been widely acknowledged that training helps to develop employees' skills, enhance the quality of their work, improve productivity and build employee loyalty to an organization (Akinyele, 2007). Inadequate initial training, poor orientation to the job and lack of on-going training is considered among the major factors contributing to high staff turnover (Blenkner & Rose, 2006). Well-trained employees are more competent and relish the opportunity to take control of their jobs.

These positive outcomes lead to more committed employees who are likely to remain in the organization (Brum, 2007; Owoyemi, Oyelere, Elegbede, & Gbajumo-Sheriff, 2011). Reinforcement theory suggests that behaviour is controlled by its consequences (Jonck, 2001). An employee's decision to be more committed to the organization after training could stem from the experience of employees being promoted or rewarded for improving their performance after their training encounter. The empirical evidence has clearly demonstrated the importance of T&D to employees' organizational commitment; therefore, there is a need for organizations to engage in T&D as a means to enhance such commitment. There has been a dearth in the literature concerning the influence of T&D interventions on organisational commitment, and turnover intentions among the civil servants in Nigeria. Therefore, there is a need for public organisations to engage in T&D as a means of enhancing employees' psychological attachment to the organisational objectives. The current study provides an empirical assessment of the influence of T&D interventions on organisational commitment and employees' turnover intentions at the Nigerian Railway Corporation. The next section provides a background of human capital development in Nigeria. The rationale is to improve operational efficiency in the ministries and raise public officials' standard of performance to the maximum level of proficiency.

Background to the Study: Training in Nigeria has been considered an expense that is only justified when it is necessary, rather than an investment in the future and the success of government and businesses (Oluwatobi, & Ogunrinola, 2011). Some organisations half-heartedly embrace T&D, implementing it only on a very small scale when deemed necessary (Akanji & Bankole, 2007). Furthermore, many employees view training sessions as an opportunity for free time to make extra money. Some employers send their employees for training with the wrong motive of claiming subsidies from the Industrial Training Fund (ITF) (Akanji & Bankole, 2007). Others do so merely to fulfil the government's policy on T&D. It has been shown that "when organizations view public policy as just a financing opportunity, they do not get any returns from training" (Dumas, Hanchane & Royaume du Maroc, 2010, p. 585). There is an urgent need to cultivate multidimensional skills in the workforce (Ogundele, Hassan, & Ibraheem, 2011) and to design programmes that accommodate the training needs of the public service in collaboration with public service departments (Balogun, 2011). The government embarked on T&D in order to establish a civil service that is results-oriented.

2. Literature Review

Off-the-Job T&D: There are key methods of training employees; these include off-the-job and on-the-job training methods. Off-the-job training is a type of training that takes place outside the actual work environment of an organization (Venkatesh, 2009). It is usually executed in a setting particularly chosen for it; an environment other than the normal work environment, which may or may not be near the actual work environment (Alipour, Salehi, & Sahnavas, 2009). While on-the-job training develops best practices for a particular job, off-the-job training aims to improve basic competencies that are more general in nature (Agarwal, 2012). Off-the-job training is usually provided by professionals and academicians at a designated location. This technique includes lectures, seminars, workshops, simulation, programmed instruction, teleconferences, discussions and so forth. Off-the-job training offers participating employees the opportunity to meet new people in the same field, which gives them the opportunity to compare issues and discover new ideas. It concentrates on learning rather than performance (Chand, 2008) and conveys theoretical knowledge and behaviour (Kunasz, n.d.). It is suitable for training white-collar or managerial-level employees. The disadvantage of off-the-job training is that it has the potential to disrupt work activities (Awe, 2010). Moreover, it is more expensive than on-the-job training, as it requires an environment other than the workplace and experts are employed to conduct the training. However, off-the-job training allows trainees the opportunity to pay more attention to the material taught. Learning outside the work environment allows trainees to think and reflect, and broadens their skills more than on-the-job training. Trainees are able to ask questions and meet others in their field of work.

On-the-Job T&D: On-the-job T&D methods enable trainees to acquire knowledge and experience over a period while they perform their regular duties (Rothwell & Kazans, 2004; Taiwo, 2007). This type of training targets mainly employees who do not possess the academic qualifications needed for their jobs. On-the-job training is highly effective, as it involves activities that enable employees to learn new roles and responsibilities (Forsyth, 2001). This provides them with the skills and knowledge to meet the demands of customers and other stakeholders (Pulley, 2006). Shadare, (2010) posits that, on-the-job training enables an employee to become accustomed to the instruments and materials that he/she will use in the workplace. This technique involves job directives given by an employee's manager or senior colleague who is talented and experienced (Adiele, 2009). Supervisors are presumed to know the modus operandi of good training and have the understanding and skills to produce a productive employee. It is most useful when employees are promoted and take up a new position, when productivity decreases, when there is a need for employees to specialise in a particular skill, or when there is a need to improve on the skills and knowledge to deal with the demands of the job (Alani & Isola, 2009; Pettinger, 2002). On-the-job T&D strengthens manager-subordinate relationships, has a positive motivational effect and above all improves performance (Forsyth, 2001). It offers managers the opportunity to take practical steps within a particular job context to attend to a specific need of the organisation prior to resorting to external methods, if necessary (Poro, 2009). However, on-the-job training is not without its limitations. Managers and experienced employees may be preoccupied with other managerial concerns and may not have time to train (Awe, 2010). Furthermore, the trainees may adapt the approaches advocated by the trainer, which may result in them adopting undesirable habits, with adverse consequences. Well-trained employees are more competent and relish the opportunity to take control of their jobs.

Organisational Commitment: Organisational commitment has three parts: affective, continuance and normative commitment. Affective commitment is described as a passionate affection for, empathy with and participation in the achievement of organisational objectives (Ugboro, 2006). Affective commitment occurs in an organisation when employees' values are aligned with those of the organisation. In such a case, it becomes normal for the employees to be emotionally attached to the organisation (Ugboro, 2006). Continuance commitment, on the other hand, is described as employees' keenness to continuing working in an organisation because they have served it for many years; they stand to lose should they leave the organisation (Ugboro, 2006). Normative commitment can be described as a broad loyalty and feeling of duty to the organisation that results from an individual's belief that this is the moral and right thing to do. Employees believe that they ought to be committed to the organisation that provides them with their daily bread, even if this requires personal sacrifices (Ugboro, 2006).

These positive outcomes lead to more committed employees who are likely to remain in the organisation (Brum, 2007; Owoyemi et al., 2011). Reinforcement theory suggests that behaviour is controlled by its consequences (Jonck, 2001); an employee's decision to be more committed to the organisation after training could stem from the past experience of employees being promoted or rewarded for improving their performance after their training encounter. Further, employees who view T&D as an incentive have a more binding commitment to achieving organisational goals and commit themselves to the organisation where they have career prospects (Brum, 2007; Klein, 2001; Silberman & Philips, 2006; Smith, 2011). Young employees view T&D as very important, because they want the opportunity to grow and advance their careers. They equally want to make a tangible contribution to the growth of the organisation for which they work. Shadare (2010, p.1214) ascertained that improving workers' competences enhances productivity as well as commitment and motivation. Highly committed employees are more likely to be motivated and involved in activities that achieve organisational objectives. This offsets many direct and indirect costs that an organisation may bear as a result of employees leaving (Brum, 2007; Kuvaas & Dysvik, 2009; Newman et al., 2011).

The points made in the above paragraph support the social exchange theory, which posits that individuals are likely to support issues from which they stand to gain. Employees are happy to work for and identify with an organisation that is prepared to invest money in their career advancement (Shelton, 2001). Companies with highly committed employees can be 200% more productive than low-commitment companies (Flanagan, 2010). The same study found that 80% of employees who received T&D felt strongly committed to their organisation. Bulut and Culha (2010) found that training positively affected employee commitment, while Sunyoung and Hea (2008) demonstrated that human resource development programmes such as on-the-job training, mentoring, coaching and self-development significantly influence organisational commitment. Abbas and Yagoob (2009) observed that a leadership development programme influences employees' attitude, commitment and trust in the organisation. Natarajan and Dinesh's (2011) study of 220 employees in India indicated that workers trained at a younger age who, stay longer in training show more commitment than other employees. The empirical evidence has clearly demonstrated the importance of T&D to employees' organisational commitment; therefore, there is a need for organisations to engage in T&D as a means to enhance such commitment. This study hypothesised as follows.

$H1_0$: There is no significant relationship between training/development and perceived organisational commitment.

$H1_1$: There is a significant relationship between training/development and perceived organisational commitk2ment.

Turnover Intention: Gone are the days when employees dedicated their entire working life to one organisation because of profound interest or a lack of better alternatives. T&D has the potential to decrease staff turnover and turnover intentions in both the short and the long term and encourages the desire to contribute to the collective effort to achieve the overall goals of the organisation (Adenigi, 2010; Nickels, 2009). Every employee wants to remain in an organisation where he/she will be more competent and remain valuable and competitive (Nduchiadi, 2011; Young, 2007). T&D lays a solid foundation for new employees and serves as a source of reinforcement for the old ones. Shelton (2001) notes that the rate of employee retention is higher in organisations that, are keen to train their staff members. Furthermore, it has been shown that employees who receive fewer training opportunities than they are entitled to contemplate leaving the organisation (Dysvik & Kuvaas, 2008). This is due to the fact that T&D helps an organisation to develop a culture where everyone feels valued and is prepared to work together for a common purpose. The results of the study by Pajo, Coetzer and Guenole (2010) suggest that employees who participate in T&D are less likely to quit the organisation. However, the impact of T&D on intention to quit is not straight-forward. In some instances, training has led to employees moving from one organisation to another. This is commonly experienced when the training is self-sponsored and/or when the skills acquired are of a more general nature.

Sieben (2005) suggests that specific training reduces employees' intention to look for another job, but also points out that self-sponsored training undertaken during employees' own time induces intention to leave. Furthermore, firm-financed training and firm-specific training minimise the rate of employees leaving the organisation (Hansson, 2008). This supports the standard human capital theory, which argues that investment in firm-specific skills reduces employee turnover, while investment in general skills could result in increased turnover or turnover intention (Flaherty, 2007). The transferability of general skills increases employees' mobility, because such skills are more attractive to other organisations, particularly those in the same sector (Nickels, 2009; Shelton, 2001). General training induces job mobility in the sense that the skills learnt can be useful to many organisations and can raise workers' productivity, and employability. On the other hand, specific skills bind the worker to the firm and serve as a barrier to exiting, as workers will lose a portion of the return on such skills if they move to another organisation (Jones, Jones, Latreille, & Sloane, 2008). Contrary to human capital theory, Koster, De Grip and Fouarge (2009) suggest that investment in general training does not induce the intention to leave the organisation. The effect of general training on intention to quit may be reduced by the positive effect of job satisfaction experienced by employees after the training intervention based on the foregoing assumption that this study seeks to conduct an empirical analysis by hypothesising as follows.

$H2_0$: There is no significant relationship between training/development and perceived employees' turnover intention.

$H2_1$: There is a significant relationship between training/development and perceived employees' turnover intention.

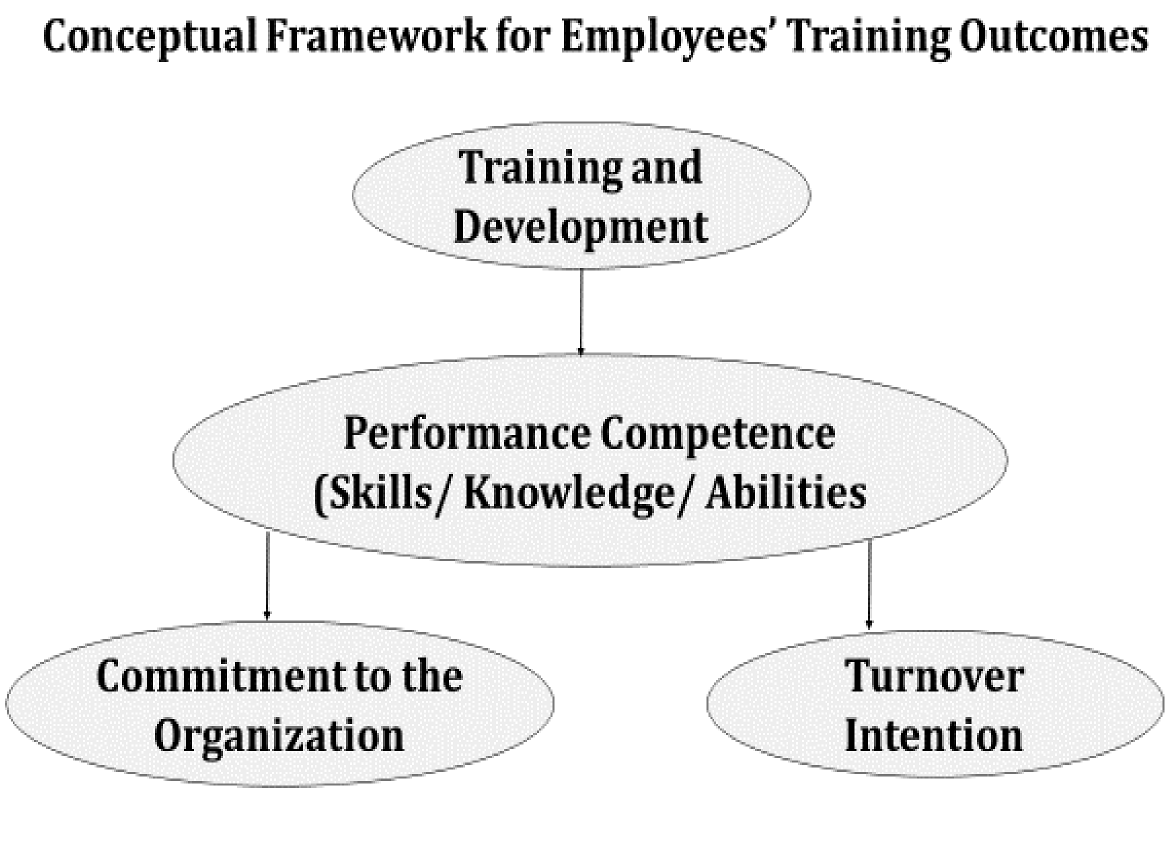
Theoretical Background on Training and Development: Social exchange theory which was developed by Hormans (1958) posits that people enter into a relationship with the aim of making the best use of the benefits they will obtain (Cook & Rice, 2003; Devan, 2006; Dysvik & Kuvaas, 2008). The relationship between social exchange theory and T&D and employees' performance can be explained in this manner. Employers provide training as an opportunity for employees to develop and be productive. Employees, on the other hand, endeavour to work hard on a given task and other related duties as a way of reciprocating the gesture from management, leading to improved performance (Dysvik & Kuvaas, 2008). Therefore, a give-and-take formal obligation between employer and employees is moderated by the expectations of both parties in relation to the training offered by the employer. Providing training for employees may hence be regarded as a social exchange between the workers and management. This process starts when an organisation signals its readiness to accommodate its employees' interests by offering training opportunities.

Employees reciprocate by showing positive attitudinal and behavioural responses that assist the company in fulfilling its business objectives (Newman, Thanacoody, & Hui, 2011). Numerous studies have shown that employees regard a T&D opportunity as a sign that their organisation desires to enter into a social exchange with them (Newman et al., 2011). Equally important is Becker's classic study in 1993 (Marimuthu, Arokiasamy, & Ismail, 2009), which explained how investment in a person's education and training is similar to a business investment in equipment. He also considers education and training to be the most important investment in human capital. He indicated that human capital emphasises the knowledge, expertise and skills of an individual accumulated through education and training. The fundamental assumption of this theory lies in the belief that education and training bring about increased learning.

This enhances individual and organisational performance as well as business earnings (Marimuthu, Arokiasamy, & Ismail 2009). Furthermore, according to Newman et al. (2011), individuals increase their organizational commitment if the organisation meets their expectations in relation to the fulfilment of their various individual needs. Employers want employees to be more productive and loyal, while employees, on the other hand, want a better career, job security and self-development (Bulut & Culha, 2010). Social exchange theory does not directly demonstrate that T&D will improve organizational performance per se. Rather, it suggests that T&D can serve an incentive or motivating factor for employees to become more committed to the organization in exchange for future rewards. Therefore, more committed employees are more productive. Nonetheless, this theory does help to establish the link between T&D and improved organizational performance. This assumption is further explained by the reinforcement theory developed by Skinner in 1957 and enhanced by Klapper in 1960, which posits that behaviour is controlled by its consequences (Ellis & Johnson, 2014; Heath, 2007). That is to say, individuals will repeat behaviour that seems to produce good results or pleasant consequences, for instance a wage increase or promotion (Jonck, 2001).

Employees expect that attending T&D programmes will enable them to acquire skills. They believe that these new skills will enable them to perform better in their jobs, which will lead to pleasant consequences such as an increase in salary. Those who believe in the above assumptions will put more effort into the T&D itself. They will also be motivated to make better use of the knowledge and skills learnt during training, hence the increase in performance. Furthermore, output/productivity increases because the perceived interest shown in employees by offering them T&D suggests that management has a special interest in their future career, which will motivate them to perform better as a way of reciprocating the favour. Based on the work done by the various researchers mentioned thus far, a conceptual framework was developed in Figure 1 in terms of the employees' training outcomes. The conceptual framework shows the links to the main objective of this article as it aims to determine whether T&D influences employees' commitment to the organisation and the intention to stay or to leave the organisation.

Figure 1: Conceptual Framework for the Study (Formulated from the Researcher's Secondary Research)



Performance Competence: The main purpose of any work-related training and development programme is to improve workers' levels of competencies, skills attitudes and work behaviours, as well as enhance employees' contributions to the overall corporate objectives (Indradevi, 2010). The proper training needs assessment by the Human Resources department is a necessity before embarking on T&D program, otherwise the purpose of T&D may be defected. Training needs assessment helps to identify skills deficiencies and those characteristics that are essential to improve the levels of employees' contribution. Specific training in the industry assists in ensuring flexibility, dynamic capabilities, and shapes employees behaviours based on the current and future needs of an organisation (Obisi, 2011). Nikandrou, Brinia, & Bereri (2009, p. 262) found that workers are particular about their career growth and the need for new skills as reasons for engaging in learning activities. Santos and Stuart's (2003) put it that employees benefited from training through improved core competence, self-efficacy and organisational satisfaction. Costen and Salazar (2011) found that T&D has a direct influence on employees' competence and impacts on their levels of productivity. Taiwo (2007, p. 18) on the other hand, found a significant relationship between a well-executed training programme and the acquisition of the skills required for employees to put up excellent performance on-the-job. More recently, Khan, Abbasi, Waseem, Ayaz and Ijaz (2016) reaffirmed that T&D enhances employee morale, improves their skills and performance, and helps them excel in their jobs. Based on the importance of skills update, T&D has become an integral part of HR functions in many organisations, as well as the public corporations. Judging from the literature, this study further hypothesised the following:

$H3_0$: Training/development and performance competence do not have a significant influence on organizational commitment.

$H3_1$: Training/development and performance competence have a significant influence on organizational commitment.

$H4_0$: Training/development and performance competence do not have a significant influence on employees' retention.

$H4_1$: Training/development and performance competence have a significant influence on employees' retention.

3. Research Methodology

This study adopted a pragmatic stance in the sense that it aimed to establish employees' perceptions using a questionnaire as well as interviews to collect data from the directors and the data were analysed both qualitatively and quantitatively. Inductive (qualitative) and deductive (quantitative) approaches were used for this study, as certain research questions can best be analysed qualitatively and others quantitatively. The target population for this study was the civil servants at a public corporation in Ebute Meta in Lagos State. The target population totalled 1, 328 civil servants. Sixty per cent of the employees were men and 35% were women; and the majority of the participants were between the ages of 25 and 35. Respondents were randomly selected. This study was a cross-sectional case study of civil servants in Lagos State. A cross-sectional research method enables the researcher to gather facts once, at a particular point in time (Chen & Hirschheim, 2004; Cohen, Manion, & Morrison, 2010). The distribution and collection of the questionnaire took five months and the interviews took approximately a week.

Description of the Questionnaire: Five questions were developed to ascertain the impact of T&D on NRC employees. Standardised questions with proven reliability were adapted to suit the present study, example, the Minnesota Satisfaction Questionnaire (MSQ, 1977). Sixteen items MSQ on organisational commitment were modified and used. These were set out to establish the rate of the employees' organisational commitment. Five questions were formulated to evaluate the impact of T&D on employees' skills, knowledge and ability (performance competence). Five questions measuring employees' intention to stay or leave the organisation (turnover intention) after being exposed to a series of training and development programmes were also included in the research instrument. A pilot test was used to reveal any possible weakness or error in the design of a questionnaire and allows for any necessary modification (Cooper & Schindler, 2008).

This exercise determines whether the instrument will work and which questions need to be reviewed (De Vos, Strydom, Fouché, & Delport, 2006). The information collected from the piloting phase enables the questionnaire to be improved before the proper study is carried out. The researchers assessed the results obtained from the present study and other test results that measured the same constructs. Both structured and semi-structured questions were used for the interviews; this allowed for in-depth insight into the nature of the management and outcomes of T&D interventions. The data were obtained by conducting a face to face interview with eight directors of the NRC. The study benefited from seeking information from well-informed directors by tapping into their knowledge. According (Saunders, Lewis, & Thornhill, 2009), questionnaires are more useful if used in conjunction with in-depth interviews to understand the facts under review. This study combined two data-collection methods, questionnaires and personal interviews. Semi-structured interviews were deemed appropriate, as they enabled the researcher to probe and explore the participants' ideas and perceptions of the main themes of the conceptual model. Open-ended questions were also used in most parts of the interview to inspire the interviewees to respond willingly to the questions. The qualitative data collected through the interviews was transcribed, and manually analysed using thematic content analysis. Creswell (2012) recommends that manual analysis of qualitative data may be preferred by the researcher when the database is less than 500 pages of transcripts; it allows for files to be tracked effortlessly and makes it easy to find test passages.

4. Results and Discussion

The quantitative data collected in this study was analysed using descriptive and inferential statistical tools. Descriptive and inferential statistics were used to transform the data into an easily understandable form and to enable generalisations to be drawn. The Statistical Package for Social Sciences (SPSS) Statistics (Version 24.0) was used for the quantitative data analysis. Descriptive statistics provide simple summaries of the immediate data and inferential statistics were used to draw conclusions. A p-value of < 0.05 was considered statistically significant. The analysis started with the calculation of Cronbach's alpha to determine the reliability of the measuring instrument used for the study, which included training/development, organisational commitment, performance competence, and turnover intention. Questions with low values were eliminated and the Cronbach's values of most of the measuring instruments were above 0.7, indicating a high degree of inter-correlation among the items and confirming that the items relate to a common construct. Each of the above-mentioned variables was measured by asking the participants to state their extent of agreement (on a Likert scale) with each of a number of statements.

The questionnaire contained a mix of positively and negatively worded items, which usually indicates that the negatively worded items need to be reversed in order to avoid very low and/or incorrect Cronbach's alpha values. Normally, all negatively worded items need to be reversed before a total score can be calculated for the scale; this guarantees that all items are scored in such a way that helps prevent bias (Pallant, 2011). Therefore, during coding, all statements that had strong negative correlation were reversed-scored in this study. Disagreement with the statement was therefore seen as a positive response. Consequently, the coding for the responses to these statements was changed so that a strongly disagree response had the highest coding (5) and a strongly agree response the lowest coding (1), while in the coding for the positive statements, a strongly disagree response had the lowest coding (1) and the strongly agree response the highest coding (5). Examples include: turnover intention – I often thought of quitting my employment in recent times; commitment – I actually do not feel that the organisation's problems are my problems; and commitment – I do not feel emotionally attached to my organisation.

The Cronbach's alpha calculation was carried out to determine the reliability of the measuring instruments used for this study. The employees' and the manager' responses were consistent with each other, which is an indication that the result is reliable. Cronbach's alphas for training/development, turnover intention and organisational commitment were obtained as presented in Table 1. A Cronbach's alpha value of 0.7 or higher indicates a high degree of inter-correlation among the items and confirms that the items relate to a common construct. The Cronbach's alphas for all the variables measured were above 0.7 and were therefore accepted as reliable measurements. The descriptive statistics illustrated in Table 1 shows the means, standard deviations and the reliabilities for all variables measured in this study. All the variables were measured on a five-point scale. All the scores for the variables ranged from a minimum of 1 to a maximum of 5.

Table 1: Descriptive Statistics

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. deviation	Alpha
Performance competence (training)	297	2.000	5.000	3.88	0.607	0.705
Turnover intention	297	1.400	5.000	3.421	0.687	0.752
Organisational commitment	297	2.300	4.583	3.494	0.455	0.710
Valid N (list-wise)	297					

Source: emerged from the statistical analysis

The mean average score of the variables measured ranges from 3.42 (turnover intention) to 3.88 (organisational commitment). The mean score of 3.42 for turnover intention means that the majority of the employees may not be contemplating leaving the organisation, while the mean score of 3.49 for organisational commitment also signifies that the majority of the employees felt more committed to the organisation after they received the training. The mean score of 3.88 signifies that most of the employees felt that the training they received impacted more on their competence and performance.

Training/Development and Organisational Commitment: The directors put it that the employees' psychological attachment to the organisation (NRC) were, reasonably high after the training and development programme. The non-numerical data displayed in Table 2, informs that training and development programmes improved the levels of employees' loyalty to the goal and aspirations of the organisation. M2 indicated that "employees' commitment is very high, so the training served as a source of motivation". M6 explained that "training and development initiatives help to build positive perception and feelings about the organization among the employees". In comparison, the employees' and the directors' responses were consistent with each other; which is an indication that the result is reliable. The uniformity of the results emanated from the numerical and non-numerical evidence of methodological triangulation in this study. Having established the perceived influence of training/development on an organisational commitment from the two sources, it is also necessary to examine the influence of training on employees' turnover intention.

Table 2: Directors' Responses

Effectiveness of the Training Regarding Organisational Commitment				
Categories	**Definition of Categories**	**Percentage of Participants**		**Examples**
Employees' commitment	T&D effectively improved employees' commitment.	8	100%	M2 - "Employees' commitment is very high, the training serves as a source of motivation. M6 – "Training and development initiative helps to build positive perception and feelings about the organisation among the employees."

Source: Emerged from the non-numerical data

The Pearson correlation (see Table 3) produced a weak statistically significant positive association between performances competence and employees' commitment (0.203, n=297, $p<0.001$). The result indicates that the more employees acquire new skills and knowledge, the more likely they are to be committed to the organization. Therefore, there is a significant relationship between perceived performance competencies gained during T&D and the perceived impacts on employees' commitment. This is consistent with the findings of other studies in the field of T&D (Brum, 2007; Klein, 2001; Owoyemi et al., 2011; Silberman & Philips, 2006; Smith, 2011), which established that training increases employee commitment. Employees perceive the benefits they receive from T&D as an indication of the organization's commitment to them; they repay the organization by exhibiting a higher level of commitment to it. Of interest is that employees in the technical department showed more commitment than the administrative staff (the mean score for technical staff of 164.34 was higher than the mean of the administrative employees of 136.27). This difference in commitment was attributed to the fact that more of the technical staff had their training abroad, while all the administrative staff's training took place in Nigeria. Therefore, the higher the level of organisational investment in employees' development, the more committed employees will in return be to the organization.

Table 3: Training and Commitment

Correlations

		Performance Competence	Employee Commitment
T&D	Pearson correlation	1	0.203**
	Sig. (2-tailed)		0.001
	N	285	282
Employee commitment	Pearson correlation	0.203**	1
	Sig. (2-tailed)	0.001	
	N	282	293

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

Turnover Intention after Training: The result obtained from employees and their managers suggest that T&D has the potential to effectively lower employees' intention to resign from the organisation. However, 25% of the managers felt that the rate of low intention to resign could be attributed to the high unemployment rate in the country, rather than to T&D programmes alone. As evident in Table 4, the bivariate correlation coefficient suggests that there is a weak but significant positive relationship between training/development and perceived turnover intention ($r = 0.248$, $n=297$, $p<0.000$). The result shows that the more employees are exposed to training/development, the more likely they stay with the organisation.

Table 4: T&D and Employees' Turnover Intention

Correlations

Variables		1	2
1	Training/development	--	0.248**
2	Turnover intention	0.248**	--

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

The null hypothesis ($H2_0$), which states that there is no significant positive relationship between training/development and perceived employees' turnover intention, was not supported. The result implies that training programmes undertaken by the civil servants made tremendously influence on their intentions to remain in the employment of the Nigerian Railway Corporation. The directors' perceptions concerning the influence of training/development on employees, intentions to quit their employment at a public corporation in Nigeria presented in Table 5.

Table 5: Turnover Intention (Directors' Responses)

Categories	**Definition of Categories**	**Examples**
Intention to leave	Intention to leave is very low after training.	"Interactions with the managers or employees indicate that none of them is thinking of leaving the organisation, although you can never tell people's intention. It is difficult to read people's minds. Training and development have a way [of] making people feel they belong and that they are valued ... encourage to stay with the organisation."

	Few employees may be thinking of leaving.	"My guess will be only very few may be thinking of leaving, there is a high rate of unemployment in the country."
	Difficult to say	"The answer is the same as employees' turnover, I suppose. It is hard to tell".
Employees' retention	Retain rate was very high.	"Employees' retention in this establishment has been very high and this training and development initiatives have helped them in increasing it even further. We operate in a very competitive environment, the employees who are competent and who have the knowledge and capabilities to be effective and efficient were most welcomed in all companies, especially here, companies are trying to attract and retain this type of employees from competitors. These essential skills and capabilities are acquired through training".
	The high retention was partly because of the high unemployment rate in Nigeria.	"Training and development and other factors like unemployment in the country have positively influenced our high employees' retention".
	Low rate of turnover, with the exception of retirement	"We have very low employees' turnover in recent time, except for those who are retiring and few who were relieved of their duties because they were no longer adding value to the organisation" "The turnover was more or less the same, because we never had a problem with employees' turnover in the past, except for those who were retired either voluntarily or otherwise".

Source: emerged from the non-numerical data.

As illustrated in Table 5, the result obtained from the directors suggests that T&D has the potential to effectively lower employees' intention to quit the organisation. The interpersonal interactions with the managers or employees indicate that none of them is thinking of leaving the organisation. One of the directors affirms that it is extremely difficult to read people's minds. However, training and development have a way of making the employees' feel more important and valued through investment in their growth and development. It was also emphasised that the low rate of employees' turnover may be linked to the high rate of unemployment in Nigeria. Therefore, one cannot conclude that training/development is 100% responsible for the low rate of employees' turnover at the Nigerian Railway Corporation. This implies that other factors, which are beyond the scope of this study, might be responsible for the low rate of employee's turnover intentions. Furthermore, rather than relenting on training/development as an employee retention strategy in isolation, other work and non-work related factors should be concurrently considered and measured by organisational development practitioners. Furthermore, the results of the interviews show that T&D has the potential to reduce employees' intention to leave the organisation. This demonstrates that employees who perceived an increase in their competence based on the T&D programme offered to them are less likely to leave the organisation than those who do not receive training.

Again, this finding substantiated those of Nickels (2009) and Adeniji (2010), who claim that T&D has the potential to decrease staff turnover and turnover intention in both the short and the long run. Shelton (2001) and Williams and Arnett (2008) found that training enabled organisations to attract and retain skilled workers. It has been found that employees who received fewer training opportunities than they were supposed to contemplate leaving the organisation (Dysvik & Kuvaas, 2008). The above findings strongly suggest that T&D programmes induce employees' commitment to the organisation. It therefore makes sense that employers who need to increase their employee retention rate should consider T&D and performance competence as an essential initiative. However, a new finding of this study is that T&D may have little effect on reducing employees' intention to leave their organisation; an indication that other incentives or innovative programmes need to be considered alongside T&D to reduce employee attrition.

T&D, Performance Competence and Organisational Commitment: A multiple regression analysis run to establish the extent to which T&D, and performance competence jointly serve as a predictor of perceived organisational commitment among the civil servants at a public corporation in Lagos, Nigeria. The result of the inferential statistics used in testing hypothesis three ($H3_0$) is presented in Table 6.

Table 6: Regression Model 1

Variable	R	R square	Adjusted R square	F	Beta	T	P value
Constant	.444[a]	.197	.192	36.173	-	8.775	.000
Training and development (T&D)					.343	6.384	.000
Performance competence (PC)					.214	3.980	.000

Dependent variable: Organisational commitment. Predictors: Training and development, performance competence, Source: emerged from the statistical analysis

The regression model presented in Table 6, showed that employees' training/development and performance competence jointly predicted 19.2% (Adjusted $R^2 = .192$, $p < .001$) of the variations in perceived organisational commitment among selected civil servants in Nigeria. Comparing the standardised beta (β) values of the two predictors (T&D, $\beta = .343$, $p < .001$; PC, $\beta = .214$, $p < .001$) in the regression model 1, it is evident that T&D is a better predictor of organisational commitment. The results showed that T&D opportunities that workers were exposed to explained most of the variations in perceived organisational commitment among selected civil servants in Lagos. The null hypothesis three ($H3_0$), which states that T&D, and performance competence do not have a significant influence on organizational commitment was not supported based on results presented in Table 6. According to the result of the Cohen's effect size calculator ($f^2 = .245$), one can infer that employees' T&D and performance competence have a medium influence on organisational commitment at a public corporation in Nigeria.

The finding suggests that employees who claimed to have acquired competencies through T&D are more likely to be committed to the organisation than those who claimed otherwise. This result is an indication that employees' commitment may be enhanced by giving them the opportunity to participate in regular T&D exercises. The finding of this study corroborated those of Bulut and Culha (2010), who found that training positively impacted on employee commitment. The association between T&D and employees' commitment is that better-trained employees are more competent and relish the opportunity to take control of their jobs; hence, they are more committed (Brum, 2007; Owoyemi et al., 2011). This supports the social exchange theory, which posits that individuals are likely to support issues from which they stand to gain. However, this study made the discovery that training on its own is unlikely to make a large contribution to enhancing employees' commitment. This result mirrors the position of Pajo et al. (2010) that an organisation can achieve higher levels of the employee retention rate by investing in T&D and work-related competence interventions.

T&D, Performance Competence and Turnover Intention: A multiple regression was instrumental in assessing the significant influence of T&D, and performance competence on perceived turnover intention among the civil servants at a public corporation in Lagos, Nigeria. T&D and performance competence were engaged in the analysis as the predictors of employees' turnover intention. The result of the statistical tool used in testing hypothesis four ($H4_0$) is presented in Table 7.

Table 7: Regression Model 2

Variable	R	R square	Adjusted R square	F	Beta	T	P value
Constant	.369[a]	.136	.131	23.218	-	4.937	.000
Training and development (T&D)					.250	4.483	.000
Performance competence (PC)					.220	3.947	.000

Dependent variable: Turnover Intention. Predictors: T&D, performance competence
Source: emerged from the statistical analysis

The regression model illustrated in Table 7, revealed that employees' T&D and performance competence jointly explained 13.1% (Adjusted $R^2 = .131$, $p < .001$) of the variance in perceived turnover intention among selected civil servants in Nigeria. Judging from the standardised beta (β) values of the two predictors and their corresponding p values, T&D ($\beta = .250$, $p < .001$) makes the largest unique contributions to the variance in perceived employees' turnover intentions. Performance competence ($\beta = .220$, $p < .001$) on the other hand, also makes a significant contribution to the variance in employee's turnover intentions. Empirically, hypothesis $H4_0$ was not supported, due to the fact that T&D and performance competence have a significant influence on perceived turnover intentions at a public corporation in Nigeria. In accordance with the Cohen's effect size calculator for multiple regression ($f^2 = .157$), which implies that T&D and performance competence have a medium influence on perceived employees' turnover intention at a public corporation in Nigeria. The uniqueness of the current finding is that T&D (compared to performance competence) is a better predictor of employees' retention in the Nigerian Railway Corporation.

5. Conclusion and Recommendations

Conclusion: The overall objective of this article was to examine the influence of T&D programmes on organisational commitment, and turnover intention of civil servants at a public corporation in Nigeria. The T&D programmes improve civil servants work-related competence, and psychological attachment to the organisation. The issue of high turnover intention after T&D programme is not common among the civil servants in Nigeria. Based on the empirical findings, one can conclude that a well-implemented T&D programme improves civil servants' competence, and retention of high calibre of staff in the organisation. The implication of this result is that the more T&D civil servants receive, the more likely they are committed to the organisation. Therefore, the higher the level of organisational investment in civil servants' development, the more committed employees will in return be to the organisation. The T&D initiative was found to have the potential to positively influence employees' turnover intention rates in the organisation. This is an indication that regular T&D programmes can help the NRC to effectively reduce its employees' intention to quit the organisation. The T&D programme was helpful in retaining almost the entire NRC workforce for the period under review. Although the high retention rate was partly attributed to the high unemployment rate in the country, which made it almost impossible for employees to move from one job to another, T&D is still an effective strategic initiative for employee commitment and retention.

Recommendations: This article provided an assessment of the influence of T&D programmes, and performance competence on organisational commitment and turnover intention. The managerial implications put forward to the management of public corporations were based on the empirical evidence emanated from the hypotheses tested. With a significant relationship between T&D programme and organisational commitment, public corporations in Nigeria should intensify efforts in ensuring regular update of employees' skills to improve the level of performance competence and workers' loyalty. Workers should be selected for T&D on the basis of gap identification and employee's potential for development, rather than on the basis of nepotism. When T&D opportunities are based on nepotism, other employees may feel less committed to the organisation. Exposing civil servants to T&D opportunities can be used as a strategy to reduce employee turnover intention through enhanced organisational commitment. This study recommends that civil servants commitment to the public corporations in Nigeria can be enhanced through a series of well-executed T&D programmes and improved performance competence.

Limitation and Scope of the Study: This study was limited to the opinions of public servants at the Nigerian Railway Corporation (NRC) who had participated in any form of T&D activities. The emphasis of the present study was on the influence T&D on employees' turnover intentions and their commitment to the organisation. The findings and conclusion of the current study should be approached with caution, as the findings were based on the perception of the civil servants at NRC. The results cannot be used to generalise as the opinions of all civil servants in Nigeria as a whole. The generalisation is limited to the NRC, Ebute Meta (Lagos, Nigeria). The conclusion and recommendations put forward based on the findings of the current study would assist the organisational development practitioners in designing T&D programme to enhance organisational commitment and retention of competent workforce in other public corporations in Nigeria.

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The Relationship amongst Customer Satisfaction, Loyalty, Demographic and Tripographic[1] Attributes: A Case of Star Rated Hotel Guests in Ethiopia

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Abstract: The hospitality industry in general and hotels in particular attend to diverse guests and their expectations. The satisfaction of all hotels guests and retaining them as a loyal customer, given their different profiles, is imperative but challenging to the sector. This study aims to address this very issue by trying to establish the relationship amongst, customer satisfaction, loyalty, demographic and tripographic attributes by focusing on the hotel guests who stayed in star rated hotels in Ethiopia. Satisfaction was measured as satisfaction with the product, satisfaction with the employees and overall satisfaction. Likewise, customer loyalty was measured with the likelihood of customers to return to the same hotel in the future. "A total of 1200 questionnaires distributed to 40 hotels out of which 415 hotel guests responded, by completing the questionnaires". "The result of inferential statistical techniques reveals that there were significant positive relationships between the customer satisfaction variables" (products .488; $p<0.001$; staff .460; $p<0.001$), and the customer's willingness to stay in the same hotel again." Though all variables of "customer satisfaction affected customer loyalty, the overall satisfaction variable had the highest standardized coefficient (0.328) with a statistical significance ($p < 0.01$), followed by satisfaction with the product (.227, $p<.01$), and satisfaction with employees (.190, $p<.01$). There was also no statistically significant difference ($p>.05$) in the mean scores of the customer satisfaction and loyalty across the gender, age, marital status and employment type groups of respondents. With regards to the tripographic variables, there was a statistically significant difference ($P<.05$) in the mean scores of both the customer satisfaction and loyalty across the staying preference of rated hotel types of customers. Additionally, there was a statistically significant difference ($p>.05$) in the mean scores of customer loyalty across a source of information on the hotel group of respondents. Hotel managers in Ethiopia need to look at the importance of segmentation of guest based on their demographics and tripographic factors so that they provide personalized service to enhance their customers' satisfaction that could lead to their loyalty.

Keywords: *Demographic, tripographic, customer satisfaction, customer loyalty, hotel*

1. Introduction

The hotel industry, as a "sub-sector of the tourism industry", is among the fastest growing businesses in the service sector. It is a large industry which contributes considerably to the world economy, creating jobs for many people worldwide. In Ethiopia, the hotel industry is showing exponential growth in the past two decades. According to Hailesilasse (2013), on average, elven hotels were opening every year in the past decade in the country and this is expected to increase to an average of eighteen hotels per year at least for the next two decades enhancing the provision of greater variety of choices for hotel customers while creating stiff competition among the hotels in the marketplace. However, this growth is not matched with the delivery of quality service in the majority of hotels which may negatively affect the guests' satisfaction and loyalty (Kifle, 2012). Addressing the customer's satisfaction and loyalty challenges require addressing the varying needs of customers from one segment of the population to another (Ganesan-Lim, Russell-Bennett, and Dagger, 2008). In order to sustain customers' satisfaction and their loyalty, marketing strategies need to look into the factors that influence customer (Grazhdani and Merollari, 2015).

[1] Travel-related behavioural characteristics, such as Length of stay this visit, source of hotel rating information, staying preference (hotels' ratings), staying preference (chain or independent), source of hotel information this visit,, purpose of stay and hotel bill payment.

Hotel marketers need to study their customers from many angles and perspectives because without sound knowledge of these attributes and guidelines, they may run into the risk of making wrong decisions (Grazhdani and Merollari, 2015)." "The objective of this study therefore is first to investigate the effect of customer satisfaction on customer loyalty and second to explore the differences in customer. Satisfaction and loyalty among the demographic and tripographic attributes of hotel guests who stayed in star rated hotels in Ethiopia. There are abundant researches on customer satisfaction and loyalty in the service industry including the hospitality industry." "However, very limited published research exists on the Ethiopian hotel industry" and the effect of customer satisfaction on their loyalty and its relationship with the demographic and tripographic characteristics of hotel guests. Therefore, this study is particularly important to part its research findings to the hotel industry stakeholders in setting-up, improving and monitoring their customer service strategies to enhance customer satisfaction and loyalty.

2. Literature Review

Customer Satisfaction: The challenges created by the characteristics of services in the hospitality sector makes it difficult for" hotel management to satisfy all type of customers by giving the same type of service and hence need to segment their customers for the provision of individualised services (Metters, King-Metters, Pullman, and Walton, 2006). Olivier (2010:256) defined satisfaction as a "consumer's fulfilment response and a judgment that a product or service feature, or product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfilment, including levels of under or over fulfilment as being consistent with the conceptual and empirical evidence". Olivier (2010) further explained the implication of pleasure as 'fulfilment that gives pleasure or reduces pain.' Hence, in order to return to normalcy, individuals can be satisfied, remove an 'aversive' state. However, "fulfilment is not necessarily restricted to the case of met needs, since over-fulfilment can be satisfying if it provides additional unexpected pleasure; and under-fulfilment can be satisfying if it gives greater than one anticipates in a given situation" (Mohajerani and Miremadi, 2012). Dissatisfaction results if the word pleasure is substituted to displeasure in the definition of satisfaction and Agbor (2011) stated that "the displeasure or under-fulfilment typically is dissatisfying and over-fulfilment may be dissatisfying if it is unpleasant – too much of a good thing.

Babin and Griffin (2008:131) defined customer satisfaction as "a positive affective reaction to the favourable appraisal of hotel usage experience." A positive reaction is mainly identified with the benefit that meets or exceeds customer expectations (Ofir and Simonson, 2007; Parasuraman, Berry, and Zeithaml, 1994). Aron (2010:237) further looked at customer satisfaction as "an attitude like judgement following a purchase act or a series of consumer product interactions". In this regard, the confirmation-disconfirmation theory, that stipulates the expectation as an important factor in determining satisfaction, has been used as a base for a variety of service marketing studies (Beard, 2013; Mohajerani and Miremadi, 2012; Agbor, 2011; Aron, 2010; Hutchinson, Lai, and Wang, 2009). "This implies that the customers have certain service standards in mind (their expectations) prior to consumption, observe service performance and compare it to their standards, and then form satisfaction judgments based on their comparison. The resulting judgment, according to Olivier (2010), is labelled negative disconfirmation if the service is worse than expected, positive disconfirmation if better than expected, and simple confirmation if as expected." "Satisfaction is a function of positively disconfirmed expectation (better than expected), and positive effect. Customer satisfaction is very important for any service industry including hotels. "

Customer Loyalty: Customer loyalty is defined by Kandampully and Suhartanto (2000), as "a customer who repurchases from the same service provider whenever possible, and who continues to recommend or maintains a positive attitude towards the service provider." "Loyal customers are likely to purchase additional services, spread positive news through word-of-mouth, and pay higher prices, but they are likely to improve service efficiency due to the experience curve effect (Vij, 2012)." Olivier (2010) "defined customer loyalty as a strong commitment to make many repeated purchases of a selected product or use a service consistently in the future." "Much research has been conducted on customer loyalty in the hospitality industry (Wilkins, Merrilees, and Herington, 2010; Kang and James, 2004). Customer loyalty towards hotels is often determined by the experience of the guests before, during and after their stay in a hotel. A number of factors contribute to the experience to customer service, such as, cleanliness, facilities, price, food, location, etc. (R. Ramanathan, 2012).

Anderson and Mittal (2000) "found that on average, every one percentage gain in customer satisfaction is linked with a 2.37 percent increase in the hotels return on investment (ROI). Fournier and Mick (1999) further stipulated the importance of customer satisfaction as becoming the central and the focus point of the organizations mission statement and marketing plan in order to achieve their goals." "The relationship between the performance of hotels in terms of these factors and customer loyalty has been the topic of several research studies (Moisescu and Gica, 2013; Prentice, 2013; Kursunluoglu, 2011; Lin, 2005)". Prentice (2013) "argued that even though customer satisfaction is essential to a thriving hotel industry, customer loyalty plays an even more significant role because it is an indicator of success in the service industry"." Cheung and Thadani (2010) showed that customers display various degrees of loyalty, allegiance or commitment towards a particular service provider". "Thus, it is important that hotel operators understand the most influential factors in customer loyalty when devising and implementing strategies to make sure that existing guests remain loyal, while prospective guests develop new loyalty towards them (Boon-Liat and Md. Zabid Abdul (2013).

Owing to the benefits of customer satisfaction in retaining existing customers, many researchers focused their studies on the importance of predicting customer behaviour, especially in relation to the customer satisfaction construct and the satisfaction-loyalty link (Awara and Anyadighibe, 2014; Prentice, 2013; Salleh, Hussin, Faizuniah, Hasnizam, Sany Sanuri, and Shaari, 2013)". "In addition, Berry, Wall, and Carbone (2006) stated that when hotel guests have had an enjoyable stay, they are very likely to patronize the hotel repeatedly, and will also recommend the hotel to their family and friends". "Customer loyalty to hotels is often shaped by the experience of the guest before, during and after their stay at a hotel. A number of factors contribute to the experience – customer service, cleanliness, facilities, price, food, location, etc. The relationship between the performance of hotels in terms of the above factors and customer loyalty has been a topic of several research studies" (Awara and Anyadighibe, 2014; U. Ramanathan and Ramanathan, 2013; Salleh et al., 2013; Yu-Jia, 2012; Ranjbarian, Dabestani, Khajeh, and Noktehdan, 2011; Wilkins et al., 2010; Berry et al., 2006).

The Effect of Customer Satisfaction on Loyalty": Customer satisfaction may drive loyalty, but it may not be a very reliable, and definitely not the only determinant of loyalty (Faullant, Matzler, and Füller, 2008)". "In a study conducted at Alpine ski resorts, Faullant et al. (2008) established that both image and overall satisfaction are important to influence the degree of customer loyalty. In general, the findings of some previous researchers indicate that there is a positive correlation between customer satisfaction and customer loyalty, and customer satisfaction is widely acknowledged as an indicator of customer loyalty in the hotel industry" (Alrousan and Abuamoud, 2013; Chitty, Ward, and Chua, 2007; Getty and Thompson, 2004). "These studies clearly show that satisfied hotel guests tend to remain loyal to the service providers concerned. Customer loyalty as a much-valued asset, the long-term success of a hotel is assured if it can expand and maintain a large and loyal customer base (Wilkins et al., 2010)". In contrast to the aforementioned, several researchers, inter alia, Khan and Fasih (2014), Hyun Soon, Zhang, Dae Hyun, Chen, Henderson, Min, and Haiyan (2014) and Moisescu and Gica (2013) further evaluated the relationship between customer satisfaction and customer behaviour in recommending hotels, and they came up with three conclusions. Firstly, satisfaction has less of a relationship with the overall perceived quality, compared to the dimensions of service quality.

Secondly, in contrast to Parasuraman, Berry, and Zeithaml (1993), they indicated that reliability is not the most important service quality dimension. Thirdly, the perception of quality has no significant effect on satisfaction as was previously assumed. In other words, they have refuted what was previously pronounced as a direct link between satisfaction and perception of the quality of service. "In addition to the above, there are some researchers who doubt whether customer satisfaction will translate into customer loyalty". For example, "from the results of a study on the satisfaction–loyalty model conducted by Olsen (2002) it became apparent that customer satisfaction might not always guarantee customer loyalty, other factors such as perceived quality performance and brand image are also deemed to contribute to loyalty (R. Ramanathan, 2012)". However, it is still believed by so many researchers that "higher service quality leads to higher customer satisfaction, and eventually to determine customer loyalty (Mohajerani and Miremadi, 2012; Agbor, 2011; Kandampully and Suhartanto, 2003; Getty and Thompson, 1994)". There have been many studies with regards to demographic profiles and its effect or relationship with different variables.

Concept of Demography and Tripography: Demography, according to Yeoman, Hsu, Smith, and Watson (2010), is a classification of people mostly used by marketers to analyse and segment markets. The approach used by many marketers or consumer behaviour researchers to segment their markets is grouping consumers according to the demographic variables". "Furthermore, traditionally, marketers use demographic analysis to segment their markets so that they can generate reliable and valid characteristics of their target markets (Yeoman et al., 2010)". "Hotel operators implement demographic profiles in order to enhance their knowledge or understanding of customers' demographic differences with regards to their satisfaction and loyalty (Tsiotsou and Vasioti, 2006)". "It is, therefore, imperative for the hospitality industry's survival that management in the hotel industry knows the effect of their customer's demographics on the entire service marketing variables (Yeoman et al., 2010)". "The results of most of these studies however have been inconsistent (Sasikala, 2013; Serin, Balkan, and Doğan, 2013; Tsiotsou and Vasioti, 2006; Kniatt, 1995)". "In most of the studies, sex age, income, education and occupation are the most widely used variables representing demographics (Lee, Bai, and Murphy, 2012).

In this study the classification of respondents' demographic variable is based on age, gender, marital status as well as their employment status (Table 4)". "The other method used to classify customers by the hospitality industry, including travel and tourism is called tripography". "According to Yangjin (2015), tripography is a word used to describe what is traditionally used to explain travel or trip characteristics". "These characteristics however are expressed with different connotations reflecting the many attributes and dimensions". "The tripographic attributes, in this study, are the travel-related behavioural characteristics, such as the length of stay of the current visit, source of information regarding the rating of the hotel, preference for hotels star ratings, preference for types of hotels (chain versus independent), source of information on hotels for the current visit, the purpose of their stay and hotel method of payment of bills". "The tripographic attributes used in this study together with their different group dimensions are shown in Table 8.

Relationship between Customers' Demographic and Tripographic Attributes and Customer Satisfaction and Loyalty: Traditionally demographic and tripographic analysis were made for market segmentation to allow marketers develop different promotional strategies (Correia, Moital, Da Costa, and Peres, 2008; Ganesan-Lim et al., 2008; Tsiotsou and Vasioti, 2006; Kniatt, 1995)". "For the aforementioned, it was considered to be easier to measure demographic and tripographic variables". "The other more complex variables, like lifestyle trends and preference or other behavioural measures, are more complex for marketers and policymakers to establish valid and reliable information in relation to their target market". "Additionally, the development of marketing strategies need the thorough understanding of all factors that influence customers' expectation, perception and service quality in order to create satisfied and loyal customers (Rubenstein, Duff, Prilleltensky, Jin, Dietz, Myers, and Prilleltensky, 2016)". "According to (Grazhdani and Merollari, 2015), demographic attributes reveal different customers' demographic characteristics with different perceptions of service quality". "The aforementioned, also found out that gender, age and income were significantly related to customers' satisfaction and loyalty in service sectors". "It is thus imperative to have demographic information of respondents for targeting and segmentation (Sasikala, 2013)". "It is equally valuable to understand the effect of pertinent tripographic and demographic attributes such as age, gender and income on customer satisfaction and loyalty (Grazhdani and Merollari, 2015).

Data Collection and Analysis: The data was collected through a survey using self-administered questionnaires". "According to Gupta and Gupta (2011), this method is preferred due to the low cost, the interviewers freedom from bias; the adequate time given to the respondents to respond at their leisure, the convenience of reaching the respondents, the anonymity of respondents, and the larger sample size resulting in increased reliability of the results". "Satisfaction was measured using three attributes to describe the satisfaction of customers with the product, employees and their overall satisfaction". "Likewise the customer loyalty was measured with an attribute labelled as the likelihood of customers to return to the same hotel in the future". "All respondents were asked to indicate on a five-point scale varying from 'strongly disagree = 1' to 'strongly agree = 5' on the statements provided". "Guests were also asked to fill demographic and tripographic related questions at the beginning of the survey". "An Excel spreadsheet was used to enter the data which was analysed using SPSS Version 25.

The relationship between customer's satisfaction and loyalty was tested using Pearson's correlation coefficient and to determine the best predictor of customer loyalty, multiple regression analysis was conducted". There is a strategic link between the level of customer satisfaction and the hotel's overall performance (Boon-Liat and Md. Zabid Abdul, 2013; Mohajerani, 2013)". "In addition, statistical analyses were performed for each of the four demographic and five tripographic variables". "For demographic and tripographic variables with more than two subgroups (e.g., age) and which were non-homogenous, a non-parametric test was used (Kruskal-Wallis H) while for each demographic variable with two subgroups (gender), an independent sample t-test (Mann-Whitney) was performed. ANOVA and Welch Kruskal-Wallis test was used to test the difference in customer satisfaction and loyalty among the different group's tripographic attributes.

3. Methodology

The study employed a stratified cluster sampling and used the star ratings as strata and hotel as clusters. "A sample of 40 hotels was randomly selected from the list of hotels under each stratum". Of the 40 hotels surveyed, 31 returned questionnaires, ranging from four to 30 participants per hotel, resulting in a total response of 427 out of 1200 (35.6%). Twelve questionnaires however had missing data and were not included, resulting in only 415 (36.6%) responses being analysed. "The overall response (36.6%) was deemed more than adequate for statistical inference". The study used a self-administered questionnaire that had four sections. The data was analysed using SPSS and preliminary descriptive analysis to find out cases of missing data. Factor analysis, correlation multiple regressions independent and sample T-test and were used as advanced statistical tools. The factor analysis was used to reduce the attributes to the major latent variables. The structural equation approach was used to explore the relationship between attributes and latent variables. Finally, ANOVA was used to analyse the difference between the means of the customer satisfaction and loyalty variables and the demographics and tripographic variables.

Reliability: The Cronbach's alpha coefficients for customer satisfaction measurement instrument was above 0.7 while the customer loyalty was less than 0.7 (Table 1). The reliability test output for both customer satisfaction and loyalty were considered to be both consistent and stable.

Table 1: Reliability Statistics Coefficients for Scales

Measuring Scales	Cronbach's Alpha	No. of Items
Customer Satisfaction	".736"	"3"
Customer Loyalty	".592"	"2"

Source: Primary data

The lower Cronbach's coefficient alpha score for the customer's loyalty measurement, according to Pallant (2013), is predicted because of the small number of items in the scale". "Therefore, an optimal inter-item correlation was calculated and the value of 0.4 as indicated in Table 2, is within the range as recommended by Briggs andCheek (1986).

Table 2: Inter-Item Correlation Matrix

.	Would you stay in the same hotel	How likely to recommend the hotel
"Would you stay in the same hotel"	1.000	0.421
"How likely are you to recommend the hotel"	0.421	1.000

Source: Primary data

4. Results and Discussion

Customer Satisfaction and Loyalty: The relationship between customer satisfaction and customer loyalty was tested using Pearson's correlation test (Table 3)". "At 99% confidence, that there was a significant positive relationship between customer satisfaction variables (products .488; p<0.001; staff .460; p<0.001), and the customer's willingness to stay in the same hotel again.

Table 30: Correlation between Customer Satisfaction and Loyalty

		How likely to stay in the same hotel	Satisfaction with product	Satisfaction with hotel staff	Overall satisfaction
How likely to stay in the same hotel (Loyalty)	Pearson Correlation	1	.488**	.460**	.537**
	Sig. (2-tailed)		.000	.000	.000
	N	415	415	415	415
Satisfaction with product	Pearson Correlation	.488**	1	.514**	.677**
	Sig. (2-tailed)	.000		.000	.000
	N	415	415	415	415
Satisfaction with hotel staff	Pearson Correlation	.460**	.514**	1	.623**
	Sig. (2-tailed)	.000	.000		.000
	N	415	415	415	415
Overall satisfaction	Pearson Correlation	.537**	.677**	.623**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	415	415	415	415

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

Source: Primary data

The Effect of Customer Satisfaction on Loyalty: To determine the best predictor of customer loyalty, multiple regression analysis was performed". "However, before the "multiple regression analysis was performed, the multicollinearity of variables was examined". According to Hair, Celsi, Money, Samouel, and Page (2011), "the presence of multicollinearity is evident by the high correlation of an independent variable with other independent variables." "Table 3 reflects that all of the independent variables of customer satisfaction (product, hotel staff and overall satisfaction) were positively correlated, and the relationship was statistically significant (p <0.1), and the correlation coefficient was less than 0.8, confirming the non-existence of multicollinearity issues in the analysis (Bryman and Bell, 2012)". "In Table 4 and Table 5, the multiple regression analysis results indicate the relationship between customer satisfaction and customer loyalty (likelihood to stay in the same hotel again)". "The model was relatively strong (R = 0.579), and the three customer satisfaction variables explained about 33.5% of the variance in customer loyalty, expressed by the likelihood that the customers will return to the same hotel.

Table 4: Model Goodness of Fit for the Effect of Customer Satisfaction on Loyalty

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	**.579[a]**	**".335"**	**".330"**	**".738"**

a. "Predictors: (Constant), Overall satisfaction, Satisfaction with hotel staff, Satisfaction with product"
b. "Dependent Variable: How likely to stay in the same hotel"

Source: Primary data

The importance of the three customer satisfaction variables as reflected by their beta coefficients is reflected in Table 5". "Though all variables of customer satisfaction affected customer loyalty, the overall satisfaction variable had the highest standardized coefficient (0.328) with a statistical significance (p < 0.01), followed by satisfaction with the product (.227, p<.01), and satisfaction with hotel staff (.190, p<.01).

Table 5: The Effect of Customer Satisfaction on Loyalty

Model		"Unstandardized Coefficients" B	Std. Error	Standardized "Coefficients" Beta	t	Sig.
1	(Constant)	"1.062"	".209"		"5.078"	.000
	"Satisfaction with product"	".227"	".063"	".200"	"3.612"	.000
	"Satisfaction with hotel staff"	".190"	".057"	".175"	"3.350"	.001
	"Overall satisfaction"	".328"	".068"	".292"	"4.815"	.000

"a. Dependent Variable: How likely to stay in the same hotel"
"Source: Primary data"

The multiple regression model of the customer satisfaction that contributed to customer loyalty was computed, and the result in Table 5 show that the estimated coefficient β0 (constant) was 1.062; β1 (satisfaction with the product) was 0.227; β2 (satisfaction with hotel products) was 0.190, and β3 (overall satisfaction) was 0.328". "Hence, the estimated model was: Customer Loyalty = 1.062 + 0.227 (satisfaction with product) + 0.272 (satisfaction with hotel staff) + 0.328 (overall satisfaction) this is an indication that satisfaction with the product, hotel staff and overall satisfaction has an impact on customer loyalty". "A one-point increase in customer satisfaction with the product, hotel staff, and overall satisfaction will result in 0.227, 0.190 and 0.328 increase in loyalty.

"Demographic Profiling": As shown on Table 6, the majority (65.5%) of the respondents was male while the rest (34.5%) were female. Almost 62 % of respondents were under the age of 40 with the highest response (31.6%) obtained from guests between the ages of 20 and 29". "With regards to the marital status, nearly all (90%) of the participants were either single (34.9%) or married (54.7%) and 91% of the respondents are employed including those that were self-employed.

Table 6: Demographic Attributes of Respondents

"Demographic variables"		"Frequency"	"Percent"	"Valid"	"Cumulative"
"Gender"	Male	272	65.5	65.5	65.5
	Female	143	34.5	34.5	100.0
	Total	415	100.0	100.0	
Age	20-29	131	31.6	31.6	31.6
	30-39	124	29.9	29.9	61.4
	40-49	96	23.1	23.1	84.6
	50-59	52	12.5	12.5	97.1
	60+	12	2.9	2.9	100.0
	Total	415	100.0	100.0	
Marital status	Single	145	34.9	34.9	34.9
	Married	227	54.7	54.7	89.6
	In Partnership	17	4.1	4.1	93.7
	Divorced	24	5.8	5.8	99.5
	Widowed	2	0.5	0.5	100.0
	Total	415	100.0	100.0	
Employment status	Employed	274	66.0	66.0	66.0
	Self employed	106	25.5	25.5	91.6
	Retired & Semi-	20	4.8	4.8	96.4
	Others	15	3.6	3.6	100.0
	Total	415	100.0	100.0	

Source: primary data

Relationships between Guests Demographic and Customer Satisfaction and Loyalty: An independent samples t-test was conducted to compare the satisfaction and loyalty (measured by the likelihood of the customer's to stay in the same hotel) scores for male and female customers". "There was no significant difference in satisfaction scores for males (M = 3.90, SD = .796) and females (M = 3.90, .SD = .825; t (413) = .028, p = .978, two-tailed)". "The magnitude of the differences in the means (mean difference = .002, 95% Cl: -.161 to .166) was very small (eta squared = 0.001). With regards to loyalty, there was also no significant difference in scores for males (M = 3.99, SD = .893) and females (M = 3.97, SD = .922; t (413) = .296, p = .767, two-tailed)". "The magnitude of the differences in the means (mean difference = .028, 95% Cl: -.156 to .211) was very small (eta squared = 0.001).

Table 7: Independent Sample T-Test on Customer Satisfaction and Loyalty Based on Respondents' Gender

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	DF	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Overall satisfaction	Equal variances assumed	0.073	0.787	0.028	413	0.978	0.002	0.083	-0.161	0.166
	Equal variances not assumed			0.027	279.768	0.978	0.002	0.084	-0.163	0.168
Loyalty (the likelihood to stay in the same hotel)	Equal variances assumed	0.348	0.556	0.296	413	0.767	0.028	0.093	-0.156	0.211
	Equal variances not assumed			0.293	280.629	0.770	0.028	0.094	-0.158	0.213

a. Grouping Variable: Gender

Source: Primary data

The difference in customer satisfaction and loyalty scores among the different groups including those of age, marital status and type of employment were tested using the ANOVA and the result is shown in Table 8". "It is evident (Table 6) that there was no statistically significant difference (p>.05) in the mean scores of the customer satisfaction and loyalty across the age, marital status and type of employment groups of respondents (for age, satisfaction p=.882and loyalty p=.677; for marital status satisfaction p= .690 and loyalty p= .663; for type of employment satisfaction p = 113 and loyalty p = 483).

Table 8: Analysis of Variance Test for Customer Satisfaction and Loyalty Based on Age, Marital Status and Employment Type

Demographic attributes	Satisfaction			Loyalty			Test
	F	DF	Sig	F	DF	Sig	
Age	.294	4	0.882	.581	4	0.677	ANOVA
Marital status	.563	4	0.690	.600	4	0.663	ANOVA
Type of employment	2.004	3	0.113	.599	3	0.483	ANOVA

Source: Primary data

Tripographic Profiling: With regard to the tripographic attributes (Table 9) most of the participants (67.5%) stayed in the hotel for less than six days". "The majority (78.8%) of them got information on the rating of the hotel from online sources (the hotels' websites (36%), online travel agents sites (25%) and online guest comments (18%)". "With the exception of 14 of the 415 participants who stated their wish to stay in one or two-star hotels, the remaining participants (92%) stated their preference for three to five star rated hotels. Forty-five percent of the participants stated that they preferred to stay in an independent hotel while 30% preferred to stay in chain operated hotels with the remaining 25% indicating no particular preference". "The source of information about the hotels in those particular visits came from online travel agents (23.4%), WOM (15.7%), their own previous experience (14.7%), travel agents (14.2%), social media (10.8%) while the remaining (21.2%) came from traditional information sources like brochures, guide book, newspaper, magazines, direct mail, TV and radio. Among the participants, business and meeting travellers accounted for 71% while the leisure and meeting travellers made up 29%.

Table 9: Tripographic Attributes of Respondents

"Tripographic Variables""		"Frequency"	"Percent"	"Valid	"Cumulative"
"Length of stay this visit"	1-3 days	173	41.7	41.7	41.7
	4-6 days	107	25.8	25.8	67.5
	7-9 days	80	19.3	19.3	86.7
	10+ days	55	13.3	13.3	100.0
	Total	415	100.0	100.0	
"Source of information on the hotel rating"	Hotel's own website	149	35.9	35.9	35.9
	Online guest comments	75	18.1	18.1	54.0
	Online travel agents	103	24.8	24.8	78.8
	Official hotel rating	53	12.8	12.8	91.6
	More than one source	32	7.7	7.7	99.3
	Others	3	0.7	0.7	100.0
	Total	415	100.0	100.0	
Staying preference of rated hotels	1 Star	7	1.7	1.7	1.7
	2 Stars	17	4.1	4.1	5.8
	3 Stars	110	26.5	26.5	32.3
	4 Stars	168	40.5	40.5	72.8
	5 Stars	113	27.2	27.2	100.0
	Total	415	100.0	100.0	
Staying preference (chain or independent hotels)	Independent	188	45.3	45.3	45.3
	Chain	122	29.4	29.4	74.7
	No preference	105	25.3	25.3	100.0
	Total	415	100.0	100.0	
Source of information on the hotel	Brochures	17	4.1	4.1	4.1
	Guide book	10	2.4	2.4	6.5
	Newspaper/magazine	5	1.2	1.2	7.7
	Direct mail/email	12	2.9	2.9	10.6
	TV	7	1.7	1.7	12.3
	Radio	2	0.5	0.5	12.8
	Travel agent	59	14.2	14.2	27.0
	Family and friends	65	15.7	15.7	42.7
	Own last experience	61	14.7	14.7	57.3
	Social media (online	45	10.8	10.8	68.2
	Online travel agents	97	23.4	23.4	91.6
	Others	35	8.4	8.4	100.0
	Total	415	100.0	100.0	
Purpose of stay	Leisure	114	27.5	27.5	27.5
	Business	180	43.4	43.4	70.8
	Meeting/conference	114	27.5	27.5	98.3
	Others	7	1.7	1.7	100.0
	Total	415	100.0	100.0	
Method of payment of	Self	190	45.8	45.8	45.8

hotel bill	Company	164	39.5	39.5	85.3
	Sponsors	50	12.0	12.0	97.3
	Complimentary	7	1.7	1.7	99.0
	Others	4	1.0	1.0	100.0
	Total	415	100.0	100.0	

Source: primary data

Relationships between Guests Tripographic and Customer Satisfaction and Loyalty: The difference in customer satisfaction and loyalty scores among the different groups of tripographic attributes were tested using ANOVA and Welch test, and the result is presented in Table 10.

Table 10: Anova and Welch Results on Customer Satisfaction and Loyalty Based on Tripographic of Respondents

"Tripographic attributes"	**Satisfaction**			**Loyalty**			**Test**
	F	**DF**	**Sig**	**F**	**DF**	**Sig**	
"Length of stay this visit	1.799	3	0.1471	.792	3	0.499	ANOVA
Source of information on the hotel rating"	.636	5	0.672	**2.396**	**5**	**.037**	ANOVA
"Staying preference of rated hotels"	**7.169**	**4**	**0.000**	**4.567**	**4**	**0.005**	Welch
Staying preference (chain or independent)	1.313	2	0.271	.380	2	0.684	Welch
Source of information on the hotel	1.382	11	0.178	.994	11	0.4519	ANOVA
Purpose of stay	.328	3	.805	.820	3	0.483	ANOVA
Method of hotel bill payment	.584	4	.675	0.417	4	0.797	ANOVA

Source: Primary data

The test revealed that there was no significant difference at the p > .05 level in customer satisfaction and loyalty scores for "length of stay of this visit", "purpose of stay", " staying preference of chain or rated hotels", "source of information on the hotel", "purpose of stay" and "method of hotel bill payment " tripographic attributes". "The result also revealed that there was no significant difference at the P > .05 level in customer satisfaction scores for "source of information on the hotel rating" tripographic attribute". "In some of the tripographic attributes however the result revealed significant differences". "First, there was a statistical significant difference at the p < .05 level in customer loyalty for "source of information on the hotel rating" tripographic attribute". "The effect size, calculated using eta squared, was .15 indicating a small difference in the mean score between the groups". "The post-hoc comparisons using the Tukey test indicated that mean score for group online travel agents website (M =4.24, SD = 760) was significantly different from online guest comments" group (M = 3.83xx, SD = .724).

Secondly, there was a statistical significant difference at the p < .05 level in customer satisfaction for "staying preference of rated hotels" tripographic attribute" "The effect size, calculated using eta squared, was .17 indicating a small difference in the mean score between the groups". "The post-hoc comparisons using the Tukey test indicated that mean score for group 4 star (M = 3.98, SD = .713) was significantly different from 5 star group (M = 4.12, SD =.867)". "Thirdly, there was a statistical significant difference at the p < .05 level in customer loyalty for "staying preference of rated hotels" tripographic attribute". "The effect size, calculated using eta squared, was .15 indicating a small difference in the mean score between the groups". "The post-hoc comparisons using the Tukey test indicated that mean score for group 2 star (M = 3.47, SD = .800) was significantly different from 4 star group (M = 4.14, SD = .760) and 5 star group (M = 4.19, SD = .999)". "Additionally, the results presented in this study reveal some important insights into the role of demographics on customer satisfaction and loyalty.

Discussion of the Results: The relationship between customer satisfaction and customer loyalty was tested using the Person's correlation coefficient". "The result indicated that there was a significant and positive relationship between customer satisfaction and customer loyalty. Similar results were obtained in Taiwan by Chang-Hsi, Hsiu-Chen, and Gow-Liang (2006) and in Iran by Mohajerani and Miremadi (2012)". "Other studies with similar results included that by (Awara and Anyadighibe, 2014; Alrousan and Abuamoud, 2013; Moisescu and Gica, 2013; Prentice, 2013; Kursunluoglu, 2011; Ranjbarian et al., 2011; Lin, 2005)". "Furthermore, the post-hoc comparisons using the Tukey test indicated that the mean score for 3 star group (M = 3.3449, SD = .97278) was significantly different from "travel agents" group (M = 3.888, SD = .763) and 5 star group (M = 4.19, SD = .999)". "Using a multiple regression model, the attributes that contributed to customer loyalty were computed and the model fit was relatively strong with R^2 equal to 0.335". "The three customer satisfaction variables explained about 33.5% of the variance in customer loyalty". "This result further showed that customer satisfaction had an effect on customer loyalty". "Even though all variables of customer satisfaction had an effect on customer loyalty, the overall satisfaction variable had the highest standardized coefficient (0.328), followed by satisfaction with the product (.227) and satisfaction with the hotel staff (0.190) at a significance level of $p < .01$". "This means that for every one unit increase in customer overall satisfaction, customers' "willingness to return to the same hotel in the future" increased by 0.328. In line with Cheung and Thadani (2010) study, this result was a confirmation that the overall satisfaction of the customer is the main contributor to customer loyalty.

Therefore, this finding may help hotel operators to understand the most influential factors in customer loyalty when devising and implementing marketing strategies". "This finding is also in line with the study by Prentice (2013) who reaffirmed customer satisfaction as being essential to a thriving hotel industry while customer loyalty plays an even more significant role because it is an indicator of success in the service industry". "There were no statistically significant differences in the mean scores of the customer satisfaction and loyalty across gender, age, marital status as well as the type of employment respondents attribute". "This indicates that there were almost no differences in customer satisfaction and loyalty among different demographic groupings". "This said however mixed findings had been reported by some studies conducted in the past". "To cite some examples Arif, Zakuan, Rahman, Abdullah, and Fadzil (2014) indicated that the age groups had significant differences on customer satisfaction, Rubenstein et al. (2016) found significant relationship between gender and service quality dimensions as a precursor of customer satisfaction, Kim, Park, and Jeong (2004) and Serenko, Turel, and Yol (2006) showed that demographic variables created differences in the service perception and customers' satisfaction and retention. Cetin and Dincer (2014) however, found that similar to the finding of this study, none of the demographic factors groups (age, gender, marital status, education, nationality and income) showed significant differences on scores of customer satisfaction in hotels". "In addition, the study conducted by Tsiotsou and Vasioti (2006) reported that employment and family status had no effect on customers' satisfaction while education and age showed significant differences in the mean scores of customers satisfaction.

Furthermore, in their study of bank customers, Mirzagoli and Memarian (2015) found out that wages and conditions of employment, occupation, gender, education, marital status, had no impact on customers' satisfaction based on their perceived service quality". "With tripographic attributes, there were no statistically significant differences in the scores of the customer satisfaction and loyalty in relation to the length of stay, staying preference (chain or independent), the source of information regarding the hotel, purpose of the visit and the method of payment of the hotel bill". "In addition to this, there were no statistically significant differences in the scores of the customer satisfaction in relation to the source of information on the hotel rating tripographic attributes. Kattara, Weheba, and Ahmed (2015), in their study of employees' behaviour on customers' satisfaction and loyalty, also found no significant difference in customer satisfaction and loyalty in length of stay of customers". "There were statistically significant differences in the mean scores of customers' satisfaction and loyalty across the five staying preference in the rated hotels groups". "The mean score of the customers who preferred to stay in the two stars, hotels differed from those in four and five-star hotels". "The mean score for three-star hotels was also different from five-star hotels". "The highest mean score of customer satisfaction and loyalty came from customers who preferred to stay in five-star hotels followed by four three stars and two star rated ones". "This indicates that hotel customers who preferred to stay in higher star rated hotels have different customer satisfaction and loyalty to those who preferred to stay in lower rated hotels. In future, larger sample size and a longitudinal study may contribute.

5. Conclusion and Recommendations

The higher the hotels rating, the higher customer satisfaction level as a result of the provision of the more tangible and intangible product by the hotel". "It is imperative therefore for hotels to review their ratings according to international standards and provide the required product and service accordingly". "Failing to do so may lead to an inability to meet their customer's expectation creating a negative service quality leading to dissatisfied and disloyal customers (Souca, 2011)". "Overall, there were no differences in customer satisfaction and loyalty among customers based on their demographic profile". "Regarding the tripographic attributes, the only attribute that showed a significant difference in both customer satisfaction and loyalty was "staying preference in rated hotels"". "Hotel customers who preferred to stay in higher star rated hotels had different customer satisfaction and loyalty to those who preferred to stay in lower rated hotels". "This could be the result of the provision of more tangible and intangible products that met the customer's expectations by the hotels". "It is imperative therefore for hotels to review their ratings according to international standards and provide the required product and services accordingly". "Failing to do so may lead to dissatisfied and disloyal customers". "This study has some limitations". "The main limitation lies in the omission of some demographic attributes such as education, income and geographic origin of hotel guests.

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Examining the Impact of Antecedents of Firm Performance on Companies in South Africa

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Abstract: The aim of this study is to establish the impact of social media, information sharing and knowledge sharing on firm performance among companies in South Africa, Gauteng province in particular. In as much as the issue of social media communication has received great benefits and growth within organisations, little has been researched about the impact of social media on job performance, knowledge sharing and information sharing among companies in the Gauteng province, South Africa. Social Identity Theory (SIT) has been used to explain the associations in the model. Questionnaires were distributed to both management staff and lower level employees in the companies in Gauteng province of South Africa. This study used a quantitative research methodology using Smart PLS software. This software was employed to test the relationships among the four hypotheses. The results showed that there is a positive and significant relationship among the four proposed hypotheses. Basing on the findings of this research, recommendations were made to both the top-level employees and lower level employees in the companies in South Africa. This study is expected to have real-world and academic implications to policymakers for the companies in South Africa. On top of this, the study will provide new insights and added first-hand knowledge to the existing body of literature which is meagre in South African companies.

Keywords: *Social media, Knowledge sharing, Information sharing, Firm performance, Social Identity Theory*

1. Introduction

The importance of this study is to establish the impact of social media, information sharing and knowledge sharing on firm performance of companies in the Gauteng province of South Africa. There are four empirical goals of this study which are to investigate the relationship between social media and knowledge sharing, examining the association between social media and information sharing, to scrutinize the relationship between knowledge sharing and firm performance and lastly to establish the relationship between information sharing and firm performance. The significance of the study is to investigate the influence of the predictor which is social media on mediators which is knowledge sharing and information sharing and the outcome variable which is firm performance. Efficacy in communication has been an essential element in the success and smooth running of any organization (Gupta, Seetharaman & Raj 2013; Felix, Saboo, Kumar, & Ramani 2016; Rauschnabel & Hinsch 2017). Pooe, Mafini and Loury-Okumba (2015) argued that communication is a basic prerequisite for the attainment of organisational goals and objectives in terms of customer relationship and organisation's relationship. The survival of any organisation depends on its operational communication competence (Sidorova, Amaboldi & Radaelli 2016).

Through communication, an organisation can achieve high level of performance, outperform competitors, improve brand reputation, and enhance both customer trust and employee trust, meet customers' requirements and expectations as a promise (Dong &Wu 2015; Brooks & Califf 2016; Sidorova, Amaboldi & Radaelli 2016; Saboo, Kumar & Ramani 2016). In the present business environment communication through socials media is vital and establish solid organisation's relationship with suppliers, which has resulted into win-win advantages (Vasquez & Velez 2011; Macnamara & Zerfass 2012; Baruah 2012; Neves & Errami 2016). Open communication is one of the key strategies for organizations' knowledge, information sharing and performance such exchanges is important for the growth and performance of organisations. Many organisations today, still find it difficult to understand and explore information and knowledge sharing to enhance performance through social media platforms (Chumg, Seaton, Cooke & Ding 2016). Since social media is seen as the future of communication and as an effective means for knowledge sharing and information sharing within organizations (Badea 2014), this study therefore set out to investigate the influence of social media impact on knowledge sharing and information sharing for the enhancement of firm performance.

2. Literature Review

Social Identity Theory: Social identity theory (SIT) has been used in this study to elucidate the relationships among social media, information sharing knowledge sharing and organisational performance. This is because social identification results to devotion, belongingness, support for the organisation and ultimately good firm performance. SIT leads to outcomes that are traditionally associated with group formation and reinforces the antecedents of identification. Organisational identification has long been recognised as a critical construct in the literature of organisational behaviour affecting both the satisfaction of the individual and the effectiveness of the organization (Ashforth & Mael 1989). In this regard, social identities are often developed through social interactions (Li, Xin & Pittutla 2002) and, therefore, can be used to explain firm performance in organisations. The extant literature indicates that the SIT is drawn from intergroup theory, which was developed by social psychologists to describe the effect of group membership on intergroup behaviour where employees share knowledge and general information (Carmon, Miller, Raile & Roers 2010). As for SIT, people tend to classify themselves and others into various social categories.

These categories include organisational membership, religious affiliation gender and age cohort. Ashforth and Mael (1989:20) defined social identification as a perception of oneness with a group of persons. This stems from the categorisation of individuals, the distinctiveness and prestige of the group, the salience of outgroups and the factors associated with group formation. Ashforth and Mael (1989) showed that identification with the group leads to activities that are congruent with the distinctiveness, provision for institutions that embody the identity, stereotypical perceptions of self and others and outcomes that are traditionally associated with group formation. According to the SIT, an individual does not have a single personal identity, but multiple social identities (Tajfel & Turner 1979:33; Terry, Hogg & White 1999:225; Hogg & Vaughn 2002:6). One's social identity is formed as an individual place oneself into distinct social categories based on similarities with these groups, such as students, Christians, or females (Scott 2007). It is also through this process that individuals develop their organisational identities, a specific type of social identity through associating themselves with others in their organisations and reflecting on these comparisons over time. Relating the SIT to the current research context, this study submits that, for instance, employees in South African companies can develop organisational identities to their current organisation based upon their judgement of their company and other companies (Carmon et al., 2010).

This implies that when employees find their group identity with a company it is very important to them an attempt is made to distinguish themselves from other companies (Abrahams, Hogg, Hinkle, & Otten 2005). Thus, a group of employees belonging to one company may feel more attached to their company hence their overall organisational identity (Hogg, Abrahams, Otten & Hinkle 2004). It is, therefore, submitted in this study that the more favourable the comparisons of an organisation an employee perceives of his or her company or the more distinct it is from other companies, the stronger the expected foundation of a positive social identity. It is anticipated also that stronger organisational identity in companies is forged when individual employees perceive their values to match that of the organisation. In this case, workplace interactions and organisational value congruence foster organisational identity in the company's context (Pratt 1998). Nevertheless, when an employee does not identify with an organisation, it can lead to distrusting organisational information or to interpretation of information in a way that reinforces feelings of disidentification (Dukerich, Kramer & Parks 1998). Cheney (1883: 8) concluded that "organisational identification seems to be a specific type of social identification that elicits perceptions of shared values, belonging and loyalty to an organization".

Burke (1937:140) maintains that individuals naturally respond to divisions by identifying with other individuals or groups and identification essentially becomes ''the function of sociality…one's participation in a collective, social role cannot be obtained in any other way''. Identification, therefore, is important for employees who must navigate inevitable divides in order to find their fit within companies. By developing an overall organisational identity, people are able to develop a strong sense of cohesion among family member employees and perhaps encourage other employees to buy into their vision and values (Zellweger, Eddleston & Kellermanns 2010). Social identification not only encourages participation in organisational decision making, but also encourages the development of a strong sense of identification with companies (Zellweger et al., 2010). If companies succeed in creating a sense of belonging and identification for member employees, the perception that employees have been let into the company may be enough to create a sense of commitment and ultimately high firm performance. As organisational identification increases, it positively influences a variety of work attitudes, behaviours and outcomes.

Organizational identification is linked theoretically and empirically to motivation, decision making, employee interaction and length of service (Cheney, 1983:342); turnover and turnover intentions (Mael & Ashforth 1992; Van Dick, Christ, Stellmacher, Wagner, Ahlswede & Grubba 2004) and job satisfaction and performance (Carmeli, Gilat & Waldman 2007). Organisational identification plays an important role in employees' well-being, satisfaction and productivity and has promising potential for increasing firm performance (Scott et al., 2007; Van Dick et al., 2004). Becker (1992:233) noted that the primary motives for commitment to an organisation are identifying with the organisation. Individuals who embrace their organisation's goals and missions through identification processes are more likely to remain committed to their organisations than individuals who do not (Van Dick et al., 2004). Ellemers, Spears, and Doosje (1997:618) found that individuals who had stronger in-group identification were more likely to display a commitment to their workgroups. Consequently, if an employee begins to identify with an organisation, particularly if they perceive they are a member of the in-group then it is likely they will also begin to feel more committed to the organisation and stay within the organization and increase the productivity and firm performance.

Social Media: The growing acceptance of social media in this modern time did not only change the social life of individual and regular internet users alike, but also to a great extent has enhanced organisation growth and productivity both within and outside the organization (Swani, Milne, Brown, Assaf & Donthu 2016; Wu 2016; Wang, Pauleen & Zhang 2016). The development of social media has become the greatest events in recent years for organizational learning (Moghavvemi, Sharabati, Paramanathan & Rahin 2017). This is because social media represents a new strategy for organisations to gain a competitive advantage and enhance job performance in contemporary society (Nascimento, da Silveira 2016). Social media is an aided computer-based technology or an internet-based application in which members of organisations are able to create knowledge, share relevant information and contents as well as participate in social networking activities (Rauniar, Rawski, Yang & Johnson 2014). Wu, Li and Chang (2016:870) defined social media as "the interactive platforms generated by mobile and web-based technologies on which individuals and communities can share, co-create, discuss and modify user-generated content". Social media is a countless array of internet-based tools and platforms that increase and enhance the knowledge sharing and sharing of information. For example, Facebook, Skype, Wikipedia, Google +, LinkedIn, YouTube and Twitter are social network platforms that allow organisations own their website page and applications for quick and easy transfer of text, photos, audio, video, knowledge and information sharing (Rauniar, Rawski, Yang & Johnson 2014; Quinton & Wilson 2016; Pinho-costa, Yakubu, Hoedebecke, Laranjo, Reichel, Colon-Gonzalez, Neves & Errami 2016).

Information and Knowledge Sharing: Information sharing is denoted to as the exchange of data between people, organisations and social media as well as communication technology. Social media and the developing internet platforms have contributed immensely to the growth of information sharing globally. During the earlier days, the physical transfer of information or data to and among other entities was a nightmare due to its non-portable format and also the inability to import and export data. But today, information sharing has been made possible and common through social media platforms. Social media encourages information sharing capability. Organisations need information sharing capabilities in order to respond to market needs effectively and to enhance performance. "Using information sharing platforms intelligently has been shown to be a more effective way to manage any organization" (Quinton & Wilson 2016:16). The efficiency of the organisation can be enhanced through information. Information sharing is important to organisations as it is prerequisite to customer relationship building. Valuable information sharing is a useful way of lowering costs, improving the overall accuracy of product and services data and also as a way of gaining access to relevant information. Information sharing is a prerequisite to knowledge sharing. Knowledge sharing is an essential part of knowledge management and as such, it is more than just sharing information or exchanging data.

Knowledge sharing is the exchange of skills, vision experience and expertise among organisations so that new information can be created, evaluated understood and interpreted for organisational improvement and development (Navimipour & Charband 2016). However, for knowledge sharing to take place it requires that individuals or organisations involved are willing to share their knowledge in order to receive knowledge

(Moghavvemi et al., 2017). Li, Zhang, Zhang and Zhou (2016), made it clear that "knowledge sharing is a process in which individuals exchange their knowledge and create new knowledge together. It comprises two categories of behavior: knowledge donating, which refers to passing on one's own intellectual capital to others and knowledge collecting, which refers to consulting others in order to acquire some of their intellectual capital". Therefore, knowledge sharing requires some level of commitment, trust, willingness and collaboration among parties involved in learning and improvement (Tseng & Huang 2011). Knowledge is the understanding of facts, information and description, as well as the acquisition of skills through experience and education. Knowledge sharing seeks to make information meaningful, accessible, and usable among organisations in order to create and gain competitive advantage (Paulin & Suneson 2012).

Social Media Influence on Knowledge Sharing and Information Sharing: Ryden, Ringberg and Wilke (2015), Rauniar et al. (2014) noted that social media is rapidly changing and transforming the way organisations communicate with their customers and with each other. Social media aid the simplification of information sharing and knowledge sharing (Quinton & Wilson 2016; Chung, Andreev, Benyoucef, Duane, & O'Reilly 2016). For example, in late 1960, organisational cross-functional meetings could not hold except there be a face-face interface with the respective individuals. However, in this 21st century, the reverse is the case, where organisations can now schedule their meeting through Skype without having to meet face to face as opposed to late 1960 (Wu et al., 2016). Nisaf and Wickramasinghe (2013) prove that social media, information sharing is easy and cost-effective, create opportunities for business collaboration and knowledge sharing is accurate, convenient with effective feedback. Organisations now advertise and promote their product brands, image and reputation through social media (Chung, Andreev, Benyoucef, Duane, & O'Reilly 2016). Swani et al. (2016:2) argued that social media communication "enables marketing organisations to influence brand outcomes and purchase decisions through fan promotion and popularization of brand content". It is widely known that external collaborative relationships between organisations are essential to enhancing productivity and as such, social media is believed to be important (Nascimento, da Silveira 2016). The collaborative relationship between organisations necessitates unceasing information flow, trust, engagement and commitment of which social media play an essential role (Wang, Pauleen & Zhang 2016).

Social media help organisations improve on their collaborative strength through flexible participation and quick response which in turn may result into leaning, information sharing, gaining new knowledge and increased productivity (Wu et al., 2016). An effective tactic that allows organisations to easily and conveniently interact with customers', influence sales, enhance responsiveness, build relationships, increase brand awareness, customers' loyalty and enhancement of information sharing and knowledge sharing is the essence of social media communication popularity among organizations (Gupta, Seetharaman & Raj 2013; Quinton & Wilson 2016; Wang et al., 2016). According to Moghavvemi et al. (2017), information sharing provides solutions, new insights and mechanisms for knowledge sharing among organizations. Social media is also progressively rising in popularity among employees and office workers alike for information and knowledge sharing (Tseng & Huang 2011; Razak, Pangil, Md Zin, Azlina, Yunus & Asnawi 2016; Ou, Davision, & Wong 2016). Knowledge and information sharing among employees influence positively organisation's sustained competitive advantages and business objectives (Sivertzen, Nilsen & Olafsen 2013). As a result, organisations and academic institution now seek to empower and motivate their employees towards the use of social media technology platform to communicate with customer and shareholder in order to be more effective on firm performance and productivity (Hansen & Levin 2016; Ismaeel & Qammach 2016; Kwahk & Park 2016). Therefore, social media is an essential source of information sharing and knowledge sharing.

H1: There is a significant and positive impact between social media and knowledge sharing
H2: Social media has a significant and positive impact on information sharing

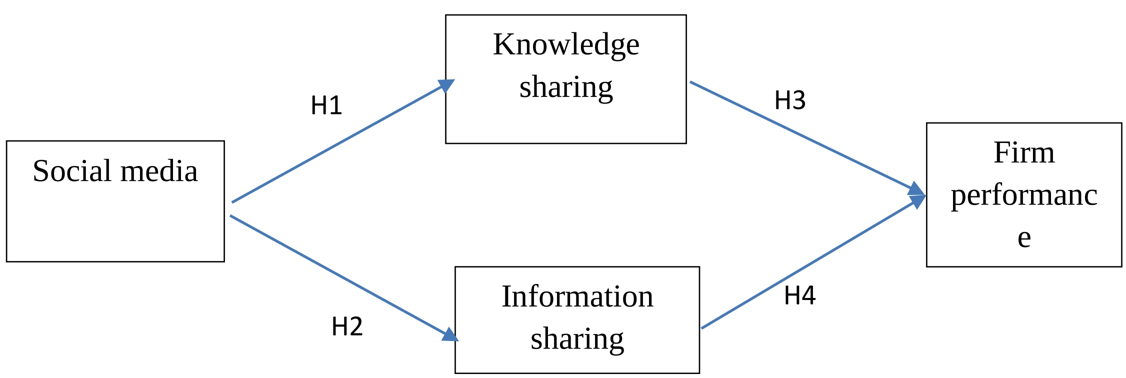
Knowledge Sharing Influence on Firm Performance: Knowledge sharing has been used interchangeably with information sharing. Knowledge sharing is considered more valuable resources because knowledge sharing enhances organisation's capability to manage effectively information and resources, as well as to enable significant return on investment (Tseng & Huang 2011; Kuzu & Ozilhan 2014; Chumg, Seaton, Cooke & Ding 2016). One of the reasons for organisation's decision to be in a collaborative relationship with other organisations is to enable it to get access to relevant information and knowledge on emerging trends driving market needs and demands that would have been impossible working in isolation (Trivellas, Akrivouli, Tsifora & Tsoutsa 2015; Olaisen & Revang 2017). With the shared information, knowledge on how to strategically manage inventory forecast and implement necessary strategy may emerge (Akturan & Gunduz Cekmecelioglu 2016). A mutual relationship among organisations can generate relevant and competitive information on market ideas, thereby enhancing and improving organisational performance as well as a sustained competitive advantage (Razak, Pangil, Zin, Yunus & Asnawi 2016; Wang, Sharma & Cao 2016; Llopis & Foss 2016). Knowledge sharing provides important information and know-how to solve problems and develop new ideas (Ismaeel & Qammach 2016; Hussain, Konar & Ali 2016). According to Li, Zhang, Zhang and Zhou (2016), effective knowledge management enables an organisation gain a competitive advantage over rivals due to its positive influence on "cost reduction, new product development, team performance, innovation and organisational performance". Therefore, the following hypothesis is postulated:

H3: Knowledge sharing has a significant and positive relationship with firm performance

Information Sharing Influence on Firm Performance: Scholars have recognised information sharing as the vital spark of logistics and supply chain integration; market relationship with key customers and suppliers as well as materials flow (Wu, Chuang & Hsu 2014; Pooe, Mafini, & Loury-Okoumba 2015; Tong & Crosno 2016; Bian, Shang & Zhang 2016). The lack of information sharing in an organisation may result to a poor performance level as the organisation may not be able to cope with the market pressure and demands (Srikanth & Jomon 2013; Munirat, Sanni & Kazeem 2014). Information sharing enables organisations to satisfy its customers' specific needs and requirements (Hatala & Lutta 2009). It enables the efficiency and effectiveness of the organisation resources. This is due to its potential to keep organisations up-to-date and ensuring business competitive performance as well as long-term collaborative relationship improvement with external organizations (Bontis, Richards & Serenko 2011). Information sharing enhance the visibility of products and services supplied (Gil-Garcia & Sayogo 2016). According to Lotfi, Mukhtar, Saharan and Zadeh (2013:298), "in order to survive and compete effectively in today's global economy, organisations strongly need to create, share and disseminate up-to-date and appropriate knowledge and information". The hypothesis is stated as follows:

H4: There is a significant and positive impact between information sharing and firm performance

Figure: 1



3. Research Procedure

A quantitative cross-sectional survey strategy was used to scrutinize the impact of social media on knowledge sharing, information sharing and firm performance among companies in the Gauteng province of South Africa.

Measurement Items: Previous work was used to design the questionnaires. Some slight modifications were made in order to fit the current research context and purpose. Social Media was measured using five-item scales adapted from Hansen and Levin (2016). One item which is SM 4 was deleted because the factor loading was below the recommended value of 0.5. Knowledge sharing used a five-item scale measure adapted from Moshabbaki and Jaha'nyan (2009). Information Sharing used a five-item scale measure adapted from Wu, Chuang and Hsu (2014). Firm performance was measured using a six-item scale, from Tseng and Huang (2011). FP 3 was deleted due to the factor that the value did not meet the recommended threshold. A five-point Likert-type scale was used to measure the validity and reliability of the instruments.

Sample Description: 233 questionnaires were distributed to both management and lower level employees in the companies in the Gauteng province of South Africa because they are the ones with immense knowledge the running of the company. A sample size of 100 to 300 respondents is good for reliability and validity reasons when running Smart PLS (Nunnally & Bernstein 1994). Therefore, 233 questionnaires used in this study within the recommended range. They also have information concerning social media, knowledge sharing information sharing and firm performance. This requires people with internal information that's why this target population was chosen. Two hundred and twenty-two questionnaires were returned of which only 185 were usable. This yielded a valid response rate of 79%. Descriptive statistics in Table 1 show the gender, age and marital status of employees in the companies.

Table 1: Descriptive Statistics

Gender	Frequency	Percentage
Male	97	52%
Female	88	48%
Total	**185**	**100%**
Age	**Frequency**	**Percentage**
≦30	60	32%
31-60	109	59%
≧ 60	16	9%
Total	**185**	**100%**
Marital status	**Frequency**	**Percentage**
Married	52	28%
Single	133	72%
Total	**185**	**100%**

More males took part in the study as shown in Table 1. They constituted 52% of the total respondents. On the other hand, females made up 48% of the total respondents. In terms of the age groups of respondents, individuals who were less than 30 years of age were 60 in total which is equivalent to 32% in the study. Those aged between 31 and 60 participated more in the study and they represented 59% of the total population. The least group were those above 60 years of age which constituted about 9% only. Married participants constituted 28% of the sample while those who were single constituted 72% of the total participants.

Psychometric Assets of the Measurement Scale: Table 2 reports the validity and reliability of the measurement scale. The table shows the Research constructs, Cronbach alpha test, Composite reliability (CR), Average variance extracted (AVE) and item loadings.

Table 2: Accuracy Assessment and Descriptive Statistics

Research Constructs	Descriptive statistics*		Cronbach's Alpha test		C.R.	AVE	Item Loading
	Mean	SD	Item-total	α Value			
Social Media (SM)							
SM 1			0.453				0.460
SM 2			0.602				0.671
SM 3	2.09	1.711	0.806	0.712	0.710	0.550	0.861
SM 4			0.704				0.789
Knowledge Sharing (KS)							
KS 1			0.510				0.612

KS 2			0.492				0.583
KS 3	3.11	1.106	0.787	0.820	0.820	0.699	0.830
KS 4			0.798				0.860
KS 5			0.803				0.870
Information Sharing (IS)							
IS 1			0.789				0.842
IS 2			0.742				0.822
IS 3	3.55	1.398	0.733	0.858	0.859	0.705	0.805
IS 4			0.722				0.813
IS 5			0.646				0.729
Firm Performance (FP)							
FP 1			0.639				0.738
FP 2			0.641				0.753
FP 4	2.30	1.704	0.508	0.800	0.800	0.578	0.545
FP 6			0.687				0.735
FP 6			0.704				0.776

SM=Social Media; KS= Knowledge Sharing; IS=Information Sharing; FP= Firm Performance

SM 1 has the lowest figure of 0.453. If this figure is rounded off to the nearest whole number, it becomes 0.500 which is within the recommended threshold whilst the highest was SM 3 with 0.806. The lowest factor loading observed was SM 1 with 0.460 which is less than the acceptable value of 0.5 but if this figure is rounded off to the nearest whole number it becomes acceptable which is 0.500 and the maximum was KS 5 with 0.870. This shows that the measurement instruments are valid. On the other hand, the lowest Cronbach alpha was 0.712 and the highest was 0.858 which shows that the constructs were internally consistent or reliable and explained more than 70% of the variance. In addition, 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	FP	IS	KS	SM
FP	**0.549**			
IS	0.410	**0.500**		
KS	0.300	0.333	**0.451**	
SM	0.450	0.481	0.442	**0.504**

SM=Social Media; KS= Knowledge Sharing; IS=Information Sharing; FP= Firm Performance

0.60 or less is endorsed 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, 1994:15). "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" (Anderson & Gerbing 1988:33).

Path Modeling Outcomes: After checking the reliability and validity of the measurement instruments (reported in Table 2), the study continued to test the proposed hypotheses. In total there are three hypotheses that are tested. In the path model, Social Media (SM); Knowledge Sharing (KS); and Information Sharing (IS) are the predictor variables and Firm Performance (FP) 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 Outcomes 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, SM stands for Social Media; KS is the acronym for Knowledge Sharing; IS stand for Information sharing; FP is the abbreviation for Firm Performance.

Figure 2: Path Modeling and Factor Loading Outcomes

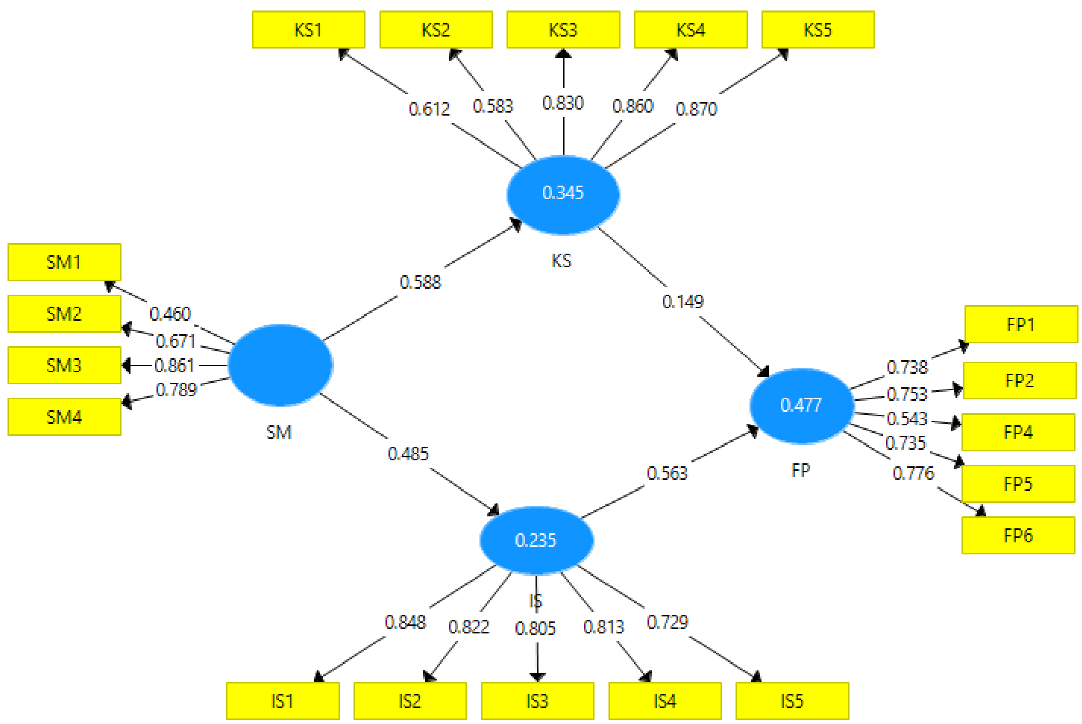


Table 4: Results of Structural Equation Model Analysis

Path	Hypothesis	Path coefficients (β)	T- Statistics	Decision on Hypotheses
Social Media (SM) → Knowledge Sharing (KS)	**H1**	0.588[a]	8.499	Accept/ Significant
Social Media (SM) → Information Sharing (IS)	**H2**	0.485[a]	7.333	Accept/ Significant
Knowledge Sharing (KS) → Firm Performance (FP)	**H3**	0.149[a]	3.148	Accept/ Significant
Information Sharing (IS)→ Firm Performance (FP)	**H4**	0.563a	8.231	Accept/ Significant

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

As can be deduced from Table 4 above it shows the 4 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 substantial association is expected to have a t-statistics that is above 2. Drawing from the results provided in Table 4, four of the hypothesized relationships (H1, H2, H3, & H4) were statistically noteworthy.

4. Discussion of the Results

The main objective of this study was to examine the influence of social media, knowledge sharing, and information sharing on firm performance in companies in the Gauteng province of South Africa. In this study, hypothesis one was supported. It can be observed in Figure 2 and Table 4 that social media exerted a positive influence (r =0.588) and were statistically significant (t=8.499) in predicting knowledge sharing. This result implies that social media directly influence knowledge sharing in a positive and significant fashion the higher the level of social media, the higher the level of knowledge sharing. These results are in agreement with the study done by Ismaeel and Qammach (2016). The second hypothesis proposed that social media has a positive influence on information sharing. This hypothesis was reinforced in this study. Figure 2 and Table 4 indicate that social media and information sharing which is H2 was reinforced. Social media exerted a positive influence (r= 0.485) on information sharing and were statistically substantial (t= 7.333). This result signifies that social media is positively and meaningfully related to information sharing. The results for this study concurred with the results found by Kuzu and Ozilham (2014) in their study.

On top of this, the third hypothesis, which advanced that knowledge sharing exerts a positive influence on firm performance was buttressed and acknowledged in this study. It is reported in Figure 2 and Table 4 that H3 knowledge sharing exerts a positive (r=0.149) influence on firm performance, this impact is statistically significant (t=3.148). This outcome advocates that knowledge sharing has a direct positive effect on firm performance. Therefore, the more effective the knowledge sharing, the greater the positive firm performance Baruah, (2012) also concluded that knowledge sharing has a positive effect on firm performance. Moreover, the fourth hypothesis proposed that information sharing has a positive influence on firm performance. This hypothesis was reinforced in this study. Figure 2 and Table 4 indicate that information sharing and firm performance which is H4 was significant. Information sharing exerted a positive influence (r= 0.563) on firm performance and was statistically substantial (t= 8.231). This result signifies that information sharing is positively and meaningfully related to firm performance. Thus higher levels of information sharing will lead to higher levels of firm performance. Information sharing leads to production boosting (Gil-Garcia & Sayogo 2016).

Limitations and Future Research Directions: Weaknesses were observed during this research. First, the study was constrained to four constructs only forthcoming research could also include other constructs like trust and communication which can boost firm performance. In addition, the results are based on a small sample of 185 respondents, which makes it problematic to make a sweeping statement on the results to other contexts of investment companies in South Africa. Prospect studies could make use of bigger sample sizes in order to get views that are more representative. Despite the use of a quantitative approach, imminent studies could also use a mixed method approach so that in-depth views of higher education students can also be captured.

5. Conclusion and Managerial Implications

Factors such as social media, information sharing and knowledge sharing are instrumental in high firm performance. The study further confirms that firm performance is at its peak when the social media, knowledge sharing and information sharing support are highly valued by top management and low-level employees too. Social media (r=0.588) came out as the highest value amongst the 4 hypotheses. Social media has great influence on knowledge sharing and so companies should attempt by all means to increase the use of social media on firm performance in the companies in South Africa. To increase knowledge sharing spirit-de-corps should be highly practised, teamwork and transparency at workplaces. Information sharing (r=0.563) developed as the second highest scoring construct amongst the three factors impelling firm performance. Perhaps, this result could be attributed to the fact that most companies perform better if information sharing is free, correct and valid. Thus, in order to enhance good firm performance greater emphasis should be placed on good information sharing which should be very efficient and effective at whatever cost. The study has both theoretical and managerial implications. Theoretically, it makes a noteworthy progression in marketing theory by methodically examining the interplay between social media, knowledge sharing, information sharing and firm performance. However, the study is an important contributor to the existing literature on this subject.

The research model is also very robust and future researchers might try to use the same kind of model in a different context. The Social Identity theory enhanced immense knowledge on the relationships and links between the variables. Practically, social media, knowledge sharing and information sharing are instrumental in exerting a positive influence on firm performance and perfections in each of these three factors could arouse increased firm performance in South African companies. Social media can be improved through advertisements and good audience targeting. Knowledge sharing can be enhanced by self-development and transparency at workplaces. On the other hand, information sharing can be enriched through eradicating barriers in communication. Nevertheless, firm performance can be value-added by other means such as induction programmes, avoiding organisational politics and good business management practices.

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Financial Inclusion and the Trade-Growth Nexus: Evidence from the Emerging Zimbabwean Economy

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Abstract: This study examined the effect of financial inclusion in the trade-growth nexus in Zimbabwe using time series data collected from the World Bank databases from 1980 to 2016. The study precisely examined whether financial inclusion is a passage within which trade openness impacts growth in Zimbabwe. Also examined was the complementarity effect of financial inclusion and trade openness on growth. The effect of financial inclusion and trade openness on growth has received much attention from researchers across the globe and literature is awash with theoretical and empirical evidence of such studies. What is yet to be examined is whether financial inclusion is a passage within which trade openness influences growth. The study finds a negative significant effect of financial inclusion and trade openness on growth in Zimbabwe. Moreover, the findings show a complementary, strong and positive nexus linking financial inclusion and trade openness on growth in Zimbabwe. Policy-makers are, however, implored to formulate policies meant to deepen financial inclusion in order to enhance growth through trade openness. The article will help expand the academic knowledge and as such contribute in filling the gap that exists within the body of knowledge. The article is important to policy-makers, the academia, private sector and researchers at large.

Keywords: *Financial Inclusion, Economic Growth, Trade Openness, Emerging Economy, Zimbabwe*

1. Introduction

Background of the Study: Globally, financial inclusion has attracted a lot of attention from policy-makers, governments and researchers as one of the main pillars of economic development. Regionally and nationally, financial inclusion (FI) has also been embraced as one of the most important aspects of fostering development. The importance of FI in economic development and growth has, however, seen the formation of organisations or networks such as the Global Partnership for Financial Inclusion (GPFI) and the Alliance for Financial Inclusion (AFI) with the main thrust of developing national financial inclusion policies and strategies. Despite the role of FI in economic development and growth, studies have shown that more than 2.7 billion people are still financially excluded (Otchere, 2016). Otchere (2016) further argues that about 400 million small to medium enterprises (SMEs) are also financially excluded in developing countries. To Evans (2015), 23% of Africa`s adult population holds an account at the bank, despite how critical or important FI is in the development and growth of a country. Although prior studies have yielded mixed and inconclusive results concerning the nexus between trade openness and GDP, there seems to be some consensus as the majority of the studies contend that trade has an influence on economic growth. For example, Keho (2017) finds a positive significant nexus between trade and GDP in the short and long run.

More so, his study shows a strong, positive and complementary trade-capital formation nexus on economic growth. To Keho (2017), many studies have shown a positive nexus existing between trade openness and GDP. Some of the studies include (Frankel & Romer, 1999); (Dollar & Kraay, 2004); (Freund & Bolaky, 2008) and (Chang, Kaltani, & Loayza, 2009). Other studies such as (Vlastou, 2010); (Ulaşan, 2015); (Polat, Shahbaz, Rehman, & Satti, 2015) and (Musila & Yiheyis, 2015), however, deny the presence of a positive trade-GDP nexus (Keho, 2017). Keho (2017) points out that the mixture of results from the empirical studies can be ascribed to three factors which are (1) the sample size (countries), (2) the econometric models, and (3) the proxy used for trade openness. From all these studies, the role of FI in the trade-growth nexus has been silent. Though many studies regarding the impact of FI on economic growth have been done previously, the role of FI in boosting trade openness` ability to influence economic growth and development has received little attention if any. The study works towards influencing Zimbabwe`s FI policies to not only influence trade nonetheless should also enhance the effect of trade on GDP. The article intends to reinforce that economic growth in Zimbabwe is influenced by FI and trade indicators separately.

Organization of the Remainder of the Article: The rest of the article is arranged in the following major headings: literature review, methodology, data analysis & interpretation, conclusion and references.

Problem Statement and Research Gap: There are many studies in the literature that have explored the effect of (1) trade openness on GDP and (2) the impact of FI on GDP. The majority of these studies point towards a strong and positive nexus between the variables. To this end, the effect of FI and trade openness on GDP and the impact of FI on trade openness have so far not been investigated. Very rarely does one find such studies in literature especially in relation to Africa in general and Zimbabwe in particular. Not much is known regarding the nexus between FI-trade-growth though the effect of trade openness on GDP in Africa in general and Zimbabwe in particular cannot be overemphasized.

Contribution of the Article: This article seeks to fill the gap in the body of knowledge as it is (1) one of its types to the author`s best knowledge to examine the impact of FI on trade openness` ability to influence GDP (2) in Zimbabwe. This article therefore, is of significant value to policy-makers, government and the academia.

2. Literature Review

There has been growing theoretical evidence of positive relationships between trade openness and growth in many developed nations though such relationships have not been proven empirically in developing nations, particularly African in countries (Musara, Gwaindepi, & Dhoro, 2014). The nexus between economic growth and trade openness has been theoretically controversial (Zahonogo, 2017). Literature has shown the potential of trade openness in enhancing economic development and growth in both the short and long-run through the provision of goods and services, efficient allocation of resources and improved productivity as a result of knowledge dissemination and technology diffusion (Grossman & Helpman, 1991); (Rivera-Batiz & Romer, 1991) and (Barro & Sala-i-Martin, 1997). It is therefore expected that countries with more trade openness will relatively outperform those with less openness (Keho, 2017). While conventional wisdom predicts a growth-enhancing effect of trade, recent developments suggest that trade openness is not always beneficial to economic growth (Zahonogo, 2017). Zahonogo (2017) further argues that the advantages that come with trade openness are, however, not automatic.

(Kim & Lin, 2009) cited by Zahonogo (2017) find that trade openness contributes to long-run economic growth, with effects varying according to the level of economic development. Also (Herzer, 2013) in Zahonogo (2017) finds that the impact of trade openness is positive for developed countries and negative for developing ones. The relationship between trade and growth does not however establish a cause and effect relationship because as economies grow, they trade more and become more open (Musara, Gwaindepi, & Dhoro, 2014). The static and dynamic gains from trade arise from comparative advantage theory and the effects of trade on the level of investment, and on the state of technical knowledge (Marrewijk, 2012). Many studies suggest that FI is a precondition for economic growth (Evans, 2015). Countries with low GDP per capita seem to be less financially inclusive (Sarma & Pais, 2011). Theoretical literature shows that: (1) FI enhances trade openness, (2) trade openness can have a positive or negative impact on economic growth and (3) FI can have a positive or negative impact on economic growth. What has not been shown by literature which this study seeks to show are (1) the impact of FI on trade openness and (2) the role of FI in enhancing the impact of trade openness on economic growth.

Empirical Literature Review: Empirically, a number of studies have examined the trade-growth nexus. However, evidence regarding this nexus seemed to be mixed and inconclusive across countries and methodologies. Summarily, the findings of these studies can be placed into three main categories: (1) trade openness has a positive impact on economic growth, (2) trade openness has a negative impact on economic growth, and (3) there is no causality between trade openness and economic growth. What still remains to be known is whether there are other channels through which trade openness influences economic growth? If there are, is FI one of the channels through which trade openness influences economic growth in Zimbabwe? This study, therefore, seeks to answer these questions. The impact of FI on trade openness need also to be examined since there are no empirical studies that have investigated this relationship though theoretical literature point towards a positive relationship between the two. In his study on the impact of trade openness on GDP in Cote d'Ivoire, Keho (2017), using the Toda and Yamamoto Granger causality tests and the Autoregressive Distributed Lag bounds test to co-integration, find a positive nexus linking trade and GDP in both periods.

Moreover, that study shows a complementary, strong and positive capital formation-trade nexus on growth. Musara, Gwaindepi, & Dhoro (2014) in an attempt to investigate the relationship between trade and economic growth in a long run using data collected from 1975 to 2005, find that trade and economic growth co-integrate through strengthened macroeconomic policy stability. Another study by (Mangir, Acet, & Baoua, 2017) using Johansen co-integration approach, Vector Error Correction (VEC) technique examine the nexus that exists between trade and GDP in Niger from 1970 to 2015. The findings show a bi-directional causality between the variables. Abdullahi, Safiyanu, & Soja (2016) in an empirical analysis of West Africa from 1991 to 2011 using panel data of 16 countries find that a one percent rise in export variable leads to a growth in GDP of 5.11% with imports having a positive though the insignificant impact on GDP. However, (Rigobon & Rodrik, 2005) find the effect of trade on income levels to be negative though significant. (Fenira, 2015) Find that trade openness had a weak relationship with GDP. (Vamvakidis, 2002), (Afzal & Hussain, 2010) and (Ulaşan, 2015) find no causal relationship between trade-growth nexus. However, (Klasra, 2011) and (Shahbaz, 2012) disputed Afzal & Hussain`s (2010) results after their study found a causal trade-growth nexus in Pakistan.

Table 1: Empirical Literature on the Trade-Growth Nexus

Author	Country/Countries of study	Methodology	Research findings
(Balassa, 1978)	11 countries	Regression Analysis	Discover a positive correlation between export and growth.
(Jayme Jr, 2001)	Brazil	Literature Review	Finds no relationship between trade and growth.
(Rassekh, 2007)	150 countries	Empirical Inquiry	Lower income economies drive many benefits from global trade as compared to higher income economies.
(Chang, Kaltani, & Loayza, 2009)	82 countries	Harris-Todaro Model	Trade openness has a positive impact on GDP.
(Kim & Lin, 2009)	61 countries	Instrument-variable threshold regression approach	Found an income threshold level benchmark that trade openness impacts GDP.
(Dufrenot, Mignon, & Tsangarides, 2010)	75 developing countries	Quantile Regression Approach	The findings show the impact of trade openness on GDP in different growth economies.
(Kim, Lin, & Suen, 2011)	High & Low-income countries	Instrumental Variable threshold regressions	Trade openness has a positive impact on capital accumulation, financial developments, and economic development in high-income economies. However, in low-income economies the impact is significant though negative.
(Usman, 2011)	Nigeria	OLS	Finds that export, import and exchange rate all have a negative impact on real output.
(Musara, Gwaindepi, & Dhoro, 2014)	Zimbabwe	Engle-Granger co-integration OLS	Find that trade & economic growth co-integrate though the relationship depends on the strength of macroeconomic policy stability.
(Sakyi, Villaverde, & Maza, Trade openness, income levels, and economic growth: The	115 developing countries	Granger Causality	A positive bi-directional causal relationship exists between trade & GDP.

case of developing countries, 1970–2009, 2015)			
(Brueckner & Lederman, 2015)	41 sub-Saharan African countries	Instrumental variable approach on panel data	Trade openness enhances GDP in both periods.
(Musila & Yiheyis, 2015)	Kenya	Granger Causality	Trade openness positively impacts investment ratio but not GDP.
(Lawal, Nwanji, Asaleye, & Ahmed, 2016)	Nigeria	ARDL	The findings show a two-way causality between trade openness and GDP in both the short and long run.
(Abdullahi, Safiyanu, & Soja, 2016)	16 West Africa countries	Multiple Regression Model	Find a positive and significant impact of exports on GDP with imports having a negative import on GDP.
(Mangir, Acet, & Baoua, 2017)	Niger	Johansen co-integration approach, VEC	Empirical results show the existence of a bi-directional causality among variables in Niger economy.
(Keho, 2017)	Cote d'Ivoire	ADL, co-integration, Toda & Yamamoto Granger causality	Positive nexus between trade openness and GDP as well as a strong, positive and complementary trade-capital formation nexus.

Source: Author`s compilation

Findings from the literature show that FI affects the poor through two channels, that is, (1) aggregate growth and (2) changes in the distribution of income. To many authors, FI enhances growth and reduces inequality through trickle-down effects. According to (Beck, Demirguc-Kunt, & Levine, 2007), FI not only reduce income inequality but also benefit the poor disproportionately and is strongly related to poverty alleviation. To others, improved financial services increased economic activities and employment opportunities for rural households resulting in inclusive economic growth. (Sarma & Pais, 2010) Find that FI reduces the dominance of informal financial institutions which are exploitative in nature and access to formal financial services increases the efficiency of the resource allocation and reduces the cost of capital. The study by (Wong, 2015), quantifies the impact of FI on productivity, GDP growth, and income inequality in six countries. The study found that the impact of FI on productivity and GDP growth was positively significant in many instances; while the impact of FI on income inequality varies from instance to instance. The null hypothesis is that the variable contains a unit root, and the alternative is that the variable was generated by a stationary process. The DF-GLS tests for a unit root in a time series.

Overall, the findings show a strong nexus existing between FI and macroeconomic performance (Wong, 2015). Contrary to the above mentioned studies that show a positive effect of FI on economic growth, (Barajas, Chami, & Yousefi, 2011) find negative effect of private credit on growth in Mena region with (Sassia & Goaied, 2012) showing a meaningful negative effect of bank development on growth on the same region. The above literature review shows some gaps which this study seeks to bridge. The first objective of this study is to investigate whether FI indicators are significant determinants of trade in Zimbabwe. However, the study`s aim is also to establish the fact that trade when powered by FI will lead to significant economic growth in Zimbabwe. Table 2 below shows the list of variables used in this study, their definitions, sources and a priori expectation as given in previous studies. The variables are in three categories which are as follows, (1) FI (DCF & DCP), (2) trade openness (OPEN) and (3) control variables (INFL, POP, GCE, FDI & UNEMPL).

Table 2: List of Variables, Definitions, Sources and a Priori Expectation

Variable	Definition	Source	Expected sign
DCF	"Domestic credit provided by the financial sector includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net. The financial sector includes monetary authorities and deposit money banks, as well as other financial corporations where data are available" (The World Bank, 2017).	WDI	+/-
DCP	"Domestic credit to private sector refers to financial resources provided to the private sector, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment" (The World Bank, 2017). FI enhances economic growth and reduces inequality through trickle-down effects (Shaw, 1973) and (McKinnon, 1973). (Barajas, Chami, & Yousefi, 2011) and (Sassia & Goaied, 2012) find a negative effect of private credit and bank development on economic growth.	WDI	+/-
OPEN	Trade openness is the sum of exports and imports of goods and services measured as a share of the gross domestic product. (Balassa, 1978) argues that exports increase foreign currency inflows which then enhances production and growth. However, trade openness also encourages the importation of cheap inputs thereby crowding out domestic firms (Baltagi, Demitriades, & Law, 2009).	WDI	+/-
INFL	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly (The World Bank, 2017). The impact of inflation on economic growth has shown to be both positive and negative.	WDI	+/-
POP	"Annual population growth rate for year *t* is the exponential rate of growth of midyear population from year *t-1* to *t*, expressed as a percentage. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship" (The World Bank, 2017). Population growth has shown to be a trigger for economic growth on the one hand but on the other hand it can lead to economic decay.	WDI	+/-
GCE	"General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defence and security, but excludes government military expenditures that are part of government capital formation" (The World Bank, 2017). (Keynes, 1936) argues that GCE is critical for economic growth, however, other studies show that GCE results in a negative impact on economic growth.	WDI	+/-
FDI	"Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments" (The World Bank, 2017). Although economic growth requires FDI, (Bornschier & Chase-Dunn, 1985) note that FDI has a negative effect on economic growth.	WDI	+/-
UNEMPL	Unemployment refers to the share of the labor force that is without work but available for and seeking employment (The World Bank, 2017). The higher the unemployment the less the demand for goods and services as well as the revenue collected through income tax.	WDI	-

Source: Author`s compilation

3. Methodology

Data Sources for the Study: Time series annual data from 1980 to 2016 for Zimbabwe was used for the purposes of this study. The period 1980 to 2016 was selected mainly due to data availability. The data used was extracted from the Global Financial Development and the World Development Indicators` World Bank databases. A quantitative approach was used due to the data availability and reliability. Nevertheless, this approach fails to give an in-depth experience of the population under study. The researcher had to pursue this approach, because it was the best approach available for the purposes beforehand due to the accessibility of legitimate data.

4. Data Analysis and Interpretation

This study examined the effect of financial inclusion in the trade-growth nexus in Zimbabwe using time series data collected from the World Bank databases from 1980 to 2016. A statistical model was used to examine the nexus among growth – dependent – and explanatory variables as described and explained in the literature. The following equation [1] shows the general econometric model specification

$$GROWTH = f\,(DCF, DCP, OPEN, INFL, POP, GCE, FDI, UNEMPL) \qquad (1)$$

Where: GROWTH – Economic Growth
DCF – Domestic credit financial
DCP – Domestic credit private
OPEN – Trade openness
INFL – Inflation
POP – Population growth
GCE – Government Consumption expenditure
FDI – Foreign direct investment
UNEMPL – Unemployment

Table 3: Proxies Used to Measure Variables

Variable	Measure
Economic growth (GROWTH)	GDP per capita (annual %)
Domestic credit financial (DCF)	Domestic credit provided by the financial sector (% of GDP)
Domestic credit private (DCP)	Domestic credit to private sector (% of GDP)
Trade openness (OPEN)	Exports & imports of goods & services (% of GDP)
Inflation (INFL)	Inflation, consumer prices (annual %)
Population growth (POP)	Population growth (annual %)
Government consumption expenditure (GCE)	General government consumption expenditure (% of GDP)
Foreign direct investment (FDI)	Foreign direct investment, net inflows (% of GDP)
Unemployment rate (UNEMPL)	Unemployment, total (% of total labour force)

Source: Author`s compilation

The above proxies for variables were selected in line with other previous studies and data availability. The following general econometric model was used to examine the effect of trade on growth in Zimbabwe.

$$GROWTH_t = \alpha_t + \beta_1 GROWTH_{t-1} + \beta_2 OPEN_t + \beta_3 X_t + \ldots \beta_k X_{kt} + u_t \qquad (2)$$

Where the variables $x_t, x_t, \ldots, x_{kt}$ is a set of $k - 1$ explanatory variables which influence $GROWTH_t$, and the coefficient estimates $\beta_1, \beta_2, \ldots, \beta_k$ are the parameters which quantify the effect of each of these explanatory variables on $GROWTH_t$ and to make the model more realistic, a random disturbance term, denoted by u_t, is added to the equation to represent unobserved shocks in each time period whereas t denotes the time-series dimension, α is a scalar and β *is* $K*1$ and X_t is the t^{th} observation on K explanatory variables.
The presence of the parameters α_t, which represent different intercepts each year, allows for aggregate economic growth to change over time. The following econometric model was also used to analyze the effect of FI on trade in Zimbabwe.

$$OPEN_t = \alpha_t + \beta_1 OPEN_{t-1} + FI\ Variables_t + Control\ Variables_t + u_t \quad (3)$$

The following comprehensive econometric model (equation 4) below examined the following relationships: (1) the effect of trade on growth, (2) the effect of FI and trade on growth and (3) the nexus among growth and independent variables.

$$GROWTH_t = \alpha_t + \beta_1 GROWTH_{t-1} + \beta_2 GROWTH_{t-2} + \beta_3 OPEN_t + \beta_4 FI_t + \beta_5 (OPEN_t . FI_t) + \beta_6 INFL_t + \beta_7 POP_t + \beta_8 GCE_t + \beta_9 FDI_t + \beta_{10} UNEMPL_t + u_t \quad (4)$$

A (β_5) that is positive and significant denotes the complementarity of trade and FI in boosting economic growth in Zimbabwe.

Preliminary Diagnostic: Table 4 and 5 below denotes some pre-estimation diagnostics that were carried out that include correlation analysis and descriptive statistics.

Table 4: Correlation Analysis

	GROWTH	OPEN	DCP	DCF	FDI	INFL	POP	UNEMPL	GCE
GROWTH	1.000								
OPEN	-0.060	1.000							
DCP	-0.369	-0.145	1.000						
DCF	-0.307	-0.343	0.886	1.000					
FDI	0.160	0.582	-0.236	-0.312	1.000				
INFL	-0.130	0.166	-0.160	-0.190	0.036	1.000			
POP	0.298	-0.753	-0.283	-0.064	-0.343	-0.155	1.000		
UNEMPL	-0.092	0.802	0.034	-0.187	0.567	0.082	-0.863	1.000	
GCE	0.257	-0.360	-0.017	0.176	-0.022	-0.471	0.312	-0.188	1.000

Source: Author`s compilation (NB. ** 5% level of significance)

Table 4 above clearly shows that variables FDI, POP and GCE were positively insignificantly correlated individually with economic growth in Zimbabwe. These findings partially resemble what theoretical literature states. Contrary to theoretical literature, trade openness and other FI variables such as DCP and DCF negatively significantly correlated individually with economic growth in Zimbabwe.

Table 5: Descriptive Statistics

	GROWTH	OPEN	DCP	DCF	FDI	INFL	POP	UNEMPL	GCE
Mean	-0.12	66.62	29.79	55.77	0.97	777.66	2.29	5.27	18.16
Std. Error	1.23	3.10	3.60	5.51	0.23	695.93	0.15	0.12	0.92
Median	-0.67	69.26	27.11	51.08	0.43	20.15	2.11	5.19	18.18
Std. Dev.	7.50	18.83	18.71	28.09	1.39	4117.15	0.91	0.59	5.57
Kurtosis	0.49	-0.46	8.97	8.53	8.32	34.82	-1.04	1.80	2.20
Skewness	-0.44	0.27	2.46	2.37	2.40	5.89	0.49	1.22	-1.27
Maximum	13.04	109.52	103.63	164.56	6.94	24411.03	3.89	6.93	27.49
Minimum	-19.06	35.92	7.48	22.17	-0.45	-2.40	1.06	4.39	2.05
AAD	5.62	14.95	11.45	18.36	1.00	1368.71	0.75	0.42	3.80
MAD	4.15	13.56	6.73	12.50	0.52	14.75	0.68	0.21	2.40
IQR	8.35	30.38	12.59	24.49	1.54	41.01	1.50	0.40	5.57

Source: Author`s compilation (NB. ** 5% level of significance)

Table 6 below shows the Shapiro-Wilk and Grubbs` tests the tests show the preliminary strength/significance of the variables of choice. The Shapiro-Wilk test examines the normality of a continuous variable. The null hypothesis is the normality distribution of the data. The Prob < W value is the p-value in the listed output. On one hand if the alpha = 0.05 and the p-value < 0.05, reject the null hypothesis that the data is normally distributed. On the other hand, if the p-value > 0.05, the null hypothesis is not rejected. Grubbs' test statistic (G) is the variation among the sample mean and either the minimum or maximum data value, divided by the standard deviation. Grubbs' test statistic is used to calculate the p-value to reject the null hypothesis when it is true. In this case reject the null hypothesis (Reject H_0 if G > critical value). Also the data set shows that the maximum value (24, 411.03) is in fact an outlier at the 0.05 significance level.

Table 6: Shapiro-Wilk and Grubbs` Tests

Shapiro-Wilk Test

	GROWTH	**OPEN**	**DCP**	**DCF**	**FDI**	**INFL**	**POP**	**UNEMPL**	**GCE**
W	0.96	0.95	0.78	0.80	0.76	0.18	0.91	0.90	0.88
p-value	0.26	0.11	0.00	0.00	0.00	0.00	0.01	0.02	0.00
Alpha	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
normal	Yes	Yes	no	No	no	no	No	no	no

Grubbs' Test

Alpha	0.05
outlier	24411.03
G	19.17
G-crit	3.61
Sig	Yes

Source: Author`s compilation (NB. ** 5% level of significance)

Natural Logarithms Transformation: The variables underwent transformation into natural logarithms before examination as per the standard norm in modern econometrics (Brooks, Introductory Econometrics for Finance (2nd ed), 2008). The author was compelled by the reasons provided by (Brooks, Introductory Econometrics for Finance (2nd ed), 2008) to use log transforms in this study and these are: (1) logarithms often help to rescale data to achieve constant variance that overcomes a common statistical problem, (2) logarithms transformation helps to bring positively skewed distribution closer normal distribution and (3) taking logarithms to transform a non-linear, multiplicative nexus into a linear, additive one between variables. Standard Deviation of inflation in table 5 above which exceeds 1, 000 provides evidence of abnormality in the variable, hence the need for logarithmic transformation. The regression equation had the variables in natural logarithm (Brooks, 2008 and Maune, 2017). This had the effect of rendering the coefficiencies elastic, thus, avoiding compromising the model`s significance for the purposes of this study (Maune, 2017).

Unit Root Test: Time series unit root test was conducted using the Augmented Dickey-Fuller, DF-GLS and Phillips-Perron unit-root tests for checking stationary of each of the variables for the entire study period, that is, 1980 to 2016. The Dickey-Fuller unit root test was developed by (Dickey & Fuller, 1979) to test whether a variable has a unit root or, equivalently, that the variable follows a random walk. It performs the modified Dickey-Fuller t-test (known as the DF-GLS test) proposed by (Elliott, Rothenberg, & Stock, 1996). The Phillips–Perron unit root tests that a variable has a unit root (Phillips & Perron, 1988). This test uses the (Newey & West, 1987) standard errors to account for serial correlation, whereas the augmented Dickey-Fuller test uses additional lags of the first-differenced variable. The results are presented in Table 7.

Table 7: Time Series Unit Root Test of Each Variable

	Dickey-Fuller		DF-GLS	PPerron	
Variable	**z(t)**	**p-value**	**z(t)**	**z(rho)**	**z(t)**
Ln GROWTH	-4.117	0.0001	-3.834	-3.072	-1.346
Ln LGROWTH	-1.852	0.0366	-1.822	0.038	0.226
Ln 2GROWTH	-1.846	0.0371	-1.892	0.059	0.337
Ln OPEN	-1.411	0.0839	-1.192	0.041	0.239
Ln LOPEN	-1.267	0.1072	-0.964	0.091	0.562
Ln OPEN.FI	-4.377	0.0013	-2.139	0.188	0.718
Ln DCP	-4.434	0.0001	-2.657	0.253	0.465
Ln DCF	-4.216	0.0001	-2.546	0.092	0.208
Ln FDI	-1.622	0.0573	-1.479	-3.370	-1.142
Ln INFL	-1.786	0.0418	-1.792	-3.207	-1.313
Ln POP	-4.667	0.0000	-3.468	-0.952	-1.073
Ln UNEMPL	-3.498	0.0007	-3.554	-0.065	-0.217
Ln GCE	-2.965	0.0028	-2.995	-0.237	-0.280

Source: Author`s compilation from STATA/SE 12.0
Note: DF-GLS is Dickey-Fuller, pperron is Phillips-Perron test, the p-value is the MacKinnon`s approximate.

Table 7 above shows, that we cannot reject the null hypothesis that Ln OPEN, Ln LOPEN and Ln FDI exhibit a unit root under both the Dickey-Fuller and DF-GLS unit root tests. However, we can overwhelmingly reject the null hypothesis of a unit root in variables such as Ln GROWTH, Ln LGROWTH, Ln 2GROWTH, Ln DCP, LnOPEN.FI, Ln DCF, Ln POP, Ln UNEMPL and Ln GCE. However, the non-stationary variables are stationary at first difference. Other time series tests that were done included, vector error-correlation model, vector auto regression, Johansen tests for cointegration and collinearity tests.

Multiple Regression Analysis Results: The following table 8 & 9 shows the results of the regression analysis as extracted from STATA/SE 12.0 as given by equations 3 and 4 above.

Table 8: Regression Analysis, Impact of Financial Inclusion on Trade Openness in Zimbabwe 1980-2016

```
. reg lnOPEN lnLOPEN lnDCP lnDCF lnFDI lnINFL lnPOP lnUNEMPL lnGCE

      Source |       SS       df       MS              Number of obs =      37
-------------+------------------------------           F(  8,    28) =   26.60
       Model |  2.72736922     8  .340921152           Prob > F      =  0.0000
    Residual |  .358882297    28  .012817225           R-squared     =  0.8837
-------------+------------------------------           Adj R-squared =  0.8505
       Total |  3.08625151    36  .085729209           Root MSE      =  .11321

------------------------------------------------------------------------------
      lnOPEN |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     lnLOPEN |   .3862799   .1423745     2.71   0.011      .094639    .6779209
       lnDCP |   .1107766   .0450585     2.46   0.020     .0184785    .2030747
       lnDCF |  -.0883918   .0557052    -1.59   0.124    -.2024987    .0257151
       lnFDI |   .1310598   .0649303     2.02   0.053    -.0019439    .2640635
      lnINFL |   -.003449   .0132789    -0.26   0.797    -.0306496    .0237515
       lnPOP |  -.1850232   .0845044    -2.19   0.037    -.3581225   -.0119239
    lnUNEMPL |  -.1332629   .1968592    -0.68   0.504    -.5365107    .2699848
       lnGCE |  -.1098843    .059154    -1.86   0.074    -.2310558    .0112871
       _cons |   3.157298   .7663209     4.12   0.000     1.587561    4.727035
------------------------------------------------------------------------------
```

Source: Author`s compilation from STATA/SE 12.0. (NB. ** 5% level of significance)

The results of the regression analysis are shown in table 8 above. The independent variables statistically significantly predicted trade openness (OPEN), with F (8, 28) = 26.60, $P > F$ 0.0000, R^2 = 0.8837, *Adjusted* R^2 = 0.8505 and *Root Mean Squared Error (RMSE)* = 0.11321. The study also found that the independent variables added statistically significantly to the prediction of $p < 0.05$. The independent variables accounted for 85.05% of the dependent variability in Trade Openness (OPEN) in Zimbabwe for the period 1980 to 2016. Prob > F of 0.0000 shows the reliability of the results of the model. Therefore, there are only 0.0000 chances that the regression output was merely a chance of occurrence. The results show that LnLOPEN, LnDCP and LnPOP significantly impact on Trade Openness in line theoretical literature. The current study found that FI positively significantly impacts on trade openness in line with findings by (Evans, 2015). One year lagged trade openness has shown to have some positive and significant influence on the current year`s trade openness.

Table 9: Regression analysis, Financial Inclusion and the Trade-Growth nexus in Zimbabwe 1980–2016

```
. reg lnGROWTH lnLGROWTH lnL2GROWTH lnOPEN lnLOPEN lnOPENFI lnDCF lnFDI lnINFL ln
```

Source	SS	df	MS
Model	35.5799518	11	3.23454107
Residual	10.6391117	25	.425564468
Total	46.2190635	36	1.28386288

Number of obs	= 37
F(11, 25)	= 7.60
Prob > F	= 0.0000
R-squared	= 0.7698
Adj R-squared	= 0.6685
Root MSE	= .65235

lnGROWTH	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
lnLGROWTH	-1.752161	1.036344	-1.69	0.103	-3.886552	.3822297
lnL2GROWTH	-2.617408	.8536678	-3.07	0.005	-4.37557	-.8592462
lnOPEN	-7.729164	1.500793	-5.15	0.000	-10.8201	-4.638224
lnLOPEN	1.987721	.9539163	2.08	0.048	.023094	3.952349
lnOPENFI	1.31135	.3062704	4.28	0.000	.6805742	1.942126
lnDCF	-1.833226	.3854625	-4.76	0.000	-2.627101	-1.039351
lnFDI	1.409208	.4638599	3.04	0.006	.4538702	2.364545
lnINFL	-.0895427	.0823565	-1.09	0.287	-.259159	.0800737
lnPOP	.6388755	.5646885	1.13	0.269	-.5241221	1.801873
lnUNEMPL	1.420199	1.163178	1.22	0.233	-.9754116	3.81581
lnGCE	1.092696	.3683419	2.97	0.007	.3340812	1.85131
_cons	46.24174	10.84361	4.26	0.000	23.90891	68.57456

Source: Author`s compilation from STATA/SE 12.0 (NB. ** 5% level of significance)

The results of the main regression analysis are shown in table 9 above. The independent variables statistically significantly predicted Financial Inclusion and the Trade-Growth nexus in Zimbabwe, with F (11, 25) = 7.60, $P > F$ 0.0000, R^2 = 0.7698, *Adjusted* R^2 = 0.6685 and *Root Mean Squared Error (RMSE)* = 0.65235. The study also found that the independent variables added statistically significantly to the prediction of $p < 0.05$. The independent variables accounted for 66.85% of the dependent variability in Financial Inclusion and the Trade-Growth nexus in Zimbabwe for the period 1980 to 2016. Prob > F of 0.0000 shows the reliability of the results of the model. Therefore, there are only 0.0000 chances that the regression output was merely a chance of occurrence. Trade openness is negatively significantly correlated to GDP in line with findings by (Vlastou, 2010); (Musila & Yiheyis, 2015) and (Ulaşan, 2015). Ln DCP was omitted due to collinearity. Lagged trade openness is, however, positively significantly impacting on economic growth in line with findings by (Keho, 2017), (Frankel & Romer, 1999), (Dollar & Kraay, 2004) and (Freund & Bolaky, 2008). The complementarity between financial inclusion and trade openness positively significantly impacted economic growth in Zimbabwe.

5. Conclusion

The study examines the effect of FI in the trade-growth nexus in Zimbabwe using time series data collected from the World Bank`s World Development Indicators and Global Financial Development databases for the period 1980 to 2016. Multiple regression analysis was carried out to analyse the nexus that existed between the variables. The study precisely examined whether FI is a vehicle within which trade openness impacts growth in Zimbabwe. Also examined was the complementarity between FI and trade openness on growth in Zimbabwe. The results of the study show a positive and significant complementarity between FI and trade openness on growth in Zimbabwe. The impact of FI and trade openness on growth has been given a lot of attention by researchers the world over and literature is awash with theoretical and empirical evidence of such studies. What literature has not shown much is whether FI is a vehicle within which trade openness impacts economic growth.

It is because of this gap in knowledge which the author of this article had to undertake this research study to make some contribution to the board of knowledge. The study finds show that FI and trade openness have a negative significant effect on growth in Zimbabwe. Policy-makers in Zimbabwe are, however, urged to formulate and implement policies meant to deepen FI in order to enhance the effect of trade openness on growth. FI policies will help accelerate the positive effect of trade openness on growth. It is also critical to embrace the formation of global, continental, regional and national organisations and networks whose thrust will be to develop FI policies and strategies as these help to financially include the excluded population and enterprises. However, further future studies should examine the role of FI as a vehicle within which trade openness influences growth in Africa as a whole. Studies around FI in Africa are also critical as this will help accelerate regional integration through FI-trade openness nexus.

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The Impact of Environmental Turbulence on Product Innovation in Small to Medium Enterprises in Harare, Zimbabwe

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Abstract: The purpose of the research was to examine the impact of environmental turbulence on product innovations in small to medium enterprises (SMEs). In the study environmental turbulence consisted of five dimensions namely, supplier turbulence, technological turbulence, market turbulence, regulatory turbulence and competitive intensity. A cross-sectional quantitative research design was adopted in the study. The study sample was drawn from a pool of 3,000 SMEs both unregistered and registered with the Ministry of Small and Medium Enterprises in Harare, Zimbabwe. In the study, a total of 200 completed surveys were obtained and analysed. To analyse the research data SPSS23 was utilised. Regression analysis was carried out to establish the cause-and-effect relationship between the independent and dependent variables in the study. The findings of the study showed that technology turbulence and competitive intensity had a statistically significant positive impact on product innovation. Market turbulence was noted as having a statistically significant negative impact on product innovativeness. The main implications established in the study were that SMEs should introduce mechanisms to manage and mitigate market, supplier and regulatory turbulence to ensure that their levels of product innovativeness remain positive.

Keywords: *Environmental turbulence, product innovation, SMEs, Zimbabwe*

1. Introduction

The business environment that firms operate in now is characterized by dynamism, hyper-competition and high uncertainty; therefore, for SMEs to remain competitive and be successful they need to be innovative and always adaptive to the market changes. The ability of the firm to introduce new products and services as well as adding value to the existing ones are the essentials for economic growth and development and driving force for the competitive scuffle in the prevailing VUCA environment. If SMEs invest in innovation behaviour, it strengthens their knowledge which leads to organizational resilience that improves firm competitiveness as well as achievement of performance goals. For SMEs to encourage internal innovation in their organizations they need to promote the mindset of looking outside the box in order for opportunities to collaborate. This can be done through knowledge sharing, brainstorming ideas and expanding firm networks which can improve their growth prospects. This mindset is vital for Zimbabwe's large volume of SMEs which are continuously struggling to survive and grow. These SMEs need to grasp the implications of innovation as a real driver of success and competitiveness. Almost all SMEs in Zimbabwe are struggling due to the ever-changing business environment and little research has been done in Zimbabwe on how this environmental turbulence affects SME innovation focusing mainly on product innovation.

The studies that have been done in the innovation field, Masevo (2015) and Chiwara (2015) tried to investigate environmental factors that influence innovative ideas and activities and the effect of various environmental turbulence dimensions on SME innovativeness lacks similar attention. It is therefore, the purpose of this study is to fill this gap in the literature and examine how environmental turbulence affects product innovation in Zimbabwean SMEs. In all countries around the world SMEs have become prominent in terms of employment creation and contribution to Gross Domestic Product but their full potential remains untapped. These small firms aid in revenue generation and they create communal strength. They provide large enterprises with local supplies and services and communities can access products and services at low and affordable costs. In most African countries SMEs represent a significant proportion of the business sector and they provide more than 50% of the jobs and contribute a sizeable percentage of GDP. They take close to 85% of employment in the productive sector in Ghana and 70% of the Ghanaian business. In South Africa and Egypt, SMEs constitute 91% of formal businesses (Abor & Quartey, 2010). Therefore, this creates a gap in terms of studying how the turbulent environment influences SME innovation for them to survive and grow.

Context of the Study: The business environment is changing rapidly giving organizations challenges to stay in the market and innovativeness has become the pillar for business survival and competitive advantage. The turbulent environment is the main driver for SME innovativeness and it forces firms to respond by innovating in order to survive (Uzkurt, Kumar, Kizman & Sert, 2012). SMEs must reconfigure their capabilities with increasing competition, changing technology, markets and regulations to catch up with the customer needs. According to Hutt and Speh (2010) organizations are required to continuously innovate, their products and processes in turbulent environments in order to outstand stiff market competition. Many SMEs with great business ideas fail if they are reluctant and fail to adapt to the changes in the business environment. In Zimbabwe, indigenization policy has sensitized skilled and experienced people to abandon their jobs to search for better livelihoods and this led to an increase of SMEs competing for the same declining customer base. Mbizi, Hove, Thondhlana and Kakava (2013) postulate that SME sector in Zimbabwe is not growing as fast as it should be to create employment and significantly contribute to the economy's GDP because most of them are failing to beat the competition. This means that for SMEs to survival they should make themselves unique by continuously innovating their products and business processes.

Purpose of the Study: The purpose of the current study is to investigate the impact of the dimensions of environmental turbulence (namely, technological, market, regulatory, supplier and competitive intensity) on product innovativeness by SMEs operating in Zimbabwe. Environmental turbulence is noted as a significant predictor in the levels of innovativeness by firms (Uzkurt et al., 2012). SMEs experience a plethora of challenges as they operate in the business environment and the turbulence of various environmental factors can have either positive or negative effects on the levels of product innovativeness by the SMEs (Kyrgidou et al., 2013). It can be noted that the levels of product innovativeness by SMEs in developing and developed countries are different due to the differences in environmental challenges these firms experience (Uzkurt et al., 2012). The objective of this study is on the impact of environmental turbulence on product innovativeness of SMEs operating in the turbulent business environment in Zimbabwe. In order to achieve the research objectives of the study, the following research questions were proposed: What is the influence of environmental turbulence on product innovations by SMEs operating in Zimbabwe?

To Aid in Answering the Main Research Question, the Following Sub Questions Were Proposed

- What is the impact of supplier turbulence on product innovations in SMEs?
- What is the impact of technological turbulence on product innovations in SMEs?
- What is the impact of market turbulence on product innovations in SMEs?
- What is the impact of regulatory turbulence on product innovations in SMEs?
- What is the impact of competitive intensity on product innovation in SMEs?

2. Literature Review

In the present study literature on small businesses and environmental turbulences will be discussed. The literature review section will commence by providing a discussion of SMEs followed by a discussion of environmental turbulence.

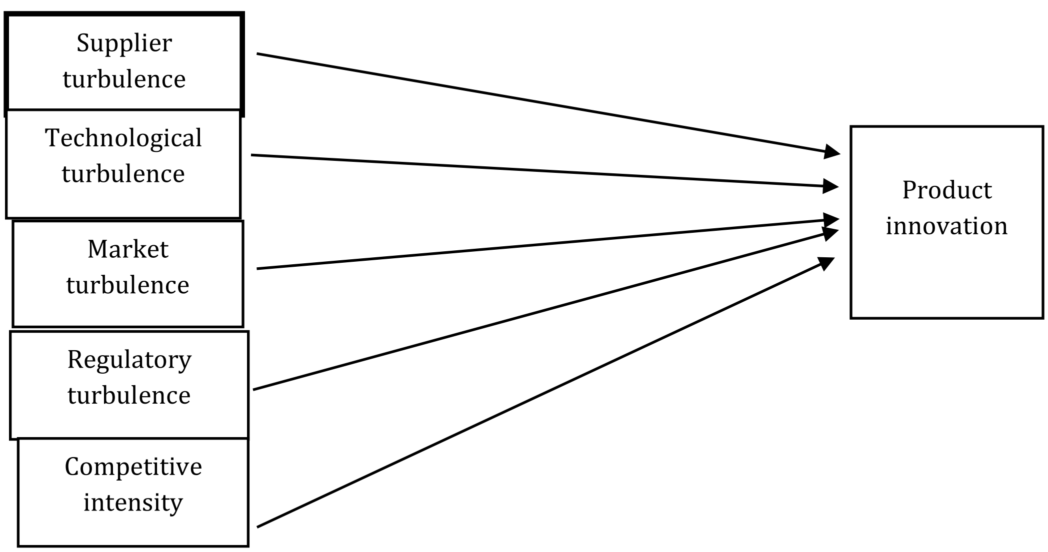
Small and Medium Enterprises (SMEs): There is no single and standard generally accepted the definition of SMEs since it differs from country to country and also between reporting entities. Individuals and organizations identify SMEs differently in such a way that an enterprise regarded as small and medium in one country is viewed in a different way in another. Mbizi et al. (2013) are of the view that SMEs have no globally agreed definition and suggests that SMEs can have many definitions even in a single jurisdiction depending on the type industry they operate in. According to Dragnić (2014) some of the common indicators used in defining SMEs are a number of employees, capital assets, turnover levels type of industry and ownership of the enterprise. Abor and Quartey (2010), suggest that SMEs can be defined in terms of the production method and legal status. Many countries define the SME sector as a group which comprises of the self-employed and the "micro" enterprises with employees less than 10.

Importance of SMEs to the Economy: In the Zimbabwean context SMEs contribute positively towards job creation and economic growth (Chiwara, 2015). SMEs are key drivers of wealth creation and economic development through high levels of innovativeness. In this respect, SMEs lower the levels of unemployment and poverty. SMES promote income distribution and the uplift of communities. SMEs play a vital role in all economies and they have become the engines for economic growth and development of many countries in the world and Zimbabwe is no exception. In his study Johari (2012) argued that the role of SMEs in developing countries has been increasing due to the high rates of unemployment and he went on to say the only way for these developing countries to overcome the challenges of poverty and unemplomènt is to encourage growth and development of SMEs.

Challenges Faced by SMEs in Embracing Innovation: Innovation generally requires organisations to transform knowledge capital to innovation outputs, such as new and improved quality products or processes, organisational or marketing changes (Pratono, 2014). Therefore, SMEs need to invest in knowledge capital to ensure that they increase their innovation capabilities. Furthermore, innovation is enhanced by factors such as, human capital, organisational capital, technology, physical production facilities and equipment (Pratono, 2014; Okey, 2014). These innovation factors require the organisation to perform specific innovation activities depending on the technical sophistication of the introduced innovations.

Environmental Turbulence: For organisations to succeed and sustain a competitive advantage they need to assess the external environment and adopt appropriate responses within the environment. Contemporary organisations operate in an environment which is characterised by dynamism, uncertainty and turbulence which greatly affects business activities (Baba, Mahmood & Halipah, 2017). In this vein, environmental turbulence is defined by Suddaby (2010) as the continuous changes in environmental factors which influence the performance and operations of firms. Environmental factors (such as, technology, market changes, regulations, suppliers and competitive intensity) influence the level of product innovativeness by SMEs (Chiwara, 2015; Masevo, 2014; Okey, 2014; Uzkurt et al., 2012). From the aforementioned assertions the proposed conceptual framework and hypothesis for the study were developed.

Figure 1: Conceptual Model



Source: Author

Hypotheses

<u>**Hypothesis 1:**</u>
Supplier turbulence has a significant positive impact on product innovation.
<u>**Hypothesis 2:**</u>
Technological turbulence has a significant positive impact on product innovation.
<u>**Hypothesis 3:**</u>
Market turbulence has a significant positive impact on product innovation.

Hypothesis 4:
Regulatory turbulence has a significant positive impact on product innovation.
Hypothesis 5:
Competitive intensity has a significant positive impact on product innovation.

3. Methodology

Research Approach: The study adopted a cross-sectional quantitative research design. Data was collected from a questionnaire that was adapted from previous empirical studies, namely, Uzkurt et al. (2012); Pratono (2014); Okey (2014); Masevo (2015) and Chiwara (2015). The study sample was drawn from a pool of SMEs both unregistered and registered with the Ministry of Small and Medium Enterprises in Harare, Zimbabwe. The population comprised of approximately 3,000 SMEs from different industries in the SME sector. From this population, through random sampling a total of 200 completed questionnaires were obtained. Moreover, the researcher was guided by the formula developed by Yamane in 1967 to determining the sample size of the study. Yamane's methods indicate that a ±5% accuracy level and a 95% confidence level should be accepted for study.

Descriptive Statistical Analysis: Descriptive statistics in the form of frequency distributions and percentages were used by the researcher to describe the demographics of the respondents such as gender, age, level of education, position in the company, number of employees, sector of operation, number of years the company has been in business and annual sales revenue.

Normality Test: The researcher performed the test for normality to establish how the data was distributed before analysing the data. The normality test which was adopted by the researcher was the Shapiro – Wilk test which is used for sample sizes less than 2000. Shapiro – Wilk test with a "p" value greater than 0.05 ($p > 0.05$) indicates that data is evenly distributed meaning that the selected sample does not significantly vary from the study population hence, the parametric tests can then be performed using the data. If the "p" value is less than 0.05 ($p<0.05$), it means that data is not normally distributed suggesting that the sample significantly differs from the study population therefore, the non-parametric tests are then adopted. For the study the "p" value was less than 0.05 which indicates that the data was not normally distributed, hence non-parametric tests were performed.

Correlation Analysis: The correlation analysis was performed to establish the degree of association between the independent and the dependent variables. The Spearman correlation was computed since it is a non-parametric test which applies to data which is not normally distributed. The analysis performed involved examining the relationship of each independent variable (technological turbulence, regulatory turbulence, supplier turbulence, market turbulence and competitive intensity) with the dependent variable (product innovation). In the analysis the researcher focused on four aspects which included direction, magnitude, significance and multicollinearity. Correlation of variables ranges from -1 for a perfectly negative relationship to a +1 for a perfectly positive relationship, whilst 0 shows that no relationship exists. For a significant correlation to exist between variables, significance levels should be less than 0.05. Multicollinearity tests whether the independent variables are independent of each other. If VIF is greater than 10 it means there is multicollinearity. The results of the analysis indicated a low degree of multicollinearity between 1 and 1.2, which indicated that there was no correlation between the independent variables.

Regression Analysis: After establishing that there was no multicollinearity between the independent variables, a multiple regression was performed. Multiple regression analysis was performed to establish the cause-and-effect relationship between the independent and dependent variables in the study.

Validity and Reliability: For the instrument to be reliable the Cronbach's Alpha score should be at least 0.70. In the study, the overall Cronbach's alpha score for the research instrument was 0.78. This meant that the reliability of the instrument was acceptable.

4. Results

Descriptive Statistics: The section below presents the response rates and the demographic characteristics of the respondents and SMEs.

Response Rate: The researcher sent online and self-administered survey questionnaires to a random sample of SMEs in Harare. A total of 353 survey questionnaires were distributed to firms that were identified as SMEs. From the total distributed questionnaires, 200 usable questionnaires were returned and captured. In this respect, a response rate of 56.7% was achieved.

Gender: From the survey, 61% of respondents were males and 39% were females. This implies that SMEs in Harare are mostly operated and owned by males. Nonetheless, it is evident that females also operate the SMEs in Harare.

Age: The participants of the study were predominately within the age group, 21-34 years (38.5%) and 35-44 years (30%). The lowest number of participants came from the age group of 45-54 years with (8.5%) followed by the 21 and below age group with (9.5%). The age group 55 years and above represented (13.5%) of the participants.

Educational Level: In the study, 6.5% of respondents attained secondary education, 9.5% had certificates, 33% had diplomas, 45.5% had bachelor's degrees and 5.5% had master's qualifications. No respondents indicated that their highest qualification was primary education. The biggest number of respondents had tertiary qualifications, i.e. diploma and above which indicates that SME operators in Zimbabwe have high education levels.

Number of Employees: In the study, 43.5% of SMEs had 50 and below employees, 44.5% had 51-100 employees and 12% had more than 100 employees.

Period of Operation: The majority of SMEs (38%) had been in operation for 1-5 years, 33% of the SMEs for 6-10 years and 17.5% had been operating for 11-20 years. Only 11.5% had been operating for more than 21 years.

Tests of Relationships: To test the relationships between the independent variables (market turbulence, regulatory turbulence, technological turbulence, supplier turbulence and competitive intensity) and the dependent variable (product innovation), the study employed a multiple regression analysis. The regression equation generated in the study is presented below: Product innovation = 2.722 + 0.481CI + 0.147TT-MT219, from the regression equation the constant of 2.722 indicates that when environmental turbulence is zero product innovation is 2.722. TT is technological turbulence and CI is competitive intensity. As shown by the equation, an increase in competitive intensity by one unit results in 0.481-unit increase in product innovation and an increase in technological turbulence by one unit results in 0.147 units increase in product innovation. On the other hand, an increase in market turbulence by one unit results in a decrease in product innovation by 0.219 units.

Table 1: The Overall Findings from the Multiple Regression Analysis are presented in table below

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.722	.262		10.410	.000		
	Technologicalturbulence	.123	.063	.147	1.955	.050	.641	1.559
	Marketturbulence	-.173	.053	-.219	-3.252	.001	.792	1.262
	Regulatoryturbulence	.020	.054	.026	.378	.706	.755	1.325
	Supplierturbulence	-.013	.064	-.015	-.205	.837	.674	1.483
	Competitiveintensity	.353	.054	.481	6.497	.000	.658	1.519

a. Dependent Variable: Productinnovation

Source: Primary data

Hypotheses testing and Discussion: The results revealed a mixed positive and negative effect of environmental turbulence on SME innovativeness. As shown by the results, several dimensions of environmental turbulence significantly impact product innovation. This is in line with the research done of Uzkurt et al. (2012) which indicates that environmental uncertainties positively impact innovativeness. Similarly, the research conducted by Droge et al. (2008) also supports the findings of the study, as their findings indicated that product innovativeness increases during periods of environmental uncertainty. Rhee, Park and Lee (2010) found that SMEs seek to improve their business performance during turbulent times by introducing new product innovations. The first hypothesis (H1) of the study was not accepted (β = -0.015; p = 0.837). Thereby implying that supplier turbulence did not has a statistically significant impact on product innovation. In this vein, it can deduce that supplier uncertainty does not affect a firm's innovativeness.

The second hypothesis (H2) in the study was accepted (β = 0.147; p = 0.05). Implying that technological turbulence has a positive statistically significant impact on product innovativeness. These findings are in line with the findings by who found that in conditions of high technological turbulence SMEs tend to be responsive by developing new combinations through innovativeness. On the other hand, the third hypothesis (H3) was not accepted (β = -0.219; p = 0.001) in the study and it was noted that market turbulence had a statistically significant negative impact on product innovativeness. This finding in the study is in line with the findings by Abdallah and Person (2014) who studied SMEs in the Swedish market and found that market uncertainty had a negative impact on innovativeness. On the other hand, Uzkurt et al. (2012) conducted a study in a Turkish market and found that both technological and market turbulence had a positive impact on innovativeness in SMEs. Moreover, in the study by Uzkurt et al. (2012), it was noted that market turbulence had a more significant impact on innovation than technological turbulence. However, in this study the results indicate that SMEs experience higher levels of innovation during conditions of technological turbulence and lower levels of innovation in conditions of market uncertainty. These results indicate that Zimbabwean and Turkish markets are different hence SMEs in different countries behave differently when faced with environmental turbulence.

The fourth hypothesis (H4) of the study stated that regulatory turbulence had a significant positive impact on product innovation in SMEs. From the regression analysis it was noted that regulatory turbulence had no statistically significant impact on product innovation (β = 0.026; p = 0.706). In this respect, (H4) was rejected in the study. These findings are in contrast with the results of the study by in which it was found that regulations positively impact on SMEs innovativeness. The last hypothesis (H5) indicated that competitive intensity had a significant positive impact on product innovation. From the regression analysis it was found that competitive intensity had a statistically significant positive impact on product innovativeness (β=0.481; p=0.000). Moreover, it was found that competitive intensity had the greatest impact on product innovativeness. In this respect, it can be argued that SMEs operating in competitive markets tend to be more innovative, not only due to pressures from competitors but also through the knowledge achieved from observing the innovative products produced by their competitors (Hahn, 2010). These findings of the study are in line with the findings by Kyrgidou et al. (2013) and Didonet et al. (2012) who investigated the relationship between firm performance and innovation and found that firm innovativeness ranked high in competitive environments because firms wanted to achieve a higher competitive advantage. Similarly, Gabsi, M'henni and Koouba (2008) studied SMEs in Uzbekistan and China and the results revealed that competitive intensity is a powerful positive predictor of SME innovativeness.

Managerial Implications: It can be noted that environmental uncertainty results in innovation which influences business success and performance. The findings of this study indicate that competitive intensity and technological turbulence are key drivers of product innovation in SMEs. If SMEs are operating in competitive markets, they need to innovates their products and make them unique in order to gain a competitive advantage and survive. If technology in the industry keeps changing, SMEs need to develop new products and advance them to keep up with the changing technology so that they do not lose their market share to competitors. SMEs should therefore, invest more resources in product innovation when competition in the industry is high and when technology is changing in order to succeed and survive in the market. Supplier and regulatory turbulence are noted as having no significant impact on product innovation. The findings of the study can be used by SMEs to differentiate themselves in their respective industry marketplaces.

To remain superior and achieve high performance, SMEs should seek to increase their levels of innovation by managing environmental turbulence dimensions. In Zimbabwe, the government needs to develop policies that support innovation by SMEs in order to ensure that SMEs positively contribute to the economy. Moreover, the Zimbabwean government should provide regulations that create a conducive, environment for SMEs to innovate with specific attention given to technological turbulence, market turbulence and competitive intensity. In this respect, for SMEs to succeed during technological turbulence they need to improve the perceptions by consumers that the new technology introduced offers benefits that are not present in the existing technology. This can be achieved by communicating the new product benefits to potential customers through promotions, product demonstrations and personal selling. When implementing product innovations, SMEs should extensively research potential customer's needs in order to develop sound products that will allow them to gain a competitive advantage.

5. Conclusion

Innovativeness has become the key strategy for businesses to successfully compete in the market. Organisations are adopting innovations in order to increase business performance and outperform competitors during conditions of environmental turbulence. In this respect, it was important to study how environmental turbulence affects product innovativeness. The present study focused on investigating technological, market, regulatory, supplier and competitive intensity uncertainties that affect product innovations in SMEs in Zimbabwe. The results of the analysis showed that several dimensions of environmental turbulence (technological, market and competitive intensity) have an impact on product innovativeness by SMEs. Technological turbulence and competitive intensity were noted as having a statistically significant positive impact on product innovativeness, hence the greater the level of technological turbulence and competitive intensity the greater the product innovativeness by SMEs. On the other hand, the greater the market turbulence the lower the level of product innovativeness by the SMEs in Zimbabwe. Hence, SMEs should respond to market uncertainty using varying survival tactics such as, marketing tactics, price wars and or increase customer relationship management.

Suggestions for Future Research: Future research can be in the form of longitudinal studies in which the effect of environmental turbulence on product innovativeness is investigated over an extended period of time. Furthermore, future research can involve investigating additional factors that influence product innovation such as, the industry in which the SMEs exists. A limitation of the study was that only SMEs in one city (Harare) were utilised for the study and this could have influenced the results of the study. Future studies can include more cities and towns in Zimbabwe to ensure that the results are more generalisable. Future research can investigate the influence of demographic variables such as the age, gender and ethnicity of the owners and managers of SMEs in influencing product innovativeness in different environmental conditions.

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The Use of Modern Technology for Rural Industrialization and Its Implications on the Rural SMEs Economic Growth

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Abstract: Hence technology delivery is perceived to be an essential catalyst for rural development. This paper intends to present an empirical study on the use of modern technology for rural industrialization and its theoretical and practical implication on the rural SMEs economic growth. The idea of rural industrialization and how it can enhance the rural SMEs economic growth still the issue of concern of many policy-makers. The study seeks to establish understanding, knowledge and awareness about how the use of modern technology would assist in building strong rural industrialization that will have a positive change in the rural SMEs economy. In this research 127 participants consist with business managers/owners running SMEs in the province of KwaZulu-Natal were chosen for empirical data collection from both South and Northern parts of the Province. SPSS (24.0) version was used for the analysis of data. A quantitative questionnaire was used and distributed to the respondents. The findings revealed that in many cases there is no specific rural industrialization policy does not exist or somehow fall short, government attitudes towards rural industrialization as well as rural infrastructure development were also identified by respondents as areas of concern for rural industrialization. The exploratory and quantitative nature limited the survey. Hence, the application of this result should be made with utmost care. Further investigation which may include large and other parts of the country is therefore recommended.

Keywords: *Industrialization; Rural SMEs; Implications; Modern Technology; Economic growth.*

1. Introduction

In many parts of the world business entities are now looking to get almost every essential goods/service they need out the city centres, these include large part South Asia, China, Indonesia, Thailand and Vietnam (Hartley 2015). China rural enterprises regarded as a classic example that contributes to economic growth, institutional transformation and rural development. It is believed that the huge participation in rural industrialization by rural people come from the diversified industrialization over a quarter century (Kumar, 2017). However**,** the inceptions of new modern technology have changed the way businesses have been operating, in many cases business environment has drastically changed and improved for the better (Lekhanya, 2014). The use of modern technology perceived to be more important for the modernizing the agribusiness production and diversifying SMEs rural products (Gandhi, 2014). Since many decades ago, various factor such as capital and access to the relevant information by the start-ups business managers or owners found hindering the establishment and the growth of many business entities (Ramey, 2012). It is very critical for the authorities and policy-makers to create an enabling business environment including providing programs, national policies intended to assist with the required knowledge and entrepreneurial skills, technology database, technological capacity building as well as business research and development (SMEs report, 2017). SMEs regarded as a vital sector for the innovation and adoption of a new wave of technology, while on the hand they can also grow during the process (Michael, Aggarwal, Kennedy., Wenstrup., Rüßmann., Ruba, Chen and Bezerra, 2013). There is a need to think deeply on the kind of technology that can be sustained in future (Dhar, 2017). Schilling and Chiang (2009) believe that there is a need for modern technology that will transform an economy and make use of depletion of a non-renewable resource to make a substantial influence for the development of an economy that will benefit the next generations. They maintain that the depletion of non-renewable resources which form the backbone of modern technology is a serious environmental impact and social arising from increasing inequity reflected as one of the most causes of poverty and isolation of societies.

Problem Statement: The rural industrialization development that often brought by the local entrepreneurs has been overlooked (Bar-El & Fleckenstein, 1990). Subsequently, rural places viewed as less industrial development with small markets for by many potential entrepreneurs as compared to urban areas. Therefore, rural industrial needs the mobilization of resources in order to be attractive and well developed for business.

According to Patel1 & Chavda (2013), some of the challenges facing the majority of rural entrepreneurs comprise limited technical knowledge and skills, financial constraints, entrepreneurial education background, business management abilities and marketing skills, all these are due to the lack of basic services essential for the business operations in particular rural place in the developing countries, thus, make it impossible for the rural industries to take establish and expand. Although in recent years, rural entrepreneurs begin to see potential growth in the rural and semi-urban areas stifled economic development and lack of product technologies affected the development of rural communities and left them still living in the dire environment (Chigumbu, 2018). Mpofu & Watkins-Mathys (2011) state that the business organizations operating from underdeveloped and remote areas in South Africa are continuously struggling technologically, this makes it difficult for them to compete and expand in a marketplace where there is highly geared to ICT innovations. Hence, there are few brilliant examples of countries which have managed to help their local nationals to develop their businesses online using various tools such as digital media, social networks and Facebook, tweet and Instagram, WhatsApp and snapchat (Vassilakopoulou, 2013). Werngren (2013) states that SMEs more often are hesitant to use modern technologies due to the lack of expertise and lack of qualified personnel who can manage properly. He believes that utilization of new technology can help SMEs to penetrate local, regional and international markets while embracing the best business practice. Therefore, these make it difficult for rural Industrialization to use modern technology.

Aims and Objectives

Aims: Primary purpose of this article publication is to outline critical challenges for the use of modern technology for the rural industrialization of SMEs economic growth.

Objectives

- To examine the level of understanding and knowledge of the use of modern technology for the rural industrialization of SMEs economic growth;
- To identify factors affecting the use of modern technology for rural industrialization of SMEs economic growth;
- To discuss the implications of the use of modern technology on the rural industrialization of SMEs economic growth; and
- To make recommendations on what should be done to encourage the use of modern technology to achieve much need rural industrialization of SMEs economic growth.

2. Literature Review

Definition of Rural Industrialization: Cloke (1985) mentioned variation, dynamics and functions as the main reasons making it perceived to be very hard to describe rurality. The technological, economic and social developments in the rural places are caused by many non-quantitative issues prevailing in the in many rural environments and impacting on rural livelihood (Long, Zou & Liu, 2009). Industries diversification in a rural location and how the business operations are conducted described as rural industrialization. However, small and large units found away from urban places or intended to move units away from urban to rural places defined as rural industrialization (Sundar & Srinivasan, 2009). Furthermore, the concept of developing villages through the introduction of business industries, modernizing economic growth, increasing social innovation, encouraging the adoption and the use of new technologies for business gains and job creation opportunities, increasing rural household incoming and changing rural social buying power and consumer behavior also called rural industrialization (Chapter–I, 2017). Rural industrialization aimed to develop, promote, provide balance and decentralize economy of the country. Its main purpose is to an enable industrial growth, reduction of unemployment, the removal inequality of economic distribution, rural poverty eradication and rural and urban integrated development (the economic weekly, 1960)

Benefits of Rural Industrialization: The industrialization provides growth of industries in the designated places such as rural areas. This concept includes bringing alternative services/goods close to the local communities, therefore, in many cases rural people will have different products to choose from, people will be able to get types of public and private transport which can make it possible for them to get their products in the market very easily and quick. Rural communities benefit in get cheaper rates due to the large scale of production of goods. Industrialization helps in the economic growth and economic development various economic activities such as trade agriculture transport and entrepreneurship improve and grow national economy. According to Sehgal (2015), industrialization plays a major role for the national economic development. However, it has been noticed that good industrial policy framework assists in the essential recommendations for industrial development meant to advance industrial competitiveness focusing more on the SMEs. Khan (2009) maintains that industrial policy framework helps in exposing local SMEs with international markets. Utilization of resources is become very easy and effective through industrialization by different people from different backgrounds, short of skills in specialist sectors like manufacturing industry and technology business can be easily addressed (Mwalenga, 2012).

The Significance of Technology on Rural Industrialization: According Jayadatta (2017), deficiency of technical know-how is the challenge for many rural entrepreneurs he further mentioned that facilities for training requirements and more relevant services create a huge impact of the entrepreneurship development in the rural places. This premise supported by Patel & Chavda (2013) indicating that in India, education system faced with job industry challenge and online entrepreneurship. These, however, believed that they can be overcome by using modern technology effectively and embracing the ideal of it. Lele (2017) stress that in today's world, modern technologies have capabilities of changing agriculture structural transformation taking it to the high level of productivity and speeding manufacturing of various goods and help the economy acceleration growth, while also it helps to transform individual and improves lives of people in the developing countries. It is recognized worldwide that science and technology are among the most powerful motive forces to bring about dynamic changes in the society; and that appropriate and wise application of science and technology to all facets related to human welfare can bring about desired social and economic transformation (Rai & Kumar, 2012).

The Use of Modern Technology for Rural Industrialization: Jayadatta (2017) state that the use of modern technology is not frequently common as a source for business information. Rural entrepreneurs are common to rely on social links and family and personal relationships to spread awareness regarding the business, even though somewhere and somehow these might have a negative stimulus to the business itself. According to Saxena (2012), these are due to the lack of technical knowledge and lack of training facilities experienced by rural entrepreneurs. Manimala et al. (2012) indicate local politics and willing of the relevant authorities and policy-makers could have an impact on the business abilities to adopt and make use of modern technology and affect the growth of the business. (Vitez, 2017) believe that SMEs are getting much need technology boost to compete with big business for the potential markets. Skinner & Goodier (2016) mentioned limited of lack of information and understanding of the important part played by ICT and its significant role in the adoption and the use of technology by the small business entrepreneurs.

3. Research Methodology used for the Survey

Different rural areas were selected to conduct this survey in southern and northern regions of KZN province. Empirical data were collected from 127 business owners/managers. Closed-ended questionnaire formulated from the literature review was distributed with the aid of research assistants to the targeted businesses premises. SPSS (Statistical Package for the Social Sciences) Version 24.0 was used for data collection and later results were presented in the table formats as indicated below.

Table 1: The Sample Profile Used

Cluster/area	Frequency	Percent
Harding (uMuziwabantu),	34	27
Ixopo (Ubuhlebezwe)	16	13
Underberg (Sisonke)	19	15
Umzimkhulu	24	19
Zingolweni	34	27

Table 1 presents the cluster/area of participants' business and how many they were per cluster. Since the measuring instruments for this study were closed-ended questionnaire. The following Table 2 shows the summary of key questions.

Table 2: Summary of Key Questions

Research area	Questions
Rural industrialization policy development	Lack of Policy development on rural industrialization has negative influence: *Alternative response: 5 Likert*
Rural Infrastructure for industrialization	Poor infrastructure has a negative impact on rural industrialization: *Alternative response: 5 Likert*
Rural socio-economic development	Shortage of socio-economic development has an influence on the rural industrialization: *Alternative response: 5 Likert*
Government attitude for rural industrialization	Government attitude towards the rural industrialization has much influence: *Alternative response: 5 Likert*
Rural market for potential industrialization	Size of the rural market has the impact of rural industrialization: *Alternative response: 5 Likert*
State resources for rural industrialization development	Availability of state resources has an influence on the rural industrialization development: Alternative response:
Technological development for rural industrialization	Poor technological development has an influence on the rural industrialization: Alternative response: *5 Likert*

Factors Affecting the Rural Industrialization: In recent times, in many developing countries incubator movements initiated by technology development (AL-Mubaraki & Aruna, 2013). The shortage of employment opportunities in rural areas has caused difficulties including low income and less rural business uptake and the situation forced people living the rural villages to immigrate to the cities (Shahabi, Salehi & Seifolahi, 2015). The supply of raw materials makes it difficult for the rural industrialization (Long, Zou & Liu, 2009). Dinkelman (2010) believes that the state of rural electrification affected the rural business development and creation of employment rural women as well as rural migration behavior.

4. Findings

The previous section has outlined comprehensive literature reviewed on the challenges faced rural SMEs on the use of modern technology for rural industrialization. The focus of this section is explained the key findings from the empirical data collected. Response was received from 127 (n = 127) participants operating enterprises in KZN province.

Table 3:

Research area		agreed	Neutral	disagreed	X	df	P
Rural Industrialization policy development	environmental regulation requirements	66 (52%)	28 (22%)	28 (26%)	X^2 =.709	df=1.11095	P = .000
	public procurement regulations	61 (56%)	29 (23%)	27 (23%)	X^2 =.666	df=1.15503	P = .000
	tough government regulations and requirements	82 (72%)	19 (15%)	26 (12%)	X^2 = .641	df= 1.09435	P = .000

A large number of participants for example 66 (52 percent) agreed with the statement that environmental regulation requirements still fund to be stamping block for the easy adoption of modern technology for the rural industrialization. While at the same time, the considerable number 28 (22 percent) of the respondents remain neutral, when 28(26 percent) disagree with the statement. Statistical test done on this variable indicates that (x2= .709; DF=1.11095; p =. 000) significant. More numbers of respondents, 61(56 percent) agree with the statement, about 29 (23 percent) were neutral, while 27(23 percent) disagree with the statement that public procurement regulations have the impact of the use of modern technology for the rural industrialization. Statistical test done on this variable indicates that (x2=. 666; DF=1.15503; p =. 000) significant. Majority of the respondents, 82 (72 percent) agree with the statement that tough government regulations and requirements have an influence on the use of modern technology for the rural industrialization.

Table 4:

Research area		Agreed	Neutral	Disagree	X	df	P
Rural Infrastructure for industrialization	poor quality equipment	71 (56%)	24 (19%)	32 (26%)	X2 =.764	df=1.15621	P = .000

The results reveal that, 71 (56 percent) agreed, while a small number of respondents, 24 (19 percent) remain neutral, 32(26 percent) disagree with the statement that poor quality of equipment or rather infrastructure have an impact on using the modern technology for the rural industrialization. Statistical test done on this variable indicates that (x2=. 764; DF=1.15621; p =. 000).

Table 5:

Research area		Agreed	Neutral	Disagreed	X	df	P
Rural socio-economic development	late payments from ordinary customers	78 (62%)	22 (17%)	27 (22%)	X2 = .678	df= 1.20652	P = .000
	lack of support from friends and family affects	53 (42%)	41 (32%)	33 (27%)	X2 = .696	df= 1.23988	P = .000
	lack of support from business consultancy services	81 (64%)	18 (14%)	27 (23 %)	X2 = .695	df=1.24411	P = .000

The study found that most participants, 78 (62 percent) agreed with the statement that late payment from ordinary customers has an influence on the use of modern technology for rural industrialization. About 22 (17 percent) of the participants remain neutral, while just 27(22 percent) disagree with the statement. Statistical test done on this variable indicates that (x2=.678; DF=1.20652; p =. 000). 53(42 percent) agreed with the statement that lack of support from friends and families affects the use of modern technology for the rural industrialization. When 41(32 percent) of the respondents were neutral, 33(27 percent) of the respondents disagree. Statistical test done on this variable indicates that (x2=.696; DF=1.23988; p =. 000). Lack of support from business consultancy services confirmed by 81(64 percent) of respondents that have an impact on the use of modern technology for rural industrialization. 18(14 percent) were neutral and 27(23 percent) of the respondents disagree. Statistical test done on this variable indicates that (x2=.695; DF=1.24411; p =. 000).

Table 6:

Research area		Agreed	Neutral	Disagree	X	df	P
Government attitude for rural industrialization	payments from government	86 (60%)	21 (17%)	28 (24%)	X2 = .689	df=1.21843	P = .000
	high levels of domestic taxation	94 (74%)	19 (15%)	7 (7%)	X2 = .595	df=1.12604	P = .000

The results reveal that 86(60 percent) agreed, while 21(17 percent) remain neutral and with 28(24 percent) of the respondents disagree with that payment from government affects the use of modern technology. Statistical test done on this variable indicates that (x2=.689; DF=1.2843; p =. 000). High levels of domestic taxation indicated by 94 (74 percent) of the respondents as a major influence in used modern technology for rural industrialization. 19 (15 percent) of respondents remain neutral and very few 7(7 percent) disagreed. Statistical test done on this variable indicates that (x2=.595; DF=1.12604; p =. 000).

Table 7:

Research area		Agreed	Neutral	Disagreed	X	Df	P
Rural market for potential industrialization	selling of similar products	86 (68%)	23 (18%)	12 (14%)	X2 = .615	df=1.654	P = .000
	weak domestic demand	78 (72%)	26 (21%)	17 (17%)	X2 = .590	df=1.19434	P = .000
	access raw materials	58 (46%)	29 (23%)	38 (31%)	X2 = .595	df= .01636	P = .000

86(68 percent) of the respondent agreed with the statement that selling of similar products has an influence on the use of modern technology for rural industrialization, while 23 (18 percent) stay neutral. Very few numbers of the respondents 12(14 percent) disagreed with the statement. Statistical test done on this variable indicates that (x2=.615; DF=1.654; p =. 000). Weak domestic demand indicated by 78 (72 percent) of the respondents that do have an impact on the use of modern technology for the rural industrialization. With 26(21 percent) of the respondents remains neutral and 17 (17 percent) disagreed with the statement. Statistical test done on this variable indicates that (x2=.590; DF=1.9434; p =. 000). 58(46 percent) of the respondents agreed that access to raw materials does have an influence on the use of the modern technology for rural industrialization. 29(23 percent) of the respondents remain neutral and considerable number, 38(31 percent) of the respondents disagreed with the statement. Statistical test done on this variable indicates that (x2=.595; DF=.01636; p =. 000).

Table 8:

Research area		Agreed	Neutral	Disagree	X	df	P
State resources for rural industrialization development	access raw materials	58 (46%)	29 (23%)	38 (31%)	X2 = .595	df= 1.01636	P = .000
	lack of sufficient and quick transportation	72 (57%)	25 (20%)	30 (22%)	X2 = .666	df=1.19434	P = .000

More than half 58(46 percent) of the respondents indicate access to the raw material as the main contributing factor into the rural industrialization, while 72(57 percent) mentioned lack of enough and quick transportation.

Table 9:

Tested Variables	N	P-Value	Correlation Coefficient
Institutional barriers	127	.000	485**
Financial barriers	127	.000	421**
Social barriers	127	.000	388**
Network resources	127	.000	465**

5. Conclusion

Broad knowledge and understanding of factors affecting the use of modern technology for rural industrialization are vital for the national economy and economic social ills. Since the use of modern technology is tremendously increasing day-by-day in both social sectors and in the business circle in South Africa but this is not the case in many rural places. Rural communities and rural businesses operators, therefore, need to make to be familiar of and knowledgeable about what rural industrializations are; and what are the factors contributing to the use of modern technology for rural industrialization to promote economic activities and improve rural industry sector. Lack of proper knowledge strategy and understanding the use of modern technology and how it can benefit the process of rural industrialization Institutional barriers, financial barriers, social barriers and network resources contribute to the use of modern technology for rural industrialization in KZN.

Recommendations: Based on the empirical funding's of this survey, there are many challenges for rural industrialization everywhere in with specific reference to the emerging economics countries such as South Africa that need attention. This survey recommends that national governments need to put more resources for rural business development. All stakeholders should be encouraged to invest in technology upgrading for rural economic development and industrialization. The study recommends that government national policy for business should allow easy transactions for rural industrialization. The study also recommends business training and development programs should be introduced and encouraged among the rural communities.

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Determinants of Social Entrepreneurial Intentions of University Students in South Africa

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Abstract: Entrepreneurial behaviour can be predicted by intentions. The study investigated the determinants of social entrepreneurial intentions (SEI) of university students in South Africa. The study adopted a quantitative research design that involved the use of a survey. The self-administered questionnaire method was used to collect data from the survey participants. The participants in the survey were final year undergraduate students of the Department of Business Management of two South African universities. Reliability was measured using the Cronbach's alpha. The data analysis methods for the study were descriptive statistics, principal component analysis and regression analysis. The results indicated that empathy, moral obligation, entrepreneurial self-efficacy and perceived social support are predictors of social entrepreneurial intentions. The recommendations to improve the SEI of university students focus on passive and active entrepreneurship teaching methods.

Keywords: *Determinants, social entrepreneurial intentions, university, students, South Africa*

1. Introduction

Entrepreneurship is a driver of social, economic and technological change and development (Kedmenec et al., 2015). Entrepreneurship can positively affect economic growth in many ways. Entrepreneurship leads to increased diversity in the goods and services available, increased competition, knowledge spillovers, innovations and job creation (Arthur et al., 2013). Entrepreneurs make existing businesses to be efficient through competition and new business creation that increase the pace of creative destruction. Entrepreneurship can positively impact on the economy through income growth and an increase in tax revenue. Entrepreneurship has helped to improve the quality of life of people living in both developing and developed countries (Dees et al., 1998). However, entrepreneurship can also have dysfunctional effects as it may create challenges that may mar societal progress. The net value of the benefits of entrepreneurship should include its social costs. Despite the benefits of entrepreneurship, especially traditional entrepreneurship, the world is inundated with many challenges. These include a volatile world economy, high levels of poverty especially in developing countries, high levels of income inequality, natural disasters, climate change, environmental pollution, crime and corruption (van Praag and Versloot, 2008; Zahra and Wright, 2016). These challenges have facilitated the rise of social entrepreneurship (SE) (Tran and Von Korflesch 2016; Ip et al., 2017). The motivation for SE is the readiness to exploit opportunities to solve societal problems. SE is a response to unsatisfied individual and societal needs through innovative solutions (Zahra et al., 2008). SE involves the search for environmental, social and economic goals. SE uses the business principles of capitalism to establish and manage enterprises with the goal of creating social change.

Social entrepreneurs help to improve social reform by addressing the burning issues of environmental threat, poverty and social inclusion. (Dees 1998; Haugh, 2007; Durieux and Stebbins, 2010; Seelos et al., 2010), Tran and Von Korflesch (2016) point out entrepreneurial behaviour can be predicted by intentions. The Theory of Planned Behaviour (TPB) by (Ajzen, 1991) argues that intentions can be used to predict actual behaviour. Attitudes toward behaviour, subjective norms and perceived behavioural control all contribute to an individual's behavioural intentions and behaviours. TPB has been used in research on entrepreneurship and has been found to predict entrepreneurial intentions and behaviours (Hockerts, 2017). While the entrepreneurial intentions of traditional entrepreneur have been well researched, the intention of social entrepreneurs is a growing area in academic research. Social entrepreneurial intentions (SEI) can be explained as the intention of an individual to start a new social enterprise (Ip et al., 2017). Mair and Noboa (2006) developed a theoretical model about the antecedents of SEI by adapting the TPB. According to Mair and Noboa (2006), there are four antecedents of SEI. These are empathy, moral judgement, self-efficacy and perceived presence of social support. Hockerts (2017) added experience with social organisations as a new antecedent of SEI. Empirical findings are not conclusive about the effects of the five factors on SEI (Ip et al., 2017; Hockerts, 2017). This study aims to examine the determinants of SEI of university students in South

Africa. University students are the future generation of society. University students have a passion for looking at different career options including social entrepreneurship (Ip et al., 2017; Chengalvala and Rentala, 2017).

Objectives of the Study: The objective of the study is to investigate the determinants of SEI of university students. The study will examine the effect of empathy, moral judgement, entrepreneurial self-efficacy, perceived presence of social support and prior experience with social organisations on the SEI of university students. Understanding the determinants of SEI can help to improve study curriculum on entrepreneurship. This can assist universities and policymakers to motivate students to become social entrepreneurs with the goal of improving a country's economic and social well-being.

2. Literature Review

Entrepreneurship: The term entrepreneurship lacks a precise meaning. The word entrepreneurship is elastics and lacks a well-accepted definition (Peneder, 2009; Mbhele 2012, Eisenmann, 2013). Numerous definitions of entrepreneurship have been offered, but none has prevailed (Venkataraman 1997; Kobia and Sikalieh, 2010). Stevenson (1983) describes entrepreneurship as how individuals and firms search for *an* opportunity that is beyond resources they control. Entrepreneurship can be linked to innovation. The goal of entrepreneurship is to create new things with the purpose of generating wealth for an individual and producing value for the society (Kao, 1993). According to Venkataraman (1997), entrepreneurship focuses on how new goods and services are created. Schumpeter's (1965) description of entrepreneurship focuses on innovation such as the introduction of new products, production techniques, markets and ways of organisation. Bolton and Thompson (2000) describe an entrepreneur as an individual that uses innovation to create something of accepted value through perceived opportunities.

Social Entrepreneurship (SE): Social entrepreneurship (SE) lacks a single universally accepted definition (Seelos et al., 2010). According to Ip et al. (2017), there are different conceptualisations of SE. it is regarded as a non-profit organisation with a market-oriented approach. It is also regarded as a profit-making enterprise with a social mission. SE is a subcategory of entrepreneurship (Rahim and Mohtar, 2015). Dees (2001, p2) describes social entrepreneurs as "one species in the genus entrepreneur". Dees (2001) points out that SE includes social purpose business enterprises and hybrid ventures that mix profit and not-for-profit elements. SE can be linked to innovation, proactiveness and risk-taking (Rahim and Mohtar, 2015). SE can be distinguished from traditional entrepreneurship in many ways. Social entrepreneurs are motivated to discover and pursue a distinct kind of opportunities with a distinct business approach (Mair and Noboa, 2006). In addition, SE involves both economic and social outcomes. Mair and Noboa (2006, p122) define SE as "the innovative use of resource combinations to pursue opportunities aiming at the creation of organizations and/or practices that yield and sustain social benefits".

Social Entrepreneurial Intentions (SEI): Entrepreneurial intentions can be described is the willingness to perform a certain behaviour that can lead to the start of a new venture or create new core values in the established organisation (Thompson, 2009; Khuong and An, 2016). SEI can be described as the intention of an individual to create a new social enterprise (Tran and Von Korflesch, 2016; Ip et al., 2017).

Theoretical Foundation of SEI: The intention to start a venture is supported the TPB by Ajzen (1991). The TPB extends the Theory of Reasoned Action (Fishbein and Ajzen, 1980). The TPB postulates that the intention of an individual determines his or her actual behaviour. The fundamental assumption of the TPB is that human behaviour is often planned and preceded by intention towards that behaviour. Behavioural intention can be explained by three determinants. These are the attitude towards behaviour, subjective norm and perceived behavioural control. Attitude refers to the degree to which an individual perceives certain behaviour positively. Subjective norm posits that other people that are important to an individual will want them to engage in the behaviour. Perceived behavioural control is the belief that an individual is capable of carrying out the behaviour (Ajzen, 1991). The TPB is a strong predictive model for explaining human behaviour (Armitage and Conner 2013; Yuzhanin and Fisher, 2016). Mair and Noboa (2006) developed a theoretical model about the antecedents of SEI. Mair and Noboa (2006) draw on Shapero and Sokol's 1982 work on entrepreneurial event formation and the TPB. Mair and Noboa in line with Shapero and Sokol included perceived desirability and feasibility as significant antecedents of intentions. The four antecedents of SEI according to Mair and Noboa's model are empathy, moral judgement, self-efficacy and perceived presence of social support. Empathy is a substitute for attitudes toward behaviour and moral judgment can be used as a proxy for social norms. Self-efficacy is a substitute for internal behavioural control, and perceived presence of social support can be used as a proxy for external behavioural control. (Hockerts, 2017) added prior experience with social organisations as another antecedent of SEI.

Empathy and SEI: Seddon et al. (2014) describe empathy the understanding of how another individual is likely to feel in a certain situation. Empathy is a powerful emotion that allows people to understand other people, their situation, and their needs (Brinker, 2017). Empathy is vital in the social enterprise creation process. Moral individuals are motivated by interest and concern for other people (Hourdequin, 2012). Empathy can be internal or external. Internal empathy can affect the behaviours of the stakeholders that are involved in the management of the venture. External empathy refers to the interaction between a social venture and its beneficiaries (Seddon et al., 2014). Empathy helps to distinguish a social entrepreneur from a traditional entrepreneur. Empathy can lead to social entrepreneurial intention because emphatic individuals tend to behave in a way that helps other people (1p et al., 2017; Hockerts, 2017; Bacq and Alt, 2018). It is hypothesised that empathy positively affects the SEI of university students. In addition, Hockerts (2017) labels moral judgement as a moral obligation.

Moral Judgement and SEI: Moral judgement encourages an individual to help other people. Moral judgement is a proxy for social norms and can help to distinguish a traditional from a social entrepreneur (Mair and Noboa, 2016), Moral judgement can prosocial intentions and behaviour (Ip et al., 2017). Moral judgement can make an individual feel morally obliged to help in reducing social ills through the formation of a social enterprise (Lacap, 2018). Empirical findings are not conclusive about the effect of the moral judgement on SEI. Hockerts (2017) finds an insignificant relationship between moral judgement and SEI. Ip et al. (2017) find a negative association between moral judgement and SEI. The motive for starting a social enterprise is not always altruistic and may include reasons such as the desire for status and recognition. However, a high level of moral values can positively affect the intention of an individual to start a social enterprise (Kibler and Kautonen, 2016). It is hypothesised that moral judgement positively affects the SEI of university students.

Prior Experience with Social Problems and SEI: Prior experience of a person with social problems can lead to awareness and understanding of social problems. Family exposure and prior work experience can predict entrepreneurial intention. Prior experience can be described as an individual's practical experience working for social sector organisations (Ip et al., 2017; Hockerts, 2017). Prior experience can improve social networking and help the potential entrepreneur to identify the resources that are needed for entrepreneurial behaviour (Quan, 2012). Difficult childhood experience especially poverty positively impacts on perceived desirability of starting own business (Drennan et al., 2005). Social entrepreneurs often have an understanding of specific social needs and have the ability to discover an opportunity from a painful situation (Kedmenec et al., 2015). Empirical studies such as Tan and Yoo (2015); Ip et al. (2017), Hockerts (2017) and Aure (2018) find a significant positive relationship between intention and prior experience. It is hypothesised that prior experience with social problems positively affects the SEI of university students.

Entrepreneurial Self-Efficacy and SEI: Self-efficacy can be described as the perception of the ability of an individual to accomplish an intended action (Bandura, 1977). It is an individual's belief in their capabilities to mobilise resources and undertake a course of action. Self-efficacy is highly relevant in entrepreneurship. Entrepreneurial self-efficacy is the perceived ability of an entrepreneur to perform the tasks related to entrepreneurship (Mair and Noboa, 2006). An individual's confidence in their abilities can help to predict SEI (Hockerts, 2017). Empirical findings are not conclusive about the impact of entrepreneurial self-efficacy on SEI. Hockerts (2017) find that entrepreneurial self-efficacy significantly affects SEI. However, Ip et al. (2017) did not find a significant relationship between the two variables. However, a high level of self-efficacy helps an individual to understand the feasibility of a new social enterprise (Mair and Noboa, 2016). It is hypothesised that entrepreneurial self-efficacy positively affects the SEI of university students

Perceived Social Support and SEI: Successful entrepreneurs rely on effective social supports or networks. Social supports can be described as the cooperation obtained from networks (Mair and Noboa, 2006). Social support is necessary for the acquisition of knowledge and resources. There is a significant relationship between family support and entrepreneurial intention (Molino et al., 2018), social support and entrepreneurial inclination (Sahbar et al., 2016) and social support, entrepreneurial skill and behaviour (Farooq, 2018). There is a significant positive association between perceived social support and SEI (Hockerts 2017, Ip et al., 2017). It is hypothesised that perceived social support positively affects the SEI of university students. Perceived social support is positively associated with the SEI of university students.

3. Research Methodology

The study adopted the quantitative research design that involved the use of a survey. The self-administered questionnaire method was used to collect data. The participants in the survey were final year undergraduate students of the Department of Business Management of two universities located in the Limpopo and Gauteng provinces of South Africa. The study used the non-probability sampling method. The participants were conveniently sampled. Questionnaires were distributed after the lecture with the help of the lecturers. Confidentiality and anonymity of the responses were assured. Reliability was measured using the Cronbach's alpha. The data analysis methods for the study were descriptive statistics, principal component analysis (PCA) and regression analysis.

Measures: Determinants of SEI: Survey questions to measure the determinants of SEI were adapted from previous studies (Hockerts, 2017; Ip et al., 2017). The two studies had accepted Cronbach's alpha coefficients (>0.70). Five-point Likert scale with "1 strongly disagrees and "5 strongly agree" were used to word the questions on the determinants of SEI. Questions to measure SEI were adapted from Hockerts (2017) and Ip et al. (2017). The three studies had accepted Cronbach's alpha coefficients (>0.70). Five-point Likert scale with "1 strongly disagrees and "5 strongly agree" were used to word the questions on SEI.

4. Results and Discussion

Three hundred and twenty questionnaires were distributed and three hundred and one questionnaires were returned. The response rate was 94%. The gender composition of the respondents was 54% female and 47% male. All the respondents were between 20 and 30 years.

Social Entrepreneurial Intention

Table 1: Social Entrepreneurship Intention

Statement	Mean	Standard deviation
It is my wish to start in the future a social enterprise that will reduce or solve social problems such as poverty	3.95	0.99
I already have a preliminary idea for a social enterprise which I plan to start in the future	3.42	0.97
My goal in the future is to become a social entrepreneur	3.92	0.99
Scale mean	3.76	
Cronbach's alpha	0.81	

The Cronbach's alpha coefficient of the measure of SEI is 0.81 indicate the reliability of the measuring scale. Mean value below three is considered as low, three to four medium and above four high. The mean score of 3.76 suggests a moderate intention to start a social enterprise. The results are consistent with that of Hockerts, (2017) and Ip et al. (2017) on the SEI of university students.

Principal Component Analysis

Table 2: Principal Component Analysis

Statement	1 Empathy	2 Moral judgement	3 Social entrepreneurial self-efficacy	4 Prior experience	5 Perceived social support	Mean	SD
Seeing individuals that are socially disadvantaged generates an emotional response in me	.768					4.35	.98
I feel compassion for individuals that are socially marginalised	,747					4.30	.92
When I think about socially disadvantaged individuals, I try to put myself in their situation	.735					4.33	.89
It is our ethical responsibility to help individuals that are socially disadvantaged		.738				4.05	0.93
We are morally obliged to help individuals that are socially disadvantaged		.691				4.02	0.97
Social justice expects us to help individuals that are less fortunate than ourselves		.642				4.02	0.97
Solving social problems is something that everyone should contribute to			.708			4.28	0.91
I think that I can personally solving social challenges if I put my mind in it			.652			3.96	0.87
I think that I can figure out how to solve social challenges			.601			3.92	0.89
I have some experience trying to solve social problems				.501		3.92	.82
I know a lot about social organisations				.417		2.90	.87
I have worked or volunteered to work for social organisations				.309		1.85	.83
I will get the support of people if I desire to start an organisation that intends to solve social problems					.690	3.45	0.91
It I possible to get support from investors for an organisation that intends to solve social problems					.622	3.42	0.84
Variance	29.08%	21.26%	10.65%	7.39%	3.28%		
Cronbach's alpha	0.79	0.72	0.81	0.77	0.72		

Items with factor loading lower than 0.300 are removed

Table 2 depicts the results of the PCA using Varimax rotated factor method. To ensure the appropriateness of factor analysis, the Barlett Test of Sphericity (BTS) and Kaiser-Meyer-Olkin (KMO) were used. The results (BTS = 499.074; sig. = 0.001)) and the KMO (0.729) both support the use of factor analysis. The five factors account for 71.66% of the total variance. Table 2 depicts a five-factor structure of SEI. This is consistent with previous studies such as Mair and Noboa (2006), Hockerts (2017) and Ip et al. (2017). Factor one is named empathy and consists of three items. The percentage of variance explained is 21.26 with a Cronbach's alpha of 0.79. Factor two is labelled as moral judgement and consists of three items. The percentage of variance explained is 28.26 with a Cronbach's alpha of 0.72. Factor three is labelled social entrepreneurial self-efficacy and consists of three items. The percentage of variance explained is 10.65 with a Cronbach's alpha of 0.81. Factor four is labelled prior experience and consists of three items. The percentage of variance explained is 7.39 with a Cronbach's alpha of 0.77. Factor five is labelled perceived social support and consists of two items. The percentage of variance explained is 3.28 with a Cronbach's alpha of 0.72.

Regression Analysis

Table 3: Summary of the Multiple Regression Results

Variables	Beta	T	P
Constant	0.629	3.208	.017**
Empathy	0.316	1,701	.003 **
Moral obligation	0.227	2.719	.014***
Social entrepreneurial self-efficacy	0.460	5.206	0.011***
Prior experience	0.390	1,141	0.422
Perceived social support	0.241	1.490	0.04***
R^2	0.309	1,03	0.14
F	21.184		
P	.00**		

*P<.001, **P<0.01, ***P<.05

Table depicts the results of the multiple regression analysis of the effect of the determinants of the SEI of university students. The R^2 is 30.9% (0.309) and the F –test achieved a significance level (p <0.01). This confirms the appropriateness of the regression model. The results indicate that empathy (Beta 0.316, P<0.01), moral judgement (Beta 0.227, p<.05), Social entrepreneurial self-efficacy (Beta 0.460, p<.05) and perceived social support (Beta 0.241, p<.05) have significant positive relationships with social entrepreneurship intention. Prior Experience (Beta 0.390, p>0.05) does not have a significant positive relationship with social entrepreneurial intention. Empathy positively affects the SEI of university students. Empathy is one of the key traits that distinguish a social entrepreneur from a traditional entrepreneur. Emphatic individuals tend to behave in a way that helps other people. The findings of this study are supported by previous empirical studies on empathy and SEI (Ip et al., 2017; Hockerts, 2017; Bacq and Alt, 2018). Moral judgement positively affects the SEI of university students. The findings of the study are consistent with Mair and Noboa (2006) and Kibler and Kautonen (2016). However, the findings are inconsistent with Hockerts (2017) and Ip et al. (2017). Hockerts (2017) find an insignificant relationship between moral judgement and social entrepreneurial.

5. Conclusion

Social entrepreneurship helps to develop an entrepreneurial approach to solving social problems Social entrepreneurs help to improve social reform by addressing the burning issues of environmental threat, poverty and social inclusion. Entrepreneurial intention can predict entrepreneurial behaviour and action. University students are the future generation of society. Social entrepreneurship is one of the career options of university students. The study investigated the determinants of the SEI of university students in South Africa. The SEI model of Mair and Noboa (2006) and extended by (Hockerts, 2017) was used. The results indicated that empathy, moral judgement, entrepreneurial self-efficacy and perceived social support predict the SEI of university students. Ip et al. (2017) find a negative association between moral obligation and social entrepreneurial intention. Entrepreneurial self-efficacy positively affects the SEI of university students. A high level of self-efficacy can positively affect behavioural intention (Mair and Noboa, 2016). Hockerts (2017) also find a significant positive relationship between entrepreneurial self-efficacy and SEI.

However, Ip et al. (2017) did not find a significant relationship between the two variables. The results of the effect of prior experience are not significant.

Recommendations: The empirical findings can assist students in understanding the factors that are significant in creating social enterprises. Empathy, moral judgement entrepreneurial self-efficacy and perceived social supports positively affecting the SEI of university students. To improve empathy and moral judgement, training on moral and ethical leadership is important. This will help in providing emphatic experiences to students and improve empathy and moral judgement in the exploitation of business opportunities. To develop entrepreneurial self-efficacy, training on entrepreneurial skill and competencies is important. Entrepreneurship should be made a compulsory model for all university students. To improve perceived social support, it is important for students that are interested in social entrepreneurship to develop networks with existing social entrepreneurs and institutions that support entrepreneurship. Students can go for an internship at successful social entrepreneurs to gain experience. Social entrepreneurs should be invited to universities to provide practical experiences about social entrepreneurship. Social enterprise incubators and centres for social entrepreneurship should be established by universities.

The findings can also help universities in designing a curriculum on social entrepreneurship. In addition, the findings can assist governmental organisations that support the creation of small businesses in understanding the antecedents of SE. This can help to develop training materials aimed at students in the universities. Social entrepreneurship should be included in the curriculum of all university students in South Africa. Competition on entrepreneurship in universities should focus on social entrepreneurship. This will allow students to better understand the theoretical and practical aspects of social entrepreneurship. Both passive and active teaching methods on entrepreneurship in the universities should include the creation and management of social enterprises. The findings are inconsistent with previous studies such as Ip et al. (2017) and Hockerts (2017). Hockerts (2017) and Ip et al. (2017) also find a significant positive association between perceived social support and the SEI of university students.

Limitations and Areas for Further Studies: Data was collected from two universities in South Africa. This may affect the generalisability of the findings of the study. Other studies can explore the effect of entrepreneurship education and culture on the SEI of university students.

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Manager-Employee Relationships during Turbulent Times at a Gold Mine in South Africa

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Abstract: This article aims to provide new conceptual insights into the responsibilities of an engineer who acts as a plant manager and who has to deal with employee relations during a turbulent time at a gold mining plant in South Africa. A qualitative research approach was used to gather the data in this study. Trustworthiness of the research was ensured by applying various reasoning strategies, such as content analysis, inductive reasoning, blending, bracketing and understanding in order to interpret the data. The first group interview comprised managers as well as engineers who were appointed as managers, the second, administrative employees from the service departments, and the third, artisans and foremen employed at the mine. Qualitative content analysis was used to analyse the transcripts. The recurring themes from the group interviews were 'employee empowerment', 'trust building', 'employee voice' and 'development of skills'. A conceptual framework for manager-employee relations during troubled times was developed from the findings. The essential responsibilities of a gold mining plant manager during periods of turbulence were described.

Keywords: *Manager-employee relationships, employee empowerment, trust building, employee voice*

1. Introduction

The year 2016 marked another challenging year for the South African mining industry in the wake of subdued commodity prices, an increase in short-term volatility, increased pressure on operating models and regulatory uncertainty (PWC, 2016). Mining production in South Africa fell by 0.2 percent year-on-year in August of 2016, following a 5.4 per cent slump in July. This was the twelfth straight month of contraction, although at the slowest pace, as output dropped for gold (-8.2 percent) (Trading Economics, 2016). KPMG (2016, p. 2) explains: "uncertain regulatory framework, weaker commodity prices, increased working costs, constrained infrastructure, high labor costs coupled with poor levels of productivity and strained labor-management relations; these are some of the challenges that have placed South Africa's mining industry in dire straits". Productivity of mining depends on the labour working in the mines (Ranjan & Das, 2015). South African workplaces are culturally diverse (Nel, Kirsten, Swanepoel, Erasmus & Jordaan, 2016) and relationships in the mining industry are complex and dynamic (Josep & Taka, 2012). Deloitte (2016, p. 6) states, "to support the constant push for productivity miners may have to tread into controversial waters: labor reform". A good manager-employee relationship is therefore necessary. This relationship will optimise performance, and employees will feel engaged (Tanzel & Gazioglu, 2014). Emmott (2015) is of the opinion that for many employers, employee engagement has become the focus of their efforts to manage the employment relationship. Such a relationship, however, can be distorted by the diversity of cultural interpretations (Jenkins, 2004). It is therefore essential that managers display procedural and distributive fairness in the organization (Gill, 2008).

Ranjan and Das (2015) mention that efficiency in productivity employee satisfaction and motivations are important issues in the mining industry. Zheng, Di Milia, Rolfe and Bretherton (2007) assert that managing strategic flexibility is essential in the mining industry in order to achieve organizational objectives. Deloitte (2016) suggests that South African mining managers should not only focus on profits, but also provide decent jobs, play a positive role in mining communities and be sensitive to the environment. In order to accomplish the above it is essential that managers establish and sustain a healthy relationship with the employees. The objectives of this study were threefold. First, to investigate the manager-employee relationships at a mine; second, to profile the essential responsibilities of a gold mining plant manager during turbulent times; and third, to develop a conceptual framework of manager-employee relations during a turbulent time from the findings in this study the importance of this study relates to the identification of the main themes that form part of the four pillars that are crucial in manager-employee relationships during a turbulent time at a gold mine. Another important contribution is the profile of essential responsibilities of a gold mine plant manager that can be used to transform an engineer into a gold mine manager. Employee morale and employee motivation are important in the mining industry (Ranjan & Das, 2015). Staff, needs to be motivated, and talented employees need to be retained (Dickie & Dwyer, 2009).

Manager–Employee Relationships: Herington, Scott and Johnson (2005, p. 256) mention, Employees view relationships as being very important in the work environment". Holtzhausen and Fourie (2009, p. 337) state: "when managing the employer-employee relationships, three aspects need to be monitored: the employee's general perspective of the character of his relationship with management, the type of relationship, and the employee's perception of the quality of the different dimensions of the relationship". Dickie and Dwyer (2009) posit that the effective management of employees will provide a competitive advantage. Improving manager-employee relationships will increase employee satisfaction and labour productivity, reduce turnover and motivate employees (Tanzel & Gazioglu, 2014). Boudrias, Gaudreau, Savouie and Morin (2009) state that employee empowerment is the set of managerial practices that increase employees' autonomy and responsibilities as well as an individual proactive work orientation. cited by Faizal, Mathey and James, 2015) remark that employees must have autonomy in their working environment. Supervision style and job design are important empowering conditions (Boudrias et al., 2009). Bass (1998) identifies four leadership behaviors that represent basic components of transformational leadership: idealised influence (charisma), individualised consideration or attention, intellectual stimulation and inspirational motivation. Antonakis, Fenley and Liechti (2011, p. 76) define charisma (idealised influence) as "symbolic leader influence rooted in emotional and ideological foundations". Bass (1985) argues that individualised consideration or attention includes the provision of support, encouragement, coaching, delegation, advice and feedback for use in followers' personal development. Bass (1985) opines that intellectual stimulation increases awareness of problems and influences followers to view problems from a new point of view.

Values and objectives affect the employer-employee relationship (Holtzhausen & Fourie, 2009). Whenever employees feel the organization expresses their values, it creates a sense of commitment to the relationship between the organization and its employees. Trust in the employer-employee relationship is essential to achieve organizational objectives (Holtzhausen & Fourie, 2009). The core of cultural change is the maturing mentality that increases trust, participation and cooperation between managers and employees (Savolainen, 2000). Schiavi (2013, p. 254) mentions that trust-building characteristics include "transparency, integrity, delivering on commitments and being forth-right in communications". Trusting workplace relationships have a positive influence on the dedication to an organization (Gill, 2008). Working conditions in the mining industry could be dangerous and workers therefore have a right to health and safety (Josep & Taka, 2012). Any managerial strategy to improve health and safety as well as the productivity of underground miners must include the miners' work culture (Ranjan & Das, 2015). Phakhati (2013, p. 143) confirms and elaborates: "any strategy designed to improve the health, safety and productivity of underground gold miners must recognise, elaborate and systematically articulate the workplace culture of planisa as an existing and alternative work practice in the daily running of the production process". Planisa is a Fanakalo (mining language) term for gold miners' informal work practice of making a plan at the point of production deep down the mine (Phakhati, 2013). The mining workforce must be transformed, productive, receive fair wages and work in a non-discriminatory, safe and healthy environment (Baxter, 2015). The well-being of managers and employees is therefore of utmost importance (Higgs, 2007).

Managers have to communicate with their subordinates, deal with grievances, apply discipline and deal with conflict and disputes (Tustin & Geldenhuys, 2000). Emmott (2015, p. 664) states, "employers are clearly in charge, but the concept of employee voice undermines traditional assumptions about managerial sovereignty and hierarchy and challenges managers to find better ways of delivering high performance". 'Informal voice' refers to the direct communication between front-line managers (group of managers closest to the employees) and employees (Townsend & Loudoun, 2015). Townsend and Loudoun (2015) add that informal voice has only been recognised recently as an important and on-going process to lead employee and organizational outcomes. According to Townsend and Loudoun (2015), there are three broad means of employee voice activities: silence, formal channels and informal channels. Townsend and Loudoun (2015) found that employees tend to prefer the informal voice channel, which refers to communicating with front-line managers. Kilroy and Dundon (2015) suggest that front-line managers should act as organizational leaders and employee coaches who display the behaviors of a transformational leader. Transformational leaders provide opportunities for employers to develop capabilities (as cited by Marques, 2008). Hall and

Sandelands (2009) emphasise skills development. Dickie and Dwyer (2009) are of the opinion that employee development is important in the mining industry. Phakhati (2013) proposes that the South African gold mining industry should adopt innovative forms of work that focus on participative schemes. Gill and Meyer (2013) believe that managers and employees should be flexible and self-motivated.

Problem Statement and Aim of Research: According to Branine, Fekkar, Fekkar and Mellahi (2008), the single most important factor determining unions' ability to manoeuvre is the continuing support they receive from government and its institutions. Fashyoin (2008) suggests that strategic initiatives can strengthen employment relationships. Mutually accepted obligations in the employment relationship are also of the essence (Tekleab & Taylor, 2003). A gold mining plant in South Africa was subject to change and turbulence. During this period there was no clarity on the nature of the manager-employee relationships. The main aim of the study was therefore to investigate the manager-employee relationships at the mine at the time in order to gain an understanding of these relationships.

2. Research Methodology

This study employed a qualitative approach. A qualitative approach tries to identify how people perceive and interpret their experiences in their natural setting and to provide answers to the research questions (De Vos, Strydom, Fouche & Delport, 2002). The research was conducted within the constructivist research paradigm where individuals develop subjective meanings of their own personal experiences (Bloomberg & Volpe, 2008). Group interviews allowed the researchers to clarify some aspects of the questions put to the interviewees (Welman, Kruger & Mitchell, 2010). Group interviewing is a quick and effective method of collecting qualitative data, as inputs can be obtained from several people at the same time. During discussions, the synergistic group effort produces a large number of ideas, which stimulate the generation of new ideas. "A qualitative interview is essentially a conversation [...] ideally the respondent does most of the talking" (Babbie, 2008, p. 336).

Sampling: A purposive sampling technique was used to identify forty-two participants for this study. Elo, Kääriäinen, Kanste, Pölkki, Utriainen and Kyngäs (2014) argue that purposive sampling is suitable for qualitative studies where the researcher is interested in informants who have the best knowledge concerning the research topic. Separate group interviews were conducted. The first group interview comprised managers as well as engineers who were appointed as managers, the second administrative employees from the service departments, and the third artisans and foremen employed by the mine. A vast amount of information about their experiences of their relationships with management was collected, and the researchers kept field notes.

Trustworthiness: The trustworthiness of this part of the study was increased by maintaining high credibility and objectivity. Member checking was used to improve the accuracy and credibility of what was recorded during the group interviews (Barbour, 2001; Byrne, 2001). The researchers also attempted to maintain the trustworthiness of the research by applying various reasoning strategies, such as content analysis, inductive reasoning, blending, bracketing and understanding in order to interpret the data (see in this regard Kvale, 1996). Bracketing is the cognitive process of putting aside one's own beliefs, not making judgements about what one has observed or heard, and remaining open to data collection and analysis (Arjun, 2011; Van Manen, 1997). May (2010) adds that the researcher endeavours to describe with words the experiences of the participants relating to the investigation of the phenomenon by bracketing out any possible prejudiced ideas about the phenomenon under discussion.

Data Collection: The researchers used field notes and group interviews to collect data from the personal experiences and perceptions of the interviewees. The following questions were asked during each group interview: Tell us more about the relationships between managers and employees at this plant. Is there anything that you would like to add to our discussion?

3. Data Analysis

Qualitative content analysis was used because it is a comprehensive and methodical examination of the contents of a particular body of material of human communication for the purpose of identifying patterns, themes or prejudices (Leedy & Ormrod, 2013). Data was collected through group interviews. The researchers used hand-coding, and recurring themes were identified (Henning, Van Rensburg & Smit, 2004). Deductive coding based on the literature review was used to analyse the data. All group interviews were recorded and transcribed (Creswell, 2009). The data was hand-coded and categorised according to Tesch's (1990) method: Get a sense of the whole by reading all the data carefully. What is the underlying meaning? Write thoughts and themes in the margin. Do this for several informants – cluster together similar topics and arrange topics into major topics and unique topics. Revisit data with topics, abbreviate the topics as codes, re-analyse and identify whether new codes emerge. Turn topics into categories. Reduce the number of themes by grouping similar themes. Diagrammatise the basics of the previous two bullets. Finalise abbreviations and alphabetise codes. Perform preliminary analysis of material belonging to each category. Where necessary, recode existing data.

4. Findings

The recurring themes from the group interviews were 'employee empowerment', 'trust building', 'employee voice' and 'development of skills'. These themes are presented in Table 1. All quotes are provided verbatim and without being edited.

Table1: Themes, Categories and Quotes

Theme	Category	Quote
Employee empowerment	Supervision style	"Mr. X leads by example. He will take the hosepipe and he will clean. He will show the people how. He inspires people."
		"Treat the plant as a family. Feel at home at the plant".
	Increased responsibilities	"If the behavior is good, then production will go up. We are one team that can compete globally …".
		"You know I have been a foreman as well. They took a lot of their responsibility away. They cannot make a decision now. Call a fitter or boilermaker they cannot make that call anymore. A standby official must be called and make a decision."
	Job design	"There are job descriptions but a lot of them are very vague. A plant attendant has a very broad scope. It can mean everything or absolutely nothing. No job descriptions from B level and down. Only C level has job descriptions."
Trust building	Transparency	"I just want to see more transparency. The future of the plant, production statistics. From my side transparency from management."
		"Every foreman up to management is allowed to take cell phones. But a lower grade is not allowed to bring it in. If we have a query like that, the answer would be it is a management decision you cannot bring in your cell phone. They do not understand. If you want to be transparent you have to know the reasons."
Employee voice	Communication	"From my opinion, the most important thing is communication […] Meetings, access to information, pamphlets, and gatherings. Open communication is the most important thing."
		"It is not a one-way communication that comes from the top down anymore. My input is important."
	Participation	"People want a platform to participate. They want to be involved."
		"People know they are important. They feel that they are part of this plant".
	Production	"It is not for management to say that production is produced […] Everyone must be involved. Each and everyone must be involved."
		"To be truly involved in the discussions and the change what you need to do as an individual and as a team, I think very few of us are fully engaged."
Development of skills	Training	"Individuals were going to be sent on training. Promises were made but not kept."
		"They [management] said that people will be sent for training. That was never followed up on, never discussed. People need to follow up. A lot of people have development areas, never communicated to them."
	Enabling managers	"It is very, very difficult to teach engineers to become leaders […] send managers on training courses, use mentorship and coaching."
		"The new engineer at this plant is from Iscor/Sasol environment. Total different environment. He does not understand the gold mining industry. Managers must first learn the plant in order to lead. Learn the plant through the people."

Discussion: Employee empowering conditions that were identified from the group interviews were supervision style, increasing responsibilities and job design. Savolainen (2000) posits that skilful leadership is essential for the spirit of cooperative ethic to be implanted and sustained. Leaders must create and empower an environment where trust and openness prevail. Boudrias et al. (2009) found that the supervisor plays an important role in the development of employees with regard to meaning, competence, self-determination and influence. Employees want ownership by participating in decision-making. Sahi and Mahajan (2014, p. 637) found that "enhanced employees' participation, involvement and responsibility determine effective outcomes in the form of increased job satisfaction and commitment to the organization". Managers are therefore responsible for empowering their employees in order to improve manager-employee relationships during turbulent times. However, the first take of managers during troubled times usually to disempower employees because they want to take control to make sure the workplace survives. Leadership therefore seems to be an important theme in manager-employee relationships. Leaders need to be committed to the engagement processes and dedicated to the values of the mining company.

During the interviews, the groups indicated that charismatic leadership is an essential leadership style for this plant. Managers should articulate a clear vision for the future of the plant. It appeared that transparency, as part of trust building, was perceived as important for the manager-employee relationship. De Ridder (2004) found that employees would trust managers who are trustworthy and have integrity. Transparency was important at the mine under study, and employees indicated that management should provide reasons for making decisions and be open about production and safety statistics. At the plant under study, employees wanted their voice to be heard. It was clear that they saw communication as the freedom to express opinions and ideas and to participate. Findings by Magness (2015) confirm that communication in the mining industry is crucial. Tjosvold, Hui and Law (1998) found that when problems were discussed fully through good communication, both manager and employees worked towards a common goal. Therefore, good relationships and good communication engender good future relationships. Emmott (2015) found that employee voice could be seen as the ingredient building on and reinforcing leadership, integrity and line management. A conceptual framework of manager-employee relations during a turbulent time was developed from the findings in this study, as illustrated in Figure 1.

Figure 1: Conceptual Framework

Manager–employee relationships during a turbulent time			
Employee empowerment • Supervision style • Increased responsibility • Job design	**Trust building** • Transparency	**Employee voice** • Communication • Participation • Production	**Development of skills** • Training • Enabling managers to become leaders

As seen in Figure 1, the four main themes, namely 'employee empowerment', 'trust building', 'employee voice' and 'development of skills', as well as the respective categories of each theme, can be seen as four pillars that are crucial in manager-employee relationships during a turbulent time. Without these pillars, there is a strong possibility that the manager-employee relationships may not be effective during periods of tribulation. The findings in this study can be used to profile the responsibilities of an engineer who acts as a gold mining plant manager in South Africa when this mine faces challenging conditions. These responsibilities are summarised and described in Table 2.

Table 2: Profiling the Essential Responsibilities of a Gold Mine Plant Manager during Turbulent Times

Responsibilities	Description
Leadership	Adopt a charismatic and transformational leadership style
Empower employees	Give responsibilities and ownership to employees
Human resource management	Oversee that there are job descriptions for each employee
Build trust	Be transparent in making decisions
Employee voice	Ensure that employees have communication platforms
Employee engagement	Allow employees to make suggestions
Development of employees	Ensure that all the employees are properly trained

Recommendations and Practical Implications: It is recommended that managers should engage employees on a regular basis to encourage informal lines of communication. Savolainen (2000, p. 325) states, "under challenging external circumstances functioning labor management-relations may form a mental 'buffer' for the organization". It is also proposed that a balanced scorecard be used to assist managers to measure performance to optimise manager-employee relations (as cited by Shurbagi & Zahari, 2013). It is essential to ensure that employees experience increased responsibility and that their job designs are updated and relevant. Trust can be built through transparency. It is recommended that during turbulent times managers deal with employees as unique individuals; consider their individual needs, abilities and aspirations; listen attentively; further employees' development; and coach employees. This can be done through open and constructive discussions between management and employees. In order to establish and maintain a high-trust workplace, the challenge for human resource practitioners is to develop a thorough understanding of employee engagement and conflict management in order to improve manager-employee relationships. This would instil a practice of transformational leadership and a culture of 'employee voice'. In order to achieve the latter, it is recommended that employees have communication platforms, offering them the opportunity to participate in relevant discussions.

All the employees must feel that they are involved in order to enhance production. It is recommended that skills development training be made available to all staff members, and that career path be discussed and developed. Managers must be empowered to become leaders. Mentoring and coaching should be introduced to assist with this process. For future research, it is recommended that a similar study be conducted at other gold mining plants in South Africa and internationally. It is also recommended that the mediating and moderating factors in the manager-employee relationships in the gold mining industry be determined. Deloitte (2016) argues that labour relationships in the mining industry must be reformed, and this could be investigated in the gold mining industry. The current study also offers several practical implications. Collaborative efforts between mining companies, government and labour are necessary to address fundamental challenges in order for mining companies to start thinking more strategically and to focus on what it really means to be "Fit for Future" (Deloitte, 2016, p. 11). By building trust and generating enthusiastic support from their employees, leaders are able to improve individual and team performance. Borowski (1998), states that an ethical relationship between managers and employees is the result of respect that should govern all human relationships, and this is still relevant in 2018.

5. Conclusion

The first objective of this study was addressed by identifying four main themes as part of the investigation into the manager-employee relationships at a mine. The essential responsibilities of a gold mining plant manager during troubled times was profiled as part of the second objective and the third objective was achieved by the development of a conceptual framework of manager-employee relations during a turbulent period. The objective of the current study was to provide new conceptual insights into the manager-employee relationships at a gold mining plant in South Africa. These relationships in the complex gold mining industry were probed during group interviews. The recurring themes, which emerged from the group interviews, were 'employee empowerment', 'trust building', 'employee voice' and 'development of skills'. A conceptual framework was developed to illustrate the main pillars for upholding effective manager-employee relationships during turbulent times. Promoting a positive, empowering and transparent organizational culture to facilitate the effective management of labour relations will add value to the plant under study. Leadership should evince trust, integrity, respect and personal credibility.

Managing change demands inspiring and effective leadership and transparency. Nurturing employee voice is important for both leadership and a healthy organizational culture. Labour practitioners at the mine under study should therefore facilitate and promote the culture of openness and employee voice amongst both managers and employees. The issues raised above speak of the challenges of life on a South African mine. For those subjected to these conditions, it is very important to be heard and empowered. Unfortunately, the management style at the mine under study was bureaucratic, giving rise to labour unions that were actively trying to protect their members. It therefore seems that poor management styles promote unionisation. The study found that the new charismatic and transformational leadership style of the plant manager gave employees a voice. While there is yet room for improvement, the plant management was proactive in creating communication platforms during the period of turbulence. Transparency grows trust amongst employees, but requires a leap of faith from the side of management. Beyond that, the development of employees to the same extent as management is generally neglected. This study managed to highlight the value of people–while production and profit are important in the mining industry, the people side also demands attention. Manager-employee relationships will then thrive, especially during troublesome times.

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The Relationship between Health Outcomes and Household Socio-Economics Characteristics

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Abstract: The economic circumstance of a household is in most cases linked to the varied situations a household may find itself income is to a greater extent linked to the housing and food that a household is exposed to. Income among other socio-economic factors may also affect the demand structure of the household in terms of what the household may consider necessary or not. The level of household demand for health services and its preventive level may also be associated with other household characteristics especially those associated with the head of the household. This paper analysed the relationship between the morbidity rate in a household and the household characteristics and the characteristics of the head of household. The paper uses data collected in the South African general household survey published in 2017 conducted by Statistics South Africa. Based on a sample of 21601 households, the study employs a multinomial logistic model with the level of morbidity rate categorised into a high level, mild, and low. The results of the empirical analysis show that Household size, the gender of head of household, housing insecurity status age of head of household and income were significant determinants of morbidity rate at the household level. The contribution of the paper is therefore a proposal for preventive mitigation as opposed to treatment which tends to be more expensive on government. The fact that housing insecurity is a competing need with health demand calls for better alignment in terms of government, provision of health services in South Africa. This paper is motivated by the initiative of the introduction of a national health Insurance (NHI) is South Africa.

Keywords: *Socio-economic, morbidity rate; household; determinants; health outcomes*

1. Introduction

Healthy living has been a priority of at both micro and macro levels because of the consequences of its neglect if fatal. The importance of health in an economic sense is ubiquitous in the literature (Drimie & Casale, 2009; Helsing, Moyses, & Comstock, 1981; Hutchinson et al., 2004; Paul Schultz, 2002). It can also be acknowledged that health deterioration can be observed before it becomes serious and hence the importance of preventive behaviour is advocated before looking for a cure, as the old adage says prevention is better than cure. Therefore, the demand for healthcare is superseded by the demand for healthy living. However, this paper hypothesises that there are household conditions that make it impossible for households to prevent themselves from practicing proper preventive behaviour. Morbidity rate or frequency in terms of getting sick is a term measurement that helps to determine the health level of a household or an individual it can also be used on a macro level in an aggregated sense for a specific illness. At household level one can use the hospital visitation or the rate at which sickness is experienced in the household as a measure of household health outcome. The interest with health and hence morbidity rate is that it impacts on both the productivity of the labour force in a macro sense and also impact on the health expenditure especially where the majority of the population is not covered by private health insurance.

The discussion is South Africa has of late concentrated on the public health sector and the fact that it is in a state of crumbling. There are a number of reasons that can be attributed to the failing state of the public health sector. The inequality in income distribution is arguably one of the main reasons, we discuss this in detail in a paper on 'determinants of demand for private healthcare in South Africa' the transmission mechanism as we would put it in economics being that, the country has afforded the private health sector to discriminate the less fortunate by making health insurance so highly priced that it is out of reach by a majority. The inequality comes in in the sense that there still enough people that can afford the expensive health covers that the providers do not see the need to capture more customers by reducing the price. There are also cartel tendencies in the sector which have removed the competition aspect and hence operating with a monopolist output. This paper however looks at how household social economic characteristics determine their health outcomes focusing on the rate of illness or hospital visitation. The interest in that is that it helps to focus resources on the point of service that is most effective and cost-efficient. Having a better understanding of what determines the demand for healthcare can therefore go a long way in dealing with inefficiencies in health spending (Benzeval et al., 2014; Dahl & Lochner, 2012).

2. Literature Review on Health Outcome and Household Characteristics

This section presents theoretical and empirical premise for the independent variables and how they are associated with health outcomes, hereafter measured as morbidity rate. The paper discusses income and its relationship with an individual or household health (Hutchinson et al., 2004; Who, 2003; Woolf et al., 2015), education and health, housing and health (Archer, Murie, Turkington, & Watson, 2016; Bonnefoy, 2007; Krieger & Higgins, 2002; Rauh, Landrigan, & Claudio, 2008; World Health Organization, 2007) and food security and health (FAO, 2013; Labadarios et al., 2011; UN, 2016; Weiser et al., 2015). The variables discussed in this literature section are the ones used as dependent variables, including other variables like age and household size. Morbidity can be a good proxy of the illness rate or health of a population or a sample.

Income and Health Outcomes: The link between income and health can be considered to be simultaneous, or multidimensional. The common argument for reducing poverty for example has been that it will improve a number of household circumstances including their health position (Benzeval et al., 2014). The report by the Rowntree Foundation identifies key theories that explain how money influences health. They pointed out that there is a materialistic, Psychosocial and behavioural explanations to the link between income and health (Benzeval et al., 2014; Braveman, Egerter, & Barclay, 2011). The materialist argument is that money buys health-promoting goods and services and enables an individual to engage in social life in ways that enable them to be healthy. The psychosocial argument is that stress of having not having enough money may lead to worry and may affect one’s health. And the behaviour argument points the fact that people living in disadvantaged circumstances may be more likely to have unhealthy behaviour, and being in poor health may affect education and employment opportunities in ways that affect subsequent health (Benzeval et al., 2014; Woolf et al., 2015). There are therefore strong arguments that improving people access to income may go a long way in dealing with their demand for health and the tress on the public health sector, in the sense that there will be low demand on health or that they may be able to afford private healthcare. Woolf et al. (2015) found that the hypothesis that people with higher incomes and wealth are likely to be healthier than those with lower income than theirs was true based on the US data.

Education and Health Outcomes: The link of education to health is largely associated with the income argument. Most educated people have a higher chance of earning an income and hence have access to better healthcare and can afford services that give them better health outcomes (Zimmerman & Woolf, 2014) However there are studies that have shown that the relationship between education and health goes beyond the income argument (Cutler & Lleras- Muney, 2016; Feinstein, Sabates, Anderson, Sorhaindo, & Hammond, 2006; Groot & van den Brink, 2006). The literature shows that the relationship between education and health is more complicated than is assumed in the anecdotal discussions. Cutler and Lleras-Muney analysed data from the National Health Interview Survey (NHIS), which includes a large number of health outcomes and behaviours and one of their outcomes was the educated people are less likely to self-report a past diagnosis of an acute and chronic disease and also less likely to die from common diseases (Cutler & Lleras- Muney, 2016). Besides the income mechanism, education can also be linked to health in the sense that education people are aware of the basic hygiene required to prevent them from catching common diseases.

Housing and Health Outcomes: Housing insecurity is a concept that has not received enough attention, although housing itself is understood as an important basic human need (Broton & Goldrick-Rab, 2018; Rauh et al., 2008). The literature does not have a clear measure or scale to measure hosing insecurity at the household level (Mncayi & Dunga, 2017). In a series of paper we have been developing a measure of housing insecurity using income, the material used for the construction and household size (Dunga & Grobler, 2017b; Mncayi & Dunga, 2017). The link between housing insecurity and health outcome however is ubiquitous in the literature (Archer et al., 2016; Bonnefoy, 2007; Rauh et al., 2008). The nature of housing that the household is accommodated in goes a long way in determining the health of the household. A housing secure household is one that is not congested, has proper structure and does not use more than 30% of the household income for its cost (Dunga & Grobler, 2017a). A good house or a housing secure household stands a better chance of avoiding communicable diseases. There are a number of diseases that are related to exposure to poor housing. Housing without inside plumbing for example means that the household has to find ways to source water. The quality of water sources from outside the household could be unsafe to a larger extent. There are many other linkages can be derived from poor housing or housing insecurity to health.

Food Security and Morbidity Rate: There can be no other important determinant of health than the food one eats or the access and or availability of food. Food security at household level therefore has a bearing on the health of the members of the household especially children. There are a number of studies that have shown the link between food security and health (FAO, 2013; Institute, 2016; UN, 2016). Households may sometimes be faced with a situation where food and housing become competing needs due to the level of resources at their disposal. In such cases different households have different utility structures, with others preferring food to better housing and others preferring good housing to a better food (Dunga & Grobler, 2017a). Utility theories postulate that individuals are not identical and hence choices of what given the highest satisfaction may differ from household to household. A household that is housing insecure because of spending a bigger percentage of the household income on housing maybe trading off food and health care and such trade-off has health consequences (Broton & Goldrick-Rab, 2018; Dunga & Grobler, 2017a; Rauh et al., 2008).

3. Method and Data

The paper uses data collected in the South African general household survey published in 2017 conducted by Statistics South Africa (STATSSA, 2017). The survey collected data from 21601 households across the nine provinces in the country. The sample was representative of the populations in the provinces. Table 1 shows the percentage contribution of each province to the sample.

Table 1: Sample by Province

Province	Frequency	Percentage	Cumulative frequency
Western Cape	2146	9.9	9.9
Eastern Cape	2824	13.1	23.0
Northern Cape	951	4.4	27.4
Free State	1350	6.2	33.7
KwaZulu-Natal	3536	16.4	50.0
North West	1499	6.9	57.0
Gauteng	5204	24.1	81.1
Mpumalanga	1724	8.0	89.0
Limpopo	2367	11.0	100.0
Total	21601	100.0	

Source: Author Calculation from GHS (2018)

The study employs a multinomial logistic regression model since the dependent variable is a categorical variable with categories measured with levels of morbidity rate categorised into a high level, moderate and low. The morbidity rate was calculated based on the frequency of household visits to the hospital or doctor. The assumption also made under this measurement is that each sickness resulted in a visit to the hospital or general practitioner (GP) ceteris paribus. Table 2 presents frequencies for the three categories of the morbidity rate categorised variable

Table 2: Morbidity Rate Categorised

	Frequency	Percent	Valid Percent	Cumulative Percent
High rate	17735	82.1	82.1	82.1
Moderate	2416	11.2	11.2	93.3
Low rate	1450	6.7	6.7	100.0
Total	21601	100.0	100.0	

Source: Calculations from the data

The frequency table 1 shows the three categories of the dependent variable. The higher percentage in the high rate category is most likely exaggerating the morbidity rate since there was no accurate measure of the health outcome and the proxy of using the visit to the hospital is not an accurate measure. The housing security was based on the proxy of the material used in the construction of the walls of the house. Since South Africa data is used in this study, the material used in the construction of a house in the south African context, gives enough indication as to whether the housing is in a formal setting or not and also the housing security potential.

Model Specification: The dependent variable being categorical with more than two categories, an appropriate model therefore would be a multinomial logistic regression model. The model is specified as follows;

$$ln\frac{\Pr(Y_i = 1)}{\Pr(Y_i = N)} = \boldsymbol{\beta}_1 * \boldsymbol{X_i} \ldots \quad (1)$$

$$ln\frac{\Pr(Y_i = 2)}{\Pr(Y_i = N)} = \boldsymbol{\beta}_2 * \boldsymbol{X_i} \ldots \quad (2)$$

$$ln\frac{\Pr(Y_i = N-1)}{\Pr(Y_i = N)} = \boldsymbol{\beta}_{N-1} * \boldsymbol{X_i} \ldots \quad (3)$$

For a dependent variable with N categories, and hence N-1 binary logistic models are estimated with the, with the Nth model being used as the reference model. This is built on the understanding that a multinomial logistic regression uses linear predictor function $f(N,i)$ to predict the probability that observation i has N outcomes with a form as follows

$$f(N,i) = \beta_{0.n} + \beta_{1,n}x_{1,i} + \beta_{2,n}x_{2,i} + \cdots + \beta_{M,n}x_{M,i} \ \ldots (4)$$

Where $\beta_{M,n}$ is a regression coefficient corresponding to the mth regressor and the nth outcome the regression coefficients and explanatory variables can therefore be grouped into vectors of size M+1, so that the predictor function is then written more compactly as equan ation as

$$f(N,i) = \boldsymbol{\beta}_{,n} . \boldsymbol{X}_{,i} \ \ldots \quad (5)$$

And thus the representation used in equations 1 to 3 above where all the independent variables have been compacted in the vector. The three models to be estimated are the high morbidity rate and the moderate morbidity rate with the third category of low morbidity rate being the reference model. The results of the models are presented in tables 4 and 5.

4. Results and Discussion

In the presentation of results and interpretation, a good understanding is achieved with a presentation of a step by step of the results starting with the descriptive statistics of the variables and then the regression results.

Descriptive Statistics: The data was comprised of 21601 households that were interviewed. Table 3 presents the distribution of the gender of the head of household as this is also an important variable in explaining the household characteristics that are associated with morbidity rate at the household level.

Table 3: Gender Distribution in the Sample

Gender of Household Head		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	12592	58.3	58.3	58.3
	Female	9009	41.7	41.7	100.0
	Total	21601	100.0	100.0	

The results in table 3 show that there is a higher percentage (58.3%) of households that are headed by a male head of household, compared to female-headed households which take up 41.7% of the sample, this however a fair distribution as there is no over-representation.

Table 4: Results of the Likelihood Ratio Test

Effect	Model Fitting Criteria -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests Chi-Square	DF	Sig.
Intercept	20660.708[a]	.000	0	.
Household size	21185.252	524.544	2	.000
Age of household head	20985.573	324.865	2	.000
log income	20667.209	6.501	2	.039
Sex of household head	20889.738	229.030	2	.000
Wall condition	20688.815	28.107	10	.002

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

The results in table 4 show that the all variables entered in the regression make a significant contribution to the model and hence they all are included in the final model reported in table 5. All the variables in the likelihood ratio test have a p-value of less than 0.05 for the 5% significance level. Hence all the variables are significant at the 5% significance level.

Table 5: Results of the Multinomial Logistic Regression Model

Model	Regressors	B	Std. Error	Wald	DF	Sig.	Exp(B)
High morbidity rate model	Intercept	.237	.333	.505	1	.477	
	Household size	.334	.020	286.537	1	.000	1.396
	Age of household head	.028	.002	175.527	1	.000	1.028
	Log income	.012	.023	.269	1	.604	1.012
	Male head of household	-.828	.069	144.668	1	.000	.437
	Female head of household	0[b]	.	.	0	.	.
	Housing insecure	.510	.275	3.440	1	.064	1.666
	Moderate housing insecurity	.343	.261	1.723	1	.189	1.409
	Mildly housing insecure	.551	.256	4.630	1	.031	1.735
	Mildly secure	.599	.252	5.661	1	.017	1.820
	Moderately secure	.788	.261	9.115	1	.003	2.199
	Housing secure	0[b]	.	.	0	.	.
Moderate morbidity rate model	Intercept	-1.090	.421	6.695	1	.010	
	Household size	.165	.022	53.975	1	.000	1.179
	Age of household head	.008	.003	10.663	1	.001	1.008
	Log income	.057	.028	4.149	1	.042	1.059
	Male head of household	-.369	.081	21.008	1	.000	.691
	Female head of household	0[b]	.	.	0	.	.
	Housing insecure	.455	.358	1.610	1	.204	1.576
	Moderate housing insecurity	.511	.341	2.251	1	.134	1.668
	Mildly housing insecure	.707	.335	4.456	1	.035	2.028
	Mildly secure	.716	.330	4.703	1	.030	2.046
	Moderately secure	.769	.340	5.119	1	.024	2.158
	Housing secure	0[b]	.	.	0	.	.

Reference model is the low morbidity rate Model

Author calculation based on the GHS data

The results in Table 5 compare the high rate morbidity model and the moderate rate morbidity model to the reference model is the low rate morbidity model. In the interpretation of the results, the emphasis is on the signs of the coefficients and the odds ratio presents in the last column of the table. Based on the results in table 5, household size is positively associated with a high morbidity rate. This could be due to congestion in the house where people are crowded in single rooms and hence becomes very easy to pass on to each other diseases especially those that can be passed on by mere contact. This also agrees with the literature that shows the relationship between housing security and health (Rauh et al., 2008). Also in the calculation of housing security, overcrowding in a house is an indication of housing insecurity. The moderate morbidity model also has similar results that show that the higher the number of people in a household the higher the probability of having a moderate morbidity rate than the probability of a low morbidity rate. The odds show that a unit change in the household size increases the odds of being in the high morbidity rate by 1.028 and also increases the odds of being in the moderate rate by 1.179. The age of the head of household has a positive coefficient for both models. In the high morbidity rate, the positive coefficient implies that the older the head of household the higher the morbidity rate in the household.

This is in agreement with a priori expectations, where older people are expected to fall sick more frequently than younger people due to the fact that as one gets old the body becomes weak and hence the immunity, the system is not as strong as that of younger people. In the economic sense, it may be due to the fact that they are not economically active anymore and hence may not have enough resources to afford them healthy foods and a healthy lifestyle. The same result is also found in the moderate rate morbidity rate model as both these models are compared to the low rate morbidity model. Income which was converted to logs has a negative coefficient, which means that people with higher incomes reported higher morbidity rate. This is not in agreement with the expectations as higher incomes were supposed to afford the household a good lifestyle and hence have a lower morbidity rate. However, based on the results of the model, it is not the case for both the high and the moderate morbidity rate models. The explanation could be that these people with higher income were fast to react to any simple illness by going to the doctor due to the fact that they had medical coverage and hence ended up reporting higher morbidity rate.

The other explanation could be that the disease that contributes highly in South Africa is flu and one's income can hardly protect them from flu as it is an airborne disease that attacks the rich and the poor equally. On gender of head of household, the male head of household which was defined as 1 in the coding of the categorical variable in the regression has a negative coefficient. This means that males are less likely to fall in the high morbidity rate category and also less likely to fall in the moderate morbidity rate than are likely to fall in the low morbidity category compared to females. The literature also suggests that females are more likely to fall sick than male due to their childbearing responsibilities which in many cases may also trigger other medical issues (Cameron, Song, Mnaheim, & Dunlop, 2010; Fikree & Pasha, 2004; HLEG, 2010). The results in tables 5 show that the odds of falling into a high morbidity rate category are 0.437 less for males than it is for females and for the moderate morbidity rate it is 0.691 less for males than it is for females. This means that females will have a higher chance of not of getting sick but also of reporting to the doctor as females are considered to be more responsive to any medical issues than are males. The other variable considered in the model was the housing insecurity which was entered as a categorical variable with 5 categories, with the housing secure being the reference category.

All the other 4 categories were compared to the housing secure category. For the first model, the probabilities of falling in the high morbidity rate category were considered for the 4 categories of housing insecurity in comparison to the housing secure and the low morbidity rate model. For the moderate morbidity rate a similar process was followed, still maintaining housing secure as the reference category, and low morbidity rate as the reference model. The results show that housing insecure households are more likely to fall in the high morbidity rate category compared to the housing secure. This is also the case for all the other categories of housing which moderate insecure, mild insecure, mild secure and moderate secure, all these compared to the housing secure category are more likely to fall in the high morbidity rate and the moderate morbidity categories. This is in agreement with a theory which points to the importance of housing in people's health outcomes. Thus housing plays an important role in determining the exposure of households to diseases especially cold-related diseases like flu which are common in South Africa. Thus poverty cannot be dealt with if households are not able to be involved in economic activities due to higher morbidity rate.

5. Conclusion

The paper attempts to make a link between morbidity rate and household characteristics. It is emanating from the understanding that policies are put in place to deal with poverty which remains a big challenge for most sub-Saharan Africa countries including South Africa. It is argued therefore, that in order to deal with poverty all facets of the problem have to be considered, including housing and exposure to diseases that may reduce the availability of people to participate in economic activities. Linking morbidity rate to household characteristics helps to establish which variables are important in determining the morbidity rate at the household level and hence what needs to be done for households to deal with these deterrents to full economic participation. The results of the multinomial logistic model show that age, gender, household size and housing insecurity are some of the household's characteristics that are significant in explaining the morbidity rate at the household level. Age has a positive association with morbidity rate household size also has a positive association with morbidity rate. This means that older people need to be considered differently than younger people. The issue of household size can only be dealt with from an education point of view. Literature shows that higher levels of education among women lead to lower fertility levels.

Thus in order to make sure that household sizes are of manageable levels, the policies to deal with such can only be medium to long-term as education can easily be promoted among those that are in school and not those that are already out of school (Chisadza, 2015; Groot & van den Brink, 2006). Housing security at the household level is also very important in determining the morbidity rate and hence the economic participation of the household. There are already policies in place in South Africa to improve the housing situation of a poor household. However, more needs to be done especially the development of a clear understanding of what entails housing security both in the country and internationally. There exist gaps in the literature as to the measure of housing security (Broton & Goldrick-Rab, 2018; Dunga & Grobler, 2017a; Nazli & Malik, 2003). The paper recommends that a succinct scale be developed that can measure housing security at household level.

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Investor Sentiment and Crash Risk in Safe Havens*

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Abstract: This study examines the relationship between investor sentiment and intraday return dynamics for safe haven assets, with a particular focus on crash risk in these assets. Examining intraday returns for a wide range of safe havens proposed in the literature, we find that shocks to investor sentiment have a significant effect on safest havens, while the sentiment is heterogeneous both in terms of its size and direction. While the strongest effects of sentiment shocks are observed in the case of Gold, Swiss Francs and Japanese Yen, interestingly, we find that oil stands out from the rest of the pack, responding negatively to sentiment shocks, suggesting that positive shocks to sentiment (i.e. high fear) increase crash risk for this asset. Our findings also point to intra-safe haven spillover effects, with oil exhibiting a markedly different pattern. Investment and hedging implications are discussed next.

Keywords: *Investor sentiment, Safe haven assets, intraday returns, Crash risk.*

1. Introduction

Research on safe haven assets has recently gained momentum, particularly following the 2007/2008 global financial crisis. As a result, numerous studies over the past several years examined the safe haven and hedging benefits of alternative assets for stock and bond investors, particularly during periods of market turbulence.[2] Clearly, wild fluctuations in risk sentiment during market turbulence periods present a great challenge for corporations and domestic investors alike regarding the management of currency, stock and commodity market risk exposures. In fact, the relationship between investor sentiment and financial market returns is already well-established in the literature (see (Huang, Jiang, Tu, & Zhou, 2015) for a detailed literature review). Numerous studies document evidence of a sentiment effect on asset prices, linking sentiment changes to greater mispricing and excess volatility (De Long, Shleifer, Summers, & Waldmann, 1990), to mutual fund flows out of equity into bond funds (Da, Engelberg, & Gao, 2015) and to predictable return patterns due to corrections of overreaction (Baker & Wurgler, 2006). To that end, enlarging our understanding of the return dynamics in safe haven assets is of interest both from an academic and practical perspective. Despite the renewed interest in safe havens and well-established literature on the sentiment-stock market relationship, interestingly, the literature presents limited evidence on how sentiment changes relate to return dynamics for safe haven assets.

Clearly, just like sentiment fluctuations can have an impact on stock returns, safe havens will not be immune from such sentiment effects; thus exploring the sentiment-safe haven relationship can offer valuable insight to the identification of the 'safest' safe haven asset during periods when a safe haven is needed the most. Furthermore, the literature has largely examined the behaviour of safe haven assets with respect to a stock or bond index, without delving into how the return dynamics of safe haven assets evolve during periods of large shocks to the financial system when one would expect wild sentiment changes to occur. The only exception to this is a recent study by (Balcilar, Bonato, Demirer, & Gupta, 2017) establishing a link between investor sentiment and intraday volatility jumps in the gold market. Building on this evidence, this study examines the role of investor sentiment across a wide range of safe haven assets proposed in the literature and looks into whether or not investor sentiment can also explain crash and bubble risks in these assets. By doing so, this

[2] The literature defines a safe have as an asset that helps investors preserve capital during periods of uncertainty (Kaul & Sapp, 2006) or an asset that has zero or negative correlation with risky assets during market downturns ((Baur & McDermott, Is gold a safe haven? International evidence, 2010); (Baur & Lucey, Is Gold a Hedge or a Safe Haven? An Analysis of Stocks, Bonds and Gold, 2010)).

study enlarges our understanding of the return dynamics of safe haven assets, particularly during extreme market conditions, an issue that has great importance when it comes to devising strategies to mitigate the negative effects of market crashes on investors' portfolios.

Building on the literature on safe havens, we examine a wide range of assets including Swiss Franc relative to the US Dollar (CHF), Japanese Yen to the US Dollar (JPY), Gold, Silver, West Texas Intermediate Oil (WTI), 2-, 5-, 10-year US Treasury Notes and US Treasury Bonds as prospective safe havens. Next, following (Kräussl, Lehnert, & Senulytė, 2016), we use intraday data to compute the conditional skewness of the return distribution of these assets as a proxy for crash risk and relate the computed crash risk to the Financial and Economic Attitudes. Revealed by Search (FEARS) index recently developed by (Da, Engelberg, & Gao, 2015) as a proxy for investor sentiment. Our findings point to a sentiment effect on intraday return dynamics for most safe havens while the effect is rather heterogeneous, both in terms of the size and the direction. Gold, Swiss Francs and Japanese Yen are found to exhibit the strongest reaction to sentiment shocks with a high level of fear leading to a lower crash risk in these assets. Interestingly, however, we find that WTI stands out from the rest of the pack, responding negatively to sentiment shocks, suggesting that positive shocks to sentiment (i.e. high fear) increase crash risk for this asset. Finally, our findings indicate the presence of intra-safe haven spillover effects, with WTI exhibiting a markedly different pattern from the rest of the pack. The rest of this paper is organized as follows.

2. Brief Review of the Literature on Safe Havens

The literature has generally considered gold as the traditionally accepted safe haven. Consequently, numerous studies have looked into the safe haven benefits of gold for stock and/or bond investors ((Capie, Mills, & Wood, 2005); (Baur & Lucey, Is Gold a Hedge or a Safe Haven? An Analysis of Stocks, Bonds and Gold, 2010); (Baur & McDermott, Is gold a safe haven? International evidence, 2010);(Hood & Malik, 2013); (Reboredo, 2013); and (Bredin, Conlon, & Poti, 2015)). In other studies, including (Ciner, Gurdgiev, & Lucey, 2013) and (Agyei-Ampomah, Gounopoulos, & Mazouz, 2014), the set of prospective safe havens has expanded to other assets including oil, currencies and industrial metals. These studies have generally produced evidence in favour of gold as a safe haven and /or hedge for financial investors, while exceptions are documented in some cases [e.g. (Hood & Malik, 2013) in favor of VIX; (Agyei-Ampomah, Gounopoulos, & Mazouz, 2014) in favor of industrial metals]. On the other hand, studies including (Ranaldo & Soderlind, 2010) and (Grisse & Nitschka, 2015) have focused on the so-called safe haven currencies that can be used to hedge portfolio values against global risks.

Section 2 provides a brief review of the literature on safe havens. Section 3 presents the data and the econometric framework. Section 4 presents the discussion of the empirical findings; and Section 5 concludes the paper. While (Grisse & Nitschka, 2015) show that the Swiss franc exhibits safe haven characteristics against many, but not all other currencies, the finding in (Fatum & Yamamoto, 2016) point to the JPY as the strongest safe haven currency that appreciates as market uncertainty increases regardless of the prevailing level of uncertainty. Despite the multitude of studies on various safe havens, the literature does not provide a clear-cut answer as to which asset is the 'safest' safe haven. To that end, our study contributes to this strand of the literature from a different perspective by examining the intraday behaviour of various safe haven assets with respect the level of investor sentiment and relating sentiment to crash risks. We then extend our analysis to examine intra-safe haven behaviour by exploring how crash risks are related across various safe havens considered in the literature.

3. Data and Methodology

Data: Our intraday dataset includes futures prices for various safe haven assets in a continuous format, obtained from disktrading.com. Close to the expiration of a contract, the position is rolled over to the next available contract, provided that activity has increased. Our dataset spans the period 1st July, 2004 to 25th March, 2011 using 1-minute frequency data. Futures are traded in NYMEX over a 24-hour trading day (pit and electronic) and the minute frequency is constructed using the last price that occurs in the 1-minute interval. Based on the literature on safe havens, we consider future contracts for a wide range of assets including Swiss Franc relative to the US Dollar (CHF), Japanese Yen to the US Dollar (JPY), Gold, Silver, West

Texas Intermediate oil (WTI), 2-, 5-, 10-year US Treasury Notes and US Treasury Bonds (i.e., ZTM1, ZNM1, TN10, and TB30, respectively). As mentioned earlier, following (Kräussl, Lehnert, & Senulytė, 2016), we use intraday data to compute the conditional skewness of the return distribution of each safe haven as a proxy for crash risk. So, using the 1-minute frequency data, we then calculate for each asset, the realized skewness (RSK_t) on day t as

$$RSK_t = \frac{\sqrt{N}\sum_{i=1}^{N}(r_{i,t})^3}{RV_t^{3/2}} \quad (1)$$

Where, N is the number of intra-day returns ($r_{i,t}$) on day t and RV_t is the measure of realized volatility, i.e., $RV_t = \sum_{i=1}^{N}(r_{i,t})^2$. Note that even though we use daily frequency data in our empirical analysis as investor sentiment data is available on a daily frequency. The results obtained with the intraday data provide valuable insight into the intraday return dynamics. In the case of our proxy for investor sentiment we use the Financial and Economic Attitudes Revealed by Search (FEARS30) index recently developed by (Da, Engelberg, & Gao, 2015). Is shown to predict short-term return reversals, temporary increases in volatility and mutual fund flows from equity funds into bond funds this index utilizes daily Internet search data from a large number of households in the U.S. with a focus on particular sentiment-revealing keywords such as 'recession' or 'unemployment' and proxies the level of the sentiment of American households by aggregating the search data across economy-related keywords.[3] After the removal of obvious holidays, days with limited market hours (e.g. December 24), and matching the data with the investor sentiment index, we are left with 1,685 observations. It is important to point out that the sample period is governed by the availability of the daily investor sentiment data, which in turn, plays an integral part in economthe etric analysis. Note that while, there are other existing daily investor sentiment indexes, they are not publicly available as the FEARS30, and hence, needs to be purchased at a massive expense. Other freely available investor sentiment indexes (see for example, (Baker & Wurgler, 2006) and (Huang, Jiang, Tu, & Zhou, 2015))[4] are however, only at monthly frequencies.

Econometric Framework: To examine the spillover effect between investor sentiment and realized skewness (and intra-safe haven dynamics) as well as its feedback on investor sentiment if any, we employ the impulse response analysis within a vector autoregressive (VAR) framework. The k-dimensional VAR model is expressed under the form of the following equation:

$$Y_t = v + A_1 Y_{t-1} + \cdots + A_p Y_{t-p} + \varepsilon_t \quad (2)$$

Where, Y_t is the *kx1* vector of variables on day t, c is the *kx1* vector for the intercept, A is the *kxk* matrix of coefficients, and ε_t is the *kx1* vector of the error term. Lag p (=8) is chosen based on the likelihood ratio (LR) test. Since the other lag-length tests, including Final prediction error criterion (FPEC), Akaike information criterion (AIC), Schwarz information criterion (SIC), and Hannan-Quinn information criterion (HQIC) suggest p=0, we also conduct a regression analysis, with inferences based on (Newey & West, A Simple, Positive Semi-definite, Heteroskedasticity and Autocorrelation Consistent Covariance Matrix, 1987) heteroskedasticity and autocorrelation consistent (HAC) standard errors. After fitting a VAR with the ordinary least squares (OLS) method, we conduct the generalized impulse response (GIR) analysis proposed by (Pesaran & Shin, 1998) since there is no clear economic guidance on the direction of the instantaneous causality between the variables in the VAR. (Pesaran & Shin, 1998) show that generalized responses of the system at time *t+h* to one-standard-deviation exogenous shock to the *j*th variable at time *t* can be calculated as,

$$\hat{\theta}_j(h) = \sigma_{jj}^{-\frac{1}{2}} \prod_h \sum_\varepsilon e_j \qquad h = 0,1,2,\ldots \quad (3)$$

Where, $\sum_\varepsilon = \{\sigma_{ij}; i,j = 1,2,\ldots,k\}$ is the k x k variance-covariance matrix of error term ε_t, and e_j is a k x *1* selection vector with unity as its *j*th element and zeros elsewhere. $\prod_i$ Is the k x k matrix of coefficients generated from infinite moving average representation of model (3) and it can be computed recursively using as,

[3] The data is available for download from: http://www3.nd.edu/~zda/fears_post_20140512.csv.

[4] The data are available at: http://people.stern.nyu.edu/jwurgler/ and http://apps.olin.wustl.edu/faculty/zhou/.

$$\prod_i = \begin{cases} \sum_{j=1}^{i} \prod_{i-j} A_j & i = 1,2, \dots p \\ \sum_{j=1}^{p} \prod_{i-j} A_j & i > p \end{cases}$$

Where $\prod_0 = I_K$, a k-dimensional identity matrix, finally we make inferences regarding the presence of a spill over effect by constructing the 95 percent bias-corrected bootstrap confidence interval for the GIR, as discussed in (Efron & Tibshirani, 1993).

4. Empirical Results

Regression Models: Table 1 summarizes the response of the realized skewness of intraday returns for each safe haven to investor sentiment (FEARS30) and the realized skewness for the other safe havens. The column (Resp.) in the table reports the response estimate in the regression model in Equation (2). We observe a significant sentiment effect on safe haven assets, particularly in the case of the Swiss Franc and Gold with a relatively weaker effect on the Yen. Interestingly, however, the positive (negative) coefficient observed for Gold and CHF (JPY) suggest that sentiment. Changes are likely to serve as a predictor of positive bubbles for CHF and Gold, while sentiment has predictive power over negative bubbles in the case of JPY.

The sentiment effect on gold is in fact consistent with the recent findings in (Balcilar, Bonato, Demirer, & Gupta, 2017) that changes in investor sentiment are associated with jumps in intraday volatility. We also observe in Table 1 noteworthy intra-safe haven effects, particularly across Gold, CHF and Yen, implied by a positive relationship among their intraday realized skewness values. US Treasury securities, on the other hand, seem to be following an independent pattern with a positive feedback structure in their crash risks. Overall, the evidence from regression models suggests a sentiment effect particularly on three major safe havens, i.e. Gold, Swiss Francs and Japanese Yen, with some evidence of intra-safe haven feedback mechanism observed. Given the evidence from the asset pricing literature of investors' preference for positive skewness (e.g. (Mitton & Vorkink, 2007); (Barberis & Huang, 2008)), these findings suggest that sensitivity of these assets with respect to investor sentiment could be utilized in selective hedging strategies in order to mitigate the negative effects of financial shocks more effectively

[INSERT TABLE 1]

Generalized Impulse Response Analysis: We now turn our attention to the results from the GIRFs derived from the VAR model due to shocks to investor sentiment (FEARS30) as formulated in Equation 3. As shown in Figure 1, generally, all safe haven assets respond positively to a shock in investor sentiment with the exception of WTI. The strongest effect is observed on the realized skewness of intraday Gold returns, consistent with the earlier findings of (Balcilar, Bonato, Demirer, & Gupta, 2017). It can be argued that the positive response of intraday skewness to sentiment shocks is driven by fund flows into safe haven assets during periods of high market stress, driving the prices of these assets higher due to increased demand (and thus the positive response in intraday skewness). The negative effect in the case of crude oil (WTI), however, can be due to the increased association of oil and stock markets (as noted by (Bernanke, 2016)), driving oil returns to follow a similar pattern to that of the stock market as both markets react to a common systematic risk factor reflecting global aggregate demand and economic growth expectations. The effect of sentiment shocks, however, is generally found to be short-lived, lasting for about two days.

The GIRFs due to shocks to each safe haven asset, presented in Figures 2-10, further confirm prior results, indicating the presence of intra-safe haven dynamics at play. Shocks to Gold, JPY and Treasury Bonds (TB30) are generally followed by responses in the same direction by other safe havens. The strongest effect is generally observed on shorter-term US Treasury securities in our list, ZNM1 and ZTM1, reflecting the market's preference for liquidity and investors' seek for relatively safe, dollar-denominated assets during periods of market stress, captured by sentiment shocks. Once again, WTI stands out as an exception, responding negatively to positive shocks to other safe haven assets.

[INSERT FIGURES 1 TO 10]

In sum, our findings point to a significant sentiment effect on most safe havens, while the effect is not necessarily homogeneous across these assets. In particular, crude oil seems to stand out from the rest of the safe haven assets, exhibiting a markedly different response to sentiment shocks, consistent with the argument by (Bernanke, 2016) that oil and stock markets have recently followed an increasingly similar pattern due to their common sensitivity to global growth expectations. To that end, our findings suggest that oil should not necessarily be classified as a safe haven asset that investors can utilize during periods of market stress.

5. Conclusion

The literature on safe havens has experienced tremendous growth over the past decade, particularly following the historic market turbulence experienced during the global financial crisis of 2007/08. This paper enlarges our understanding of safe haven return dynamics by examining the effect of investor sentiment on crash risks in safe haven assets. While the effect of investor sentiment is well-documented for stock returns, the analysis has not yet been extended to safe haven assets and in the context of crash risks. Following (Kräussl, Lehnert, & Senulytė, 2016), we use intraday data and compute the conditional skewness of the return distribution of a wide range of safe havens as a proxy for crash risk and examine the spillover effect between investor sentiment and realized skewness for Swiss Franc relative to the US Dollar (CHF), Japanese Yen to the US Dollar (JPY), Gold, Silver, West Texas Intermediate oil (WTI), 2-, 5-, 10-year US Treasury Notes and US Treasury Bonds (i.e., ZTM1, ZNM1, TN10, and TB30, respectively).

Our findings point to a sentiment effect on intraday return dynamics for most safe havens while the effect is rather heterogeneous, both in terms of the size and the direction. We observe the strongest effects of sentiment shocks in the case of Gold, Swiss Francs and Japanese Yen, with the effect being positive, underscoring the increased demand for these assets. During periods of market turbulence and hence driving their prices higher, possibly leading to positive bubbles interestingly, however, we find that WTI stands out from the rest of the pack, responding negatively to sentiment shocks, suggesting that positive shocks to sentiment (i.e. high fear) increase crash risk in oil. Finally, we observe that some spillover effects also at play, pointing to an intra-safe haven feedback mechanism, with WTI exhibiting a markedly different pattern from the rest of the pack. These findings have several important implications for practical investment purposes and future research direction. The most important implication of our findings is that one cannot necessarily classify crude oil as a safe haven asset as it behaves more like a risky asset than the traditional safe havens like precious metals or safe currencies like the yen or francs. To that end, our findings confirm the close association between oil and stock markets, recently noted by (Bernanke, 2016). Given this, a risk management strategy would be to use short positions in crude oil to hedge exposures to market risks. Therefore, for future research, it would be interesting to explore the role of crude oil as a hedging tool rather than a safe haven.

Furthermore, given the finding that not all safe havens are alike in terms of their responses to sentiment shocks. Risk managers have to closely examine the distributional characteristics of alternative safe havens in order to identify the 'safest' safe haven that will yield the most effective results. Considering the finding of intra-safe haven interactions and the similarity in their responses to sentiment shocks, one can argue that all of the assets we examined (with the exception of crude oil) will offer some degree of safe haven benefits to investors during periods of market stress. Therefore, risk managers can determine the least costly portfolio immunization strategy by building on the findings reported for the safe havens in our sample. Finally, considering the recent finding by (Fernandez-Perez, Frijns, Fuertes, & Miffre, 2018) that a skewness factor can explain the cross-section of commodity returns beyond standard risk exposures, our finding of a sentiment effect on intraday skewness, consistently across the safe havens in our list, suggests that the sensitivity of commodities to changes in investor sentiment may in fact be the driving factor behind the skewness premium documented recently. If that is indeed the case, an active commodity investment strategy conditional on a commodity's sensitivity to investor sentiment may be implemented in order to generate abnormal returns. In short, our findings provide novel insight into the strand of the literature on safe havens with potential investment implications.

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Figure 1: GIRFS for a Shock to Fears30

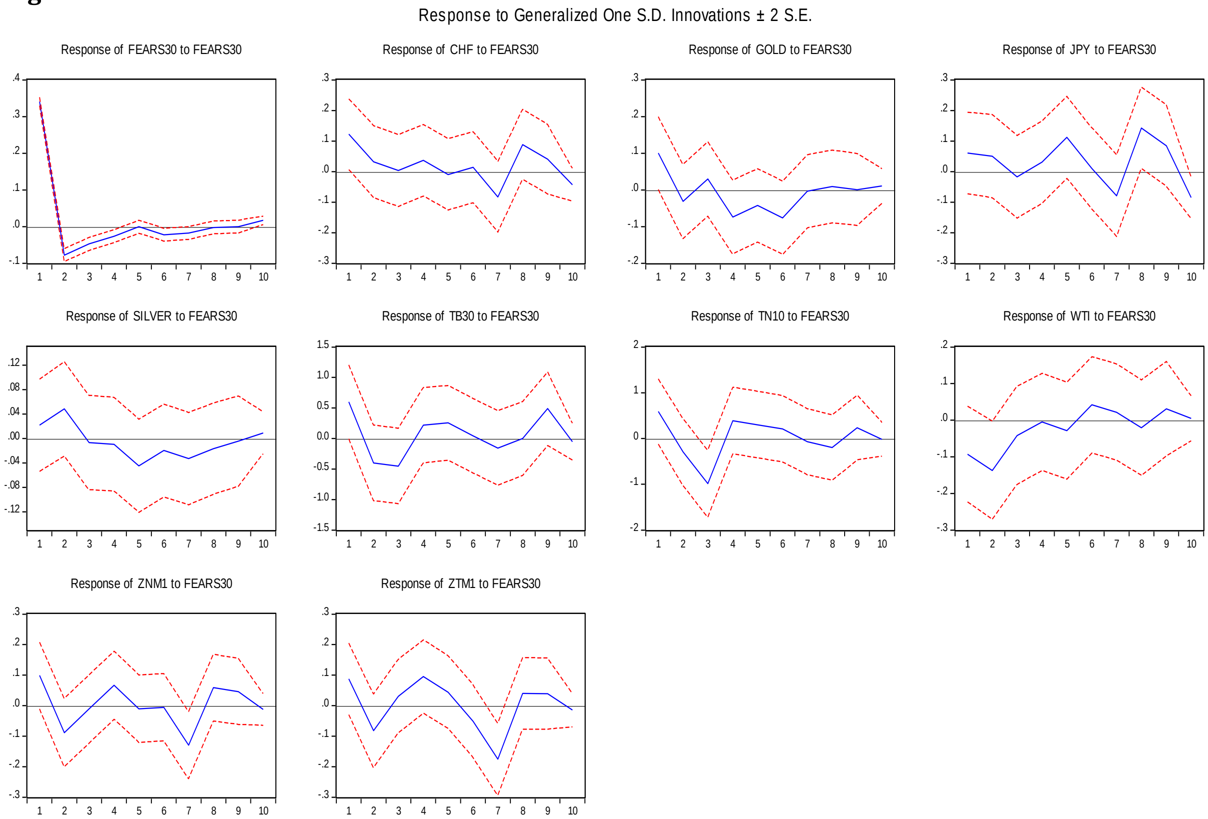

Figure 2: GIRFs for a Shock to CHF

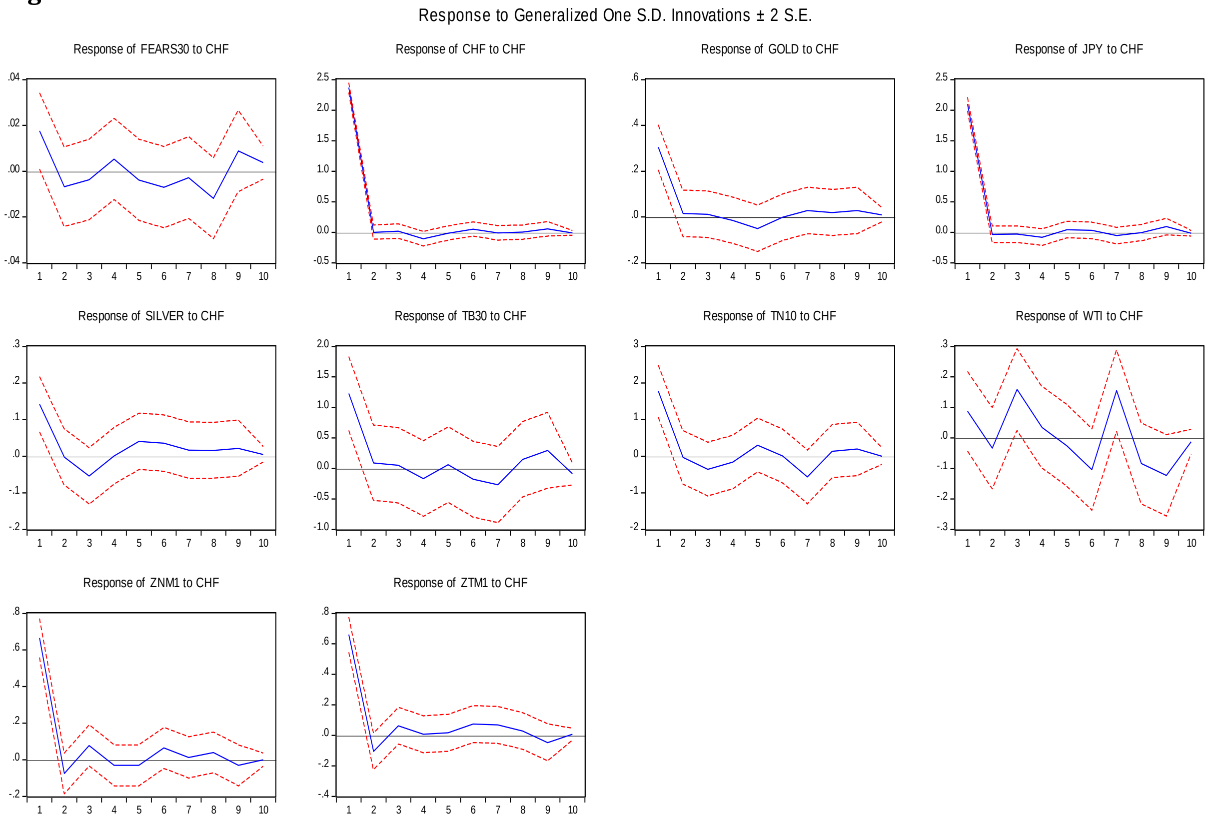

Figure 3: GIRFs for a Shock to Gold

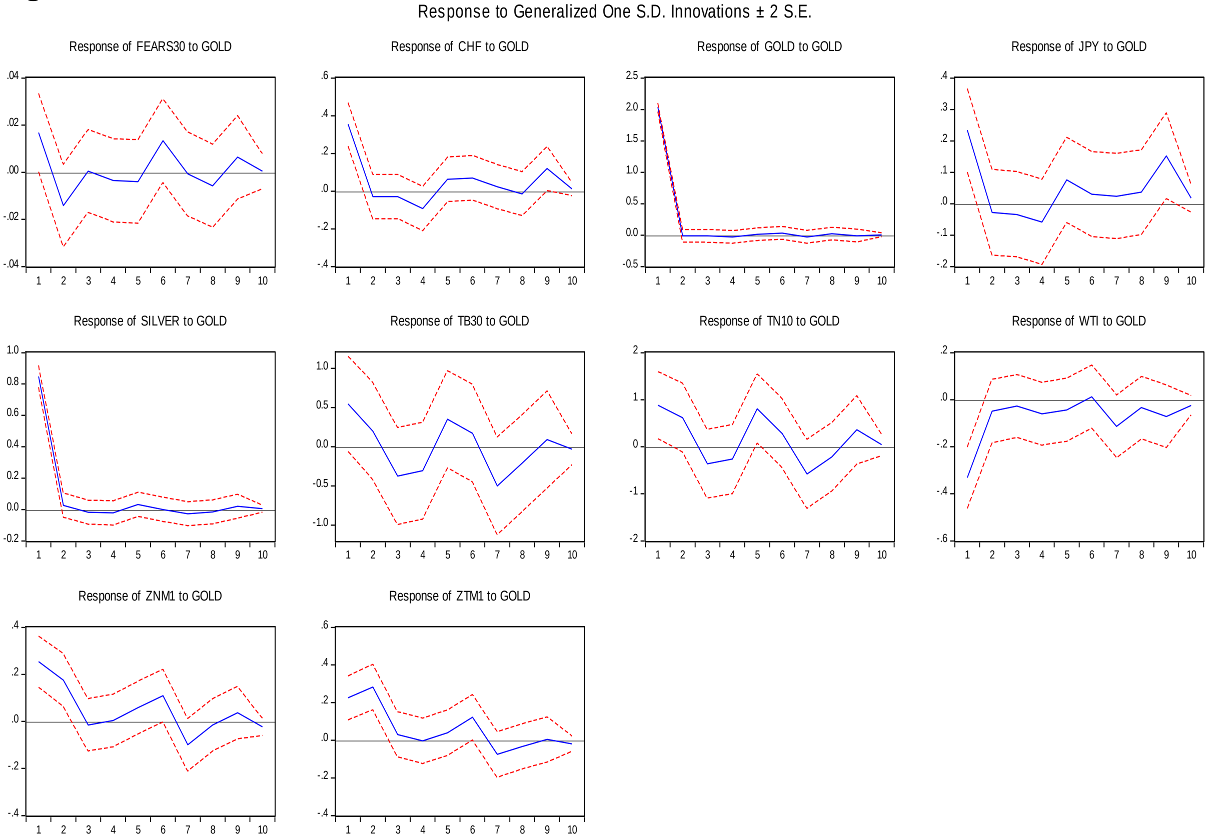

Figure 4: GIRFs for a Shock to JPY

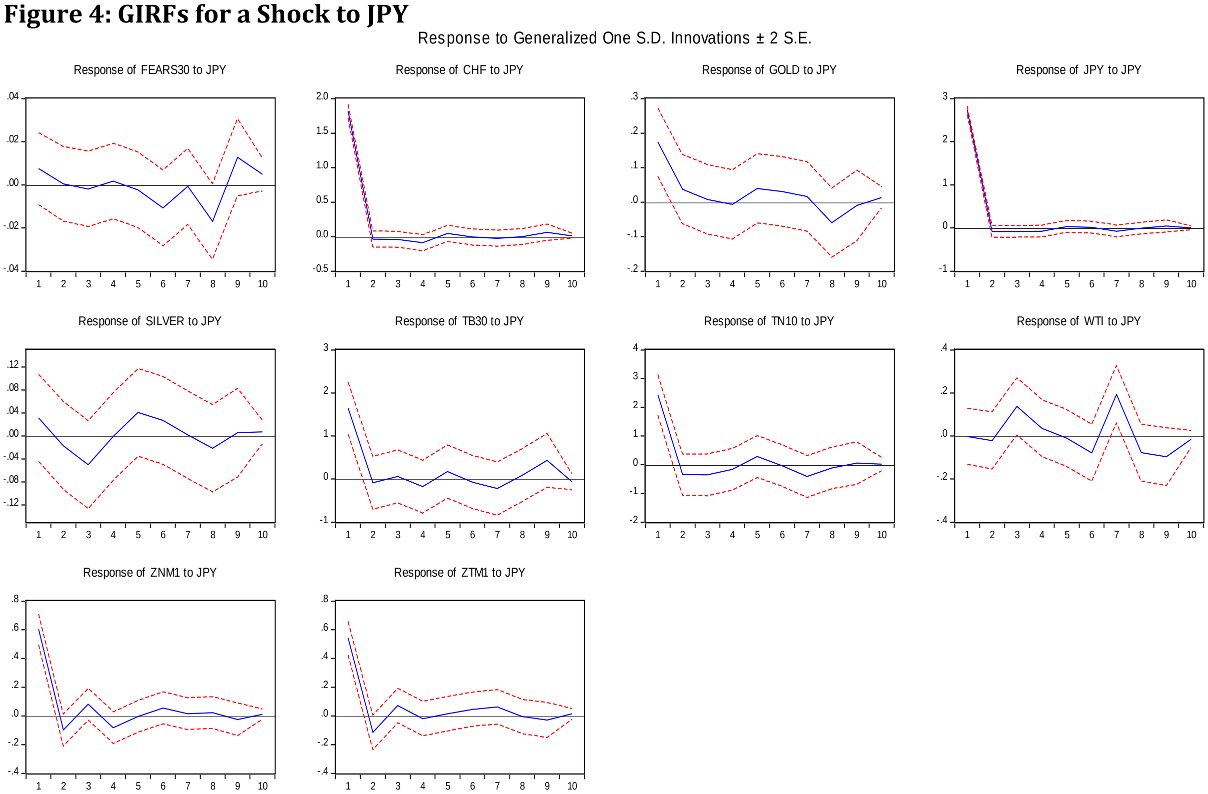

Figure 5: GIRFs for a Shock to Silver

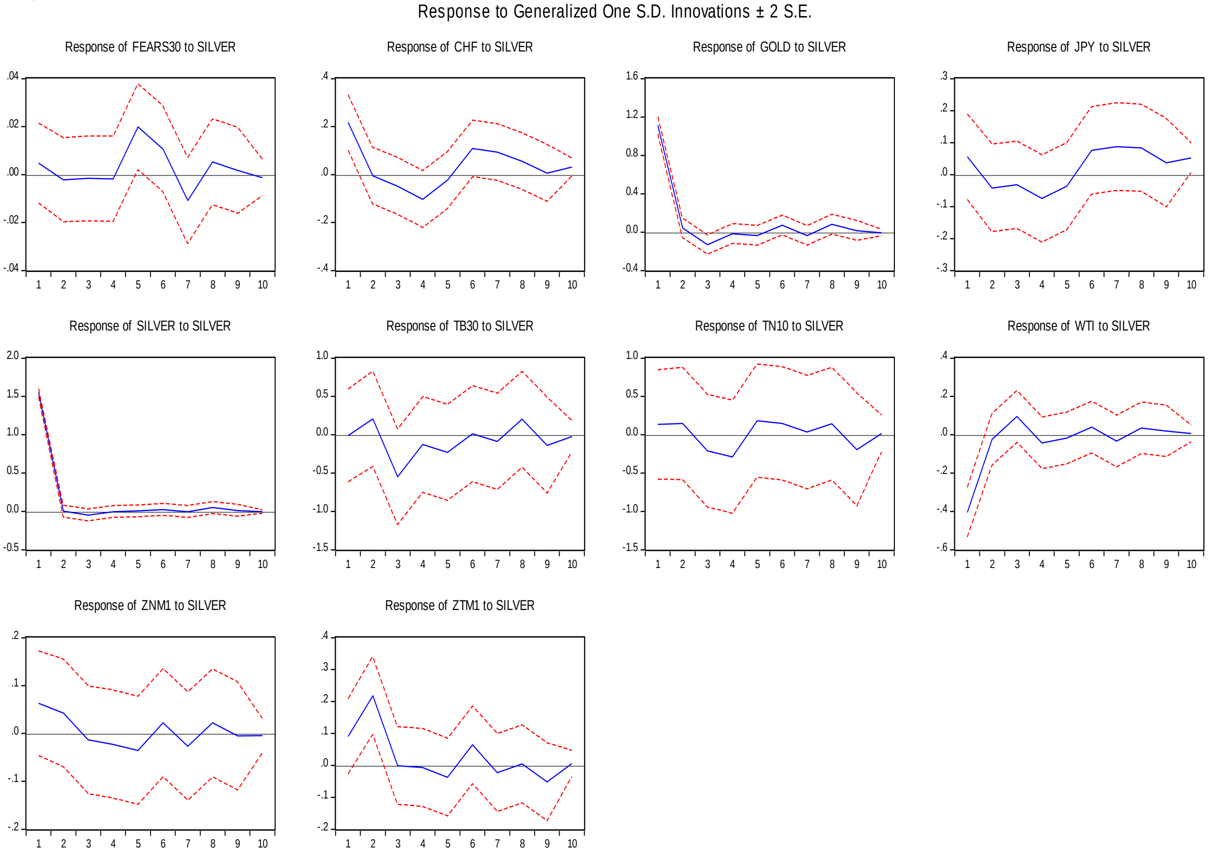

Figure 6: GIRFs for a Shock to TB30

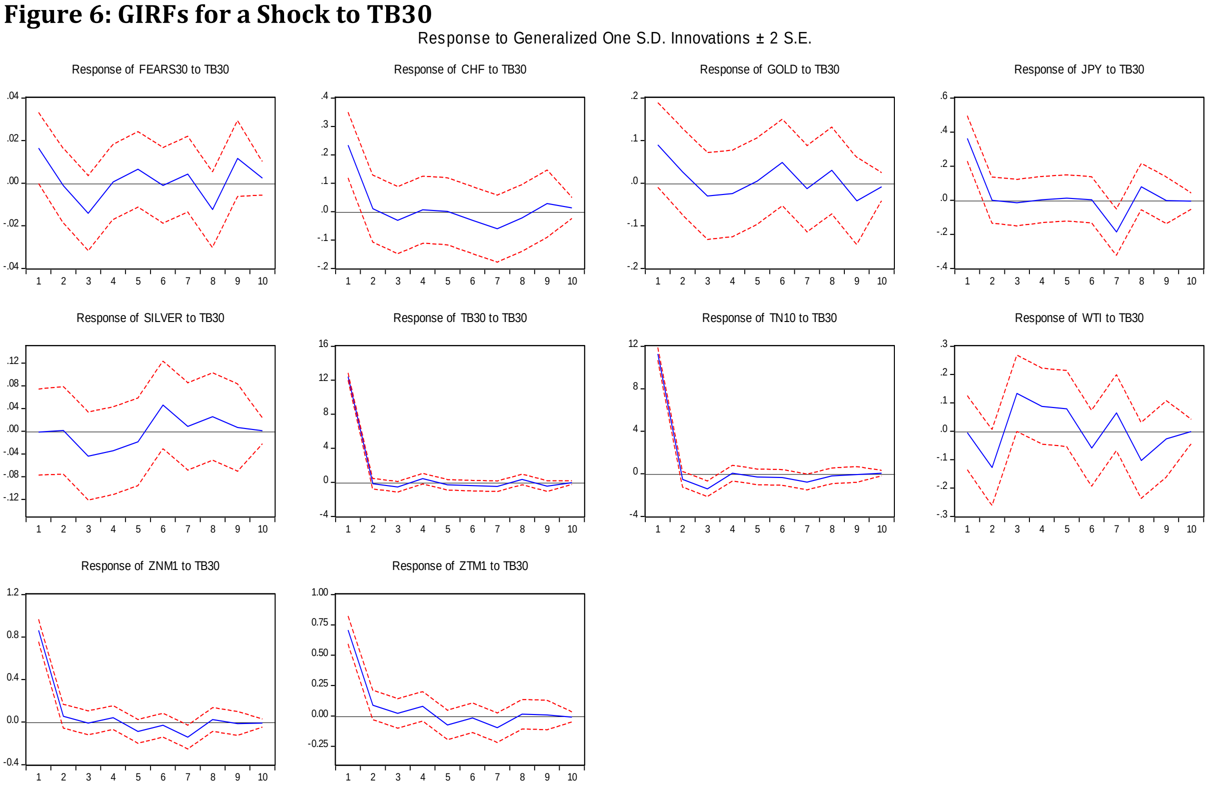

Figure 7: GIRFs for a Shock to TN10

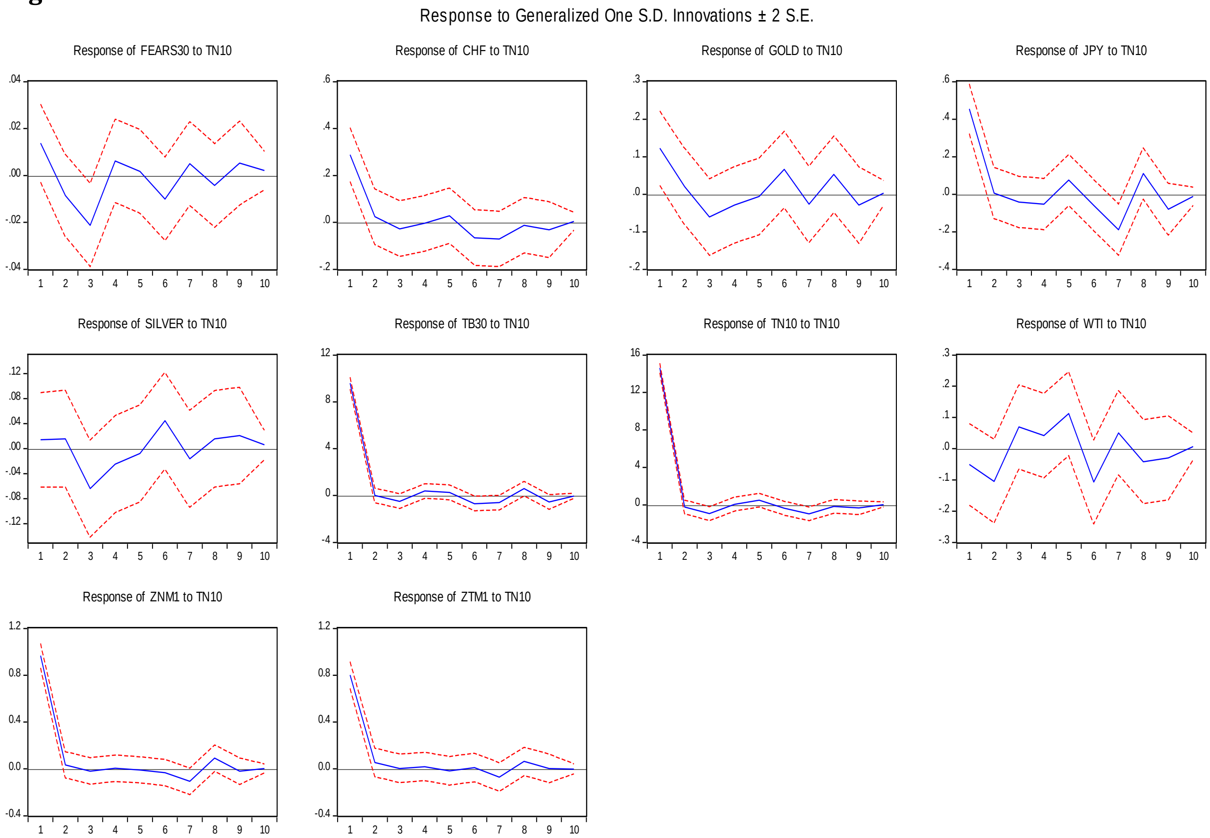

Figure 8: GIRFs for a Shock to WTI

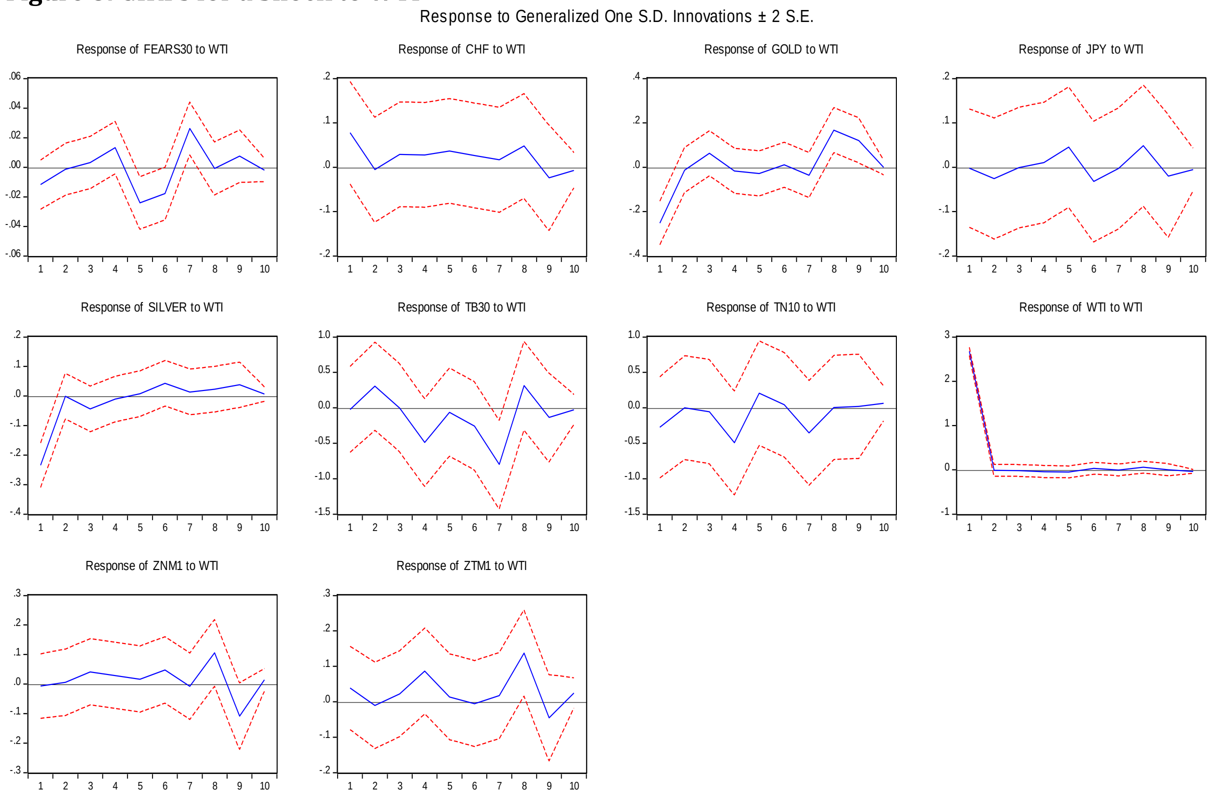

Figure 9: GIRFs for a Shock to ZNM1

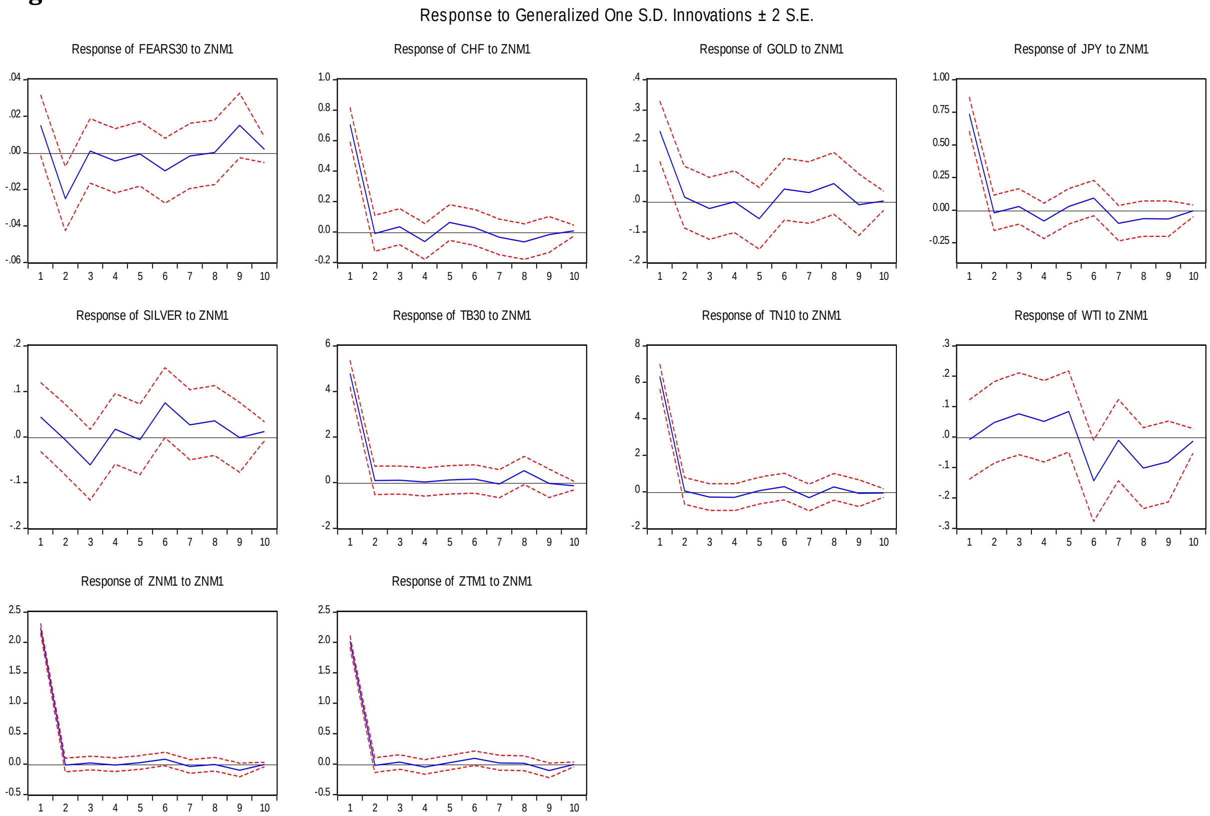

Figure 10: GIRFs for a Shock to ZTM1

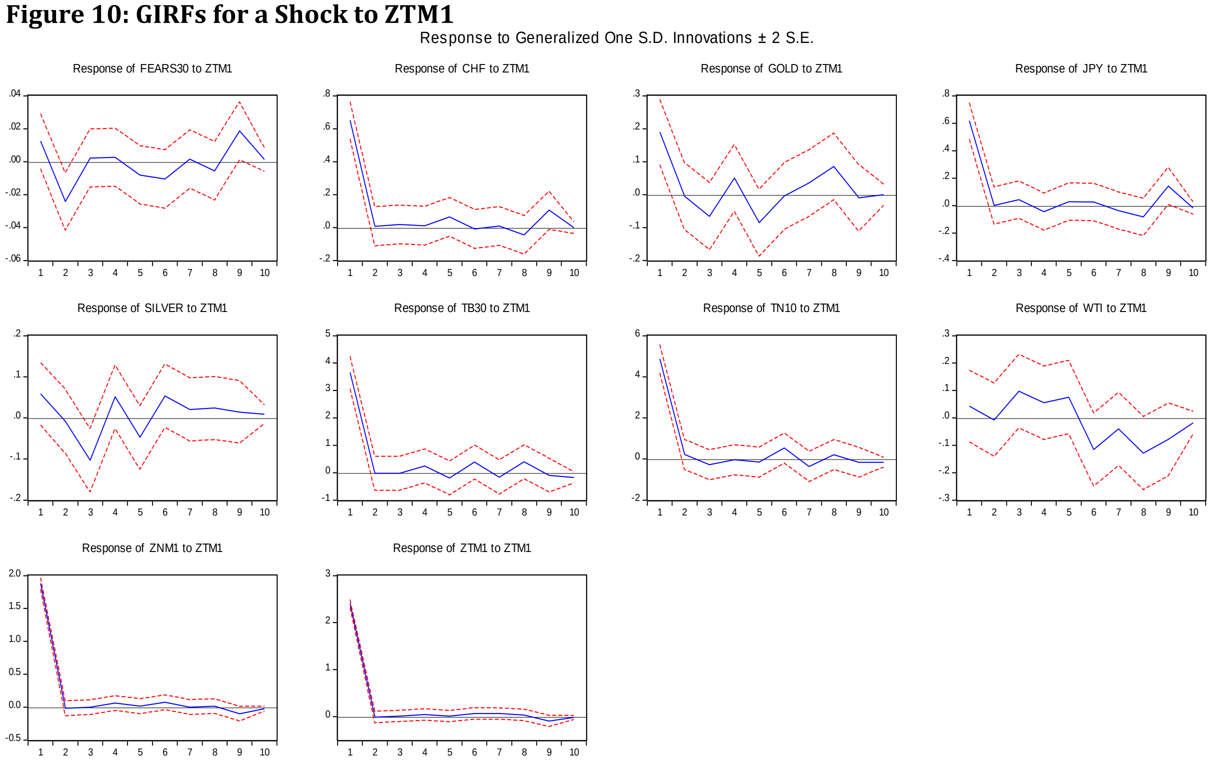

Table 1: Regressions Results

Variable	CHF		Gold		JPY		Silver		TB30		TN10		WTI		ZNM1		ZTM1	
	Resp.	*p*-value	Resp.	*p*-value	Resp.	*p*-value	Resp.	*p*-value	Resp.	*p*-value	Resp.	*p*-value	Resp.	*p*-value	Resp.	*p*-value	Resp.	*p*-value
Constant	0.027	0.441	0.075	0.066*	0.105	0.009***	-0.066	0.024**	-0.026	0.900	0.138	0.569	0.163	0.007***	-0.103	0.000***	0.060	0.062**
FEAR30	0.198	0.044**	0.221	0.040**	-0.175	0.082*	-0.086	0.328	0.620	0.333	-0.004	0.996	-0.139	0.266	0.000	0.997	0.019	0.777
CHF	--	--	0.090	0.002***	0.892	0.000***	0.060	0.018**	-0.081	0.526	-0.241	0.109	0.130	0.008***	0.033	0.235	0.057	0.025**
Gold	0.068	0.005***	--	--	-0.020	0.290	0.403	0.001***	0.075	0.384	-0.041	0.701	-0.074	0.265	0.039	0.014**	-0.011	0.556
JPY	0.643	0.000***	-0.019	0.295	--	--	-0.044	0.009***	0.021	0.834	0.332	0.009***	-0.084	0.007***	0.034	0.081*	-0.035	0.078**
Silver	0.079	0.064*	0.703	0.000***	-0.081	0.033**	--	--	-0.083	0.454	0.109	0.378	-0.231	0.274	-0.041	0.047**	0.032	0.268
TB30	-0.003	0.528	0.003	0.382	0.001	0.834	-0.002	0.443	--	--	0.830	0.000***	0.010	0.164	0.011	0.001***	-0.004	0.402
TN10	-0.006	0.104	-0.001	0.704	0.012	0.007***	0.002	0.372	0.627	0.000***	--	--	-0.009	0.124	0.018	0.000***	-0.004	0.228
WTI	0.041	0.007***	-0.030	0.239	-0.036	0.008***	-0.055	0.336	0.092	0.143	-0.113	0.127	--	--	-0.007	0.340	0.013	0.236
ZNM1	0.055	0.228	0.086	0.015**	0.078	0.098*	-0.051	0.023**	0.531	0.006***	1.163	0.000***	-0.040	0.380	--	--	0.921	0.000***
ZTM1	0.072	0.024**	-0.019	0.560	-0.062	0.085*	0.031	0.200	-0.131	0.426	-0.199	0.233	0.052	0.278	0.708	0.000***	--	--

Note: Resp.: Response i.e., parameter estimate in the regression model in Equation (2). Safe havens considered include Swiss Franc relative to the US Dollar (CHF), Japanese Yen to the US Dollar (JPY), Gold, Silver, West Texas Intermediate oil (WTI), 2-, 5-, 10-year US Treasury Notes and US Treasury Bonds (i.e., ZTM1, ZNM1, TN10, and TB30, respectively. ***; **; * indicates significance at 1, 5 and 10% respective.

Organisational Commitment and Job Satisfaction as Antecedents of Organisational Citizenship Behaviour

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Abstract: Contemporary challenges facing organisations emphasise the need for a calibre of employees who exude organisational citizenship behaviour (OCB) and organisational commitment (OC), including a satisfactory level of job satisfaction (JS). Research is replete with supporting evidence that OCB is triggered by JS and that JS is positively related with OC. Although the relationship between these constructs is considered important, research exploring the relationship between these three constructs in the context of a water utility remains scarce. The primary objective of this research was to examine the impact of OC and JS on OCB at a water utility company in Gauteng. A survey was utilised to elicit responses from 400 sampled participants. A quantitative approach was adopted by which exploratory factor analysis (EFA), correlation and regression analyses were performed to analyse data. Using EFA, three factors of OC were extracted. The results further showed a positive correlation between affective commitment and normative commitment; JS and OCB; and no predictive relationship was observed between continuance commitment and OCB. Based on the findings, it was recommended that JS, OC and OCB should be improved through mechanisms such as job-fit, job enrichment career advancement performance-related pay and mentorship programmes.

Keywords: *Organisational commitment, job satisfaction, organisational citizenship behaviour*

1. Introduction

Organisations have been confronted increasingly with dynamic challenges like economic development, rapid technological changes and retention of human capital in a highly competitive business environment (Liu, Li & Zhao, 2009). In order to achieve a competitive edge and overcome these challenges, organisations depend on their employees' organisational citizenship behaviour (OCB) (Dash & Pradhan, 2014). First advanced by Bateman and Organ in 1983, OCB generally is considered behaviour of a voluntary nature and a personal choice to help fellow employees and promote an organisation's affective functioning (Organ, 1988, 1997; Organ & Ryan, 1995; Podsakoff, MacKenzie, Paine & Bachrach, 2000; Podsakoff, MacKenzie & Organ, 2006; Lo & Ramayah, 2009; Alizadeh, Darvishi, Nazari & Emami, 2012). An array of authors (Organ & Ryan, 1995; Podsakoff et al., 2000; Nadiri & Tanova, 2010) hold a consensual view that employees' expression of these behaviours is solely reliant on the organisation's willingness to enhance employees' job satisfaction (JS) and that JS is the antecedent of organisational commitment (OC). In essence, individuals who are satisfied with their jobs are prone to express positive emotions towards and are eager to be involved in and/or identify with their organisation (Lumley, Coetzee & Tladinyane, 2011). Much of the research to date tends to provide empirical evidence on the associations between JS and OCB, or JS and OC (Suresh & Venkatammal, 2010; Alizadeh et al., 2012; Rasheed, Jehanzeb & Rasheed, 2013). Although there is growing evidence that suggests a positive correlation between JS and OC, there is relatively inadequate literature on the correlations pertaining to JS and commitment and their effect on OCB (Lumley et al., 2011; Chinomona, 2012).

The lack of research conducted on the relationship among the aforementioned variables in the context of water utility companies compounds the paucity of research in this area. It is in this context that the objective of this study was to examine the relationship between JS and OC and their effect on OCB in a water utility company in Gauteng. The rationale for this study lies in the consistent challenge of meeting the growing demand for high-quality water, which necessitates the water utility company to maintain high levels of JS and OC among its employees. It also requires the company to realise that the discriminatory withholding of OCB or discretionary gestures may be affected by the levels of JS and OC. Thus, the importance of the study is grounded on the belief that improved levels of JS and OC are the bedrock for the provision of quality water in the Gauteng Province. Improved levels of JS and OC contribute to the occurrence of OCB, which indubitably will add to a better service for the provision of quality water. To address these issues, the paper is structured as follows: the review of the literature on OC, JS and OCB, which enabled the development of research model and hypotheses, the description of the research design and methodology, including the presentation of statistical results and findings.

2. Literature Review

In this section, the literature was reviewed pertaining to the concepts of OC, JS and OCB.

Organisational Commitment: OC is one organisational component that contributes immensely to the wellbeing of an organisation since it affects how employees feel about an organisation and the extent to which they feel they belong to an organisation, which in turn has an influence on their willingness to advance organisational values and goals (Nematian, Zadeh & Chehrazi, 2015). Kargar (2012:5017) defines OC as "employees' loyalty to the organisation and a consistent process in which people's cooperation with organisational decisions depicts their attention to the organisation and its success". Meyer and Allen (1991:67), architects of the three-component framework of OC, amplify that OC is an emotional connection an individual forms with the organisation, which necessitates an employee's prolonged stay with an organisation. The authors contend that OC is a three-dimensional construct comprising of the following variables, namely affective commitment (AC), continuous commitment (CC) and normative commitment. AC is considered an emotional attachment to identification with and involvement in the organisation (Sayğan, 2011:220). Mamman, Kamoche and Bakuwa (2011) affirm that an employee with an effective commitment is attached psychologically to the organisation, developing sentiments of happiness, dependability and cordiality towards the organisation.

CC expresses an employee's willingness to retain membership with the organisation for the reason that the cost of quitting is unbearably greater (Ng & Feldman, 2011). Thus, remaining with the organisation would prove to be a suitable alternative (Neininger, Lehmann-Willenbrock, Kauffeld & Henschel, 2010). Normative commitment implies that individuals believe they have to continue employment with the organisation on the basis that it is an ethical and acceptable thing to do; it is a moral obligation to stay with the organisation (Falkensburg & Schyns, 2007). (Güleryüz Güney, Aydin and Asan (2008) opine that a lack of OC could lead to unfavourable outcomes to the organisation, such as employee turnover, absenteeism, tardiness and organisational ineffectiveness. Conversely, Alimohammadi and Neyshabor (2013) consider OC as fundamental to improved organisational performance, job performance, reduced employee turnover, JS and prosocial organisational behaviours (Hettiararchchi & Jayarathna, 2014). Previous studies have demonstrated sufficiently that OC is a precursor of JS (Anis Khan, & Humayoun, 2011; Dirani & Kuchinke, 2011; Adekola, 2012).

Job Satisfaction: JS has dominated research because its prevalence among employees has led to increased productivity in organisations (Çalişkan, 2010; Dugguh & Dennis, 2014). Gunlu Aksarayli Perçin (2010:695) defines job satisfaction as "the feelings or a general attitude of the employees in relation with their jobs and the job components such as the working environment, working conditions, equitable rewards and communication with colleagues". By implication, employees achieve a positive emotional response or pleasurable emotion of satisfaction when they perceive their jobs to fulfil their important values (Morris & Venkatesh, 2010). Empirical evidence confirms that employees' attitudes towards various aspects of their jobs and organisation such as pay, supervision, promotion opportunities and relationship with co-workers contribute to the level of employees' satisfaction with their jobs (Chen & Johantgen, 2010; Aziri, 2011; Altinoz Cakiroglu & Cop, 2012). Research also alludes that intrinsic aspect like the work itself, responsibility, recognition, achievement, advancement and growth are profound sources of job performance, productivity, occupational stress and burnout (Goetz, Campbell, Broge, Dörfer, Brodowski & Szecsenyi, 2012; Raza, Akhtar, Husnain & Aktar, 2015).

In fact, Herzberg (1959) argues that intrinsic factors have a direct bearing on the employees' level of JS. Other individual characteristics, which include age, education, marital status and gender have been found to be key determinants of the level of employees' JS (Khan, Nawaz & Jan, 2012; Sattar, Nawaz & Khan, 2012). Kasemsap (2013) contends that employees who are satisfied with their jobs generally exhibit positive attitudes towards their jobs and exert enormous amounts of effort in the execution of their jobs. In addition, JS has been found to contribute to enhanced organisational performance (Waqas, Bashir, Sattar, Abdullah, Hussain, Anjum, Ali &

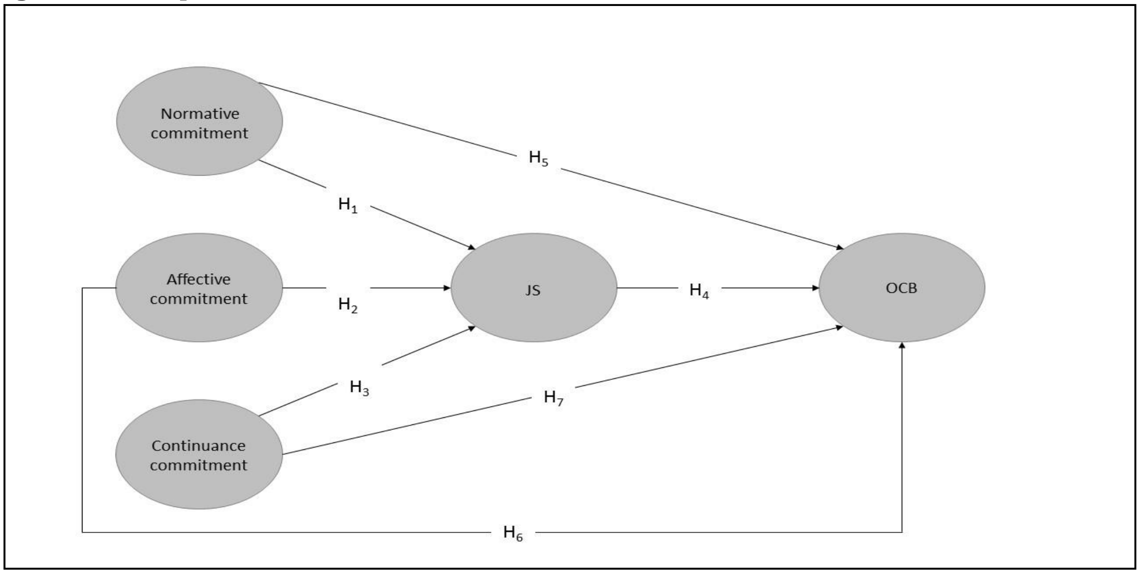
Arshad, 2014). The positive outcomes engendered by JS explain the unshakeable need to keep levels of JS high in the workplace. In fact, Ng and Feldman (2011) have found JS to contribute significantly to employees' enactment of organisational citizenship behaviour.

Organisational Citizenship Behaviour: A classical and widely-acclaimed definition of OCB is that it is "an individual behaviour that is discretionary, not directly or explicitly recognised by the formal reward system and that in the aggregate promotes the effective functioning of the organisation" (Organ, 1988: 4). The salient elements emerging from the definition are that OCB is a voluntary behaviour expressed by employees; it tends to exceed the formal requirements of the job and goes beyond the rules and regulations to ensure the organisation's operations are effective (Tambe & Shanker, 2014). Empirical studies suggest that OCB comprises five dimensions, namely altruism, conscientiousness, civic virtue, sportsmanship and courtesy (Lo & Ramayah, 2009, Yahaya, Boon, Ramli, Baharudin, Yahaya, Ismail & Shariff, 2011; Alizadeh et al., 2012; Ünal, 2013). Ünal (2013) considers altruism to be deliberate actions that help other employees with organisation-relevant tasks in order to execute these tasks timeously. Employees with altruistic behaviour are inclined to impart relevant skills to others to enhance their performance. Various authors concur that conscientiousness includes those behaviours that are aimed at compliance with the rules and regulations of an organisation in pursuance of hurdle-free organisational operations (Singh & Singh, 2009; Yahaya et al., 2011).

Typical conscientious behaviours encompass giving prior notice of absence from work and complying with instructions (Alizadeh et al., 2012). Civic virtue suggests the eagerness of employees to take part in the political life of the organisation, for example, by attending meetings, making meaningful contributions to performance improvement and performance solutions (Lo & Ramayah, 2009; Nadiri & Tanova, 2010; Nielsen, Bachrach, Sundstron & Halfhill, 2012). Nielsen et al. (2012:675) define sportsmanship as "tolerating less-than-ideal circumstances or minor workplace distractions and discomforts without complaining". According to Nadiri and Tanova (2010), sportsmanship encourages individuals not to complain about their work environments; rather they should carry out their work tasks with positive attitudes. Lastly, courtesy intimates behaviours that encourage a positive attitude towards other employees; thereby, reducing conflicts in an organisation (Sun, Chow, Chiu & Pan, 2013). Courtesy allows employees to create an atmosphere that instigates trust, openness, information sharing and respect (Yahaya et al., 2011). Davoudi (2012) opines that OCB has the potential to enhance social cohesion among employees, improve productivity and quality of outputs; hence, it behoves managers to be considerate of factors that contribute to the formation of OCB. There is also sufficient empirical evidence that employees with OC will stay with the organisation and reciprocate to the organisation by engaging in OCB (Ng & Feldman, 2011).

Conceptual Framework and Hypotheses: The conceptual framework depicted in Figure 1 presumes that normative commitment, affective commitment and continuance commitment are precursors of JS. The model also indicates that JS and the aforementioned dimensions of OC are predictors of OCB.

Figure 1: Conceptual Framework



Hypotheses Developed and tested: on the basis of the preceding research studies, these hypotheses were advanced:

H1: A positive link exists between normative commitment and JS.
H2: A positive association exists between affective commitment and JS.
H3: There is a positive relationship between continuance commitment and JS.
H4: Job satisfaction is positively associated with OCB.
H5: Normative commitment and OCB are positive correlates.
H6: There is an existing association between AC and OCB
H7: CC is positively related with OCB.

3. Methodology

A survey using a structured questionnaire was utilised. A quantitative approach was adopted because correlation and regression analyses of variables had to be performed in order to accept or reject hypotheses. To achieve this objective, the following aspects were elaborated upon, namely the sample and sampling method, measuring instrument and collection of data as well as reliability and viability.

Sample and Sampling Method: The study was undertaken in a water utility company situated in Southern Gauteng in South Africa. The targeted sample was personnel from various departments, namely academy, human resources, finance, plants and support. A simple random sampling method was used to select 400 (n=400) participants consisting of general employees, supervisors, managers, officials and support staff holding permanent, temporary or contract positions. The list of personnel employed in a water utility company was obtained from the human resource department. A random sampling using random table numbers was used to draw sample elements. Of the 400 questionnaires distributed, 250 were completed and returned resulting in a 63 percent response rate.

Measuring Instrument and Collection of Data: A structured questionnaire was chosen for the study, which consisted of four sections. Section A focused on the demographic profile of the respondents. Section B measured JS. The measurement of JS was adapted from the overall JS scale designed by Breyfield and Rothe (1951). The overall JS scale consisted of five items describing JS. A five-point Likert scale ranging from 1=strongly disagree to 5=strongly agree was used. Section C was an OC scale. The scale measured the level of OC among employees. The measurement of OC was adopted from the revised commitment scale items designed by Jaros (2007). The scale consisted of 20 items that were designed to measure affective, continuance and normative commitment. Respondents were asked to respond to each item on a five-point

Likert scale ranging from 1=strongly disagree to 5=strongly agree. In Section D, OCB was measured using Jung and Yoon's (2012) OCB scale. The five dimensions in the scale were altruism, conscientiousness, sportsmanship, courtesy and civic virtue. A five-point Likert scale was used ranging from 1=strongly disagree to 5=strongly agree.

Reliability and Validity: The reliability estimates of the scales were confirmed through Cronbach alpha coefficient (α). The test provided an acceptable indication of the reliability of the research instruments for OC, JS and OCB. The reliability measures for the variables were as follows: JS - 0.927; normative commitment - 0.886; AC - 0.809; CC - 0.781; and OCB - 0.809. All the internal consistency measures were above the recommended threshold of 0.7 (Osborne, 2008). Various forms of validity, face, content, construct, convergent and predictive, were used to measure the validity of the instrument. Content validity was ascertained through seeking advice from academic experts in the field of organisational behaviour to confirm if the items pertaining to the constructs in the questionnaire were covered sufficiently. Construct validity was determined through factor analysis where low factor loadings (<0.50) and cross loading were deleted. In addition, correlation analysis was performed and the results of the analysis confirmed a significant correlation between the constructs, thus verifying construct validity. Convergent validity was examined through the computation of the Pearson correlation coefficient. The correlation among the constructs was strong as shown in Table 3.

4. Results and Discussion

Factor Analysis: Exploratory factor analysis (EFA) was performed on OC. Prior to factor analysing the OC scale, a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test were performed on the OC scale to determine whether the data set was suitable for factor analysis (Hinton, McMurray & Brownlow, 2014). The KMO value for OC scale (0.875), as shown in Table 1, was well above the 0.05 threshold level and validated that the data-set was appropriate to conduct factor-analysis (Mulaik, 2009).

Table 1: KMO and Bartlett's Test of Organisational commitment

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		**.875**
Bartlett's test of sphericity	Approx. chi-square	1610.723
	DF	91
	Sig.	.000

Using EFA with Kaiser Normalisation as shown in Table 2, three factors were extracted with an eigenvalue greater than one (Plonsky, 2015). The table also indicates the percentage of variance and the cumulative percentage of variance for each factor. The cumulative percentage of variance for all three factors was recorded as 64.833 percent. The factors were named as indicated in Table 2.

Table 2: Eigenvalues, Percentage of Variance Explained and Cumulative Percentage of Section C

Component description	**No. of items**	**Eigenvalues**	**% of variance**	**Cumulative %**
Factor 1	6	3.816	27.257	27.257
Factor 2	4	2.787	19.906	47.164
Factor 3	4	2.474	17.669	64.833
Factor 1 = Normative commitment				
Factor 2 = Affective commitment				
Factor 3 = Continuance commitment				

Correlations: Correlation analysis was performed to establish the intensity of the relationship amongst OC, JS and OCB. Table 3 illustrates that JS was significantly correlated with normative commitment (r=.464; p<0.01). Job satisfaction also showed a positive significant correlation with affective commitment (r=.613; p<0.01). A strong correlation between JS and affective commitment was observed. The results of the correlation analysis reflected that OCB had a positive significant correlation with JS (r=.598; p<0.01). Organisational citizenship behaviour had a positive significant correlation with normative commitment (r=.435; p<0.01). Similarly, the affective commitment was positively correlated with OCB (r=.413; p<0.01). AC and NC were positive correlates (r=.591; p<0.01). Finally, very weak correlations were noticed between continuance commitment and OCB (*r*= -.067; p<0.01) and between continuance commitment and JS (*r*= -.095; p<0.01).

Table 3: Descriptive Statistics and Correlations for Constructs

Constructs		Π	SD	1	2	3	4	5
1.	Normative commitment	3.58	1.051	**.886**				
2.	Affective commitment	3.42	1.096	.591**	**.809**			
3.	Continuance commitment	2.65	1.225	-.086	-.095	**.781**		
4.	JS	3.85	0.986	.464**	.613**	-.095	**.927**	
5.	OCB	4.04	0.909	.435**	.413**	-.067	.598**	**.880**

Note: N=250. Estimated reliabilities appear on the diagonal. Constructs 1 to 3 are the factors extracted from OC. OC=organisational commitment; JS=job satisfaction; OCB=organisational citizenship behaviour. Values on the diagonal in boldface are estimated scale reliability. Correlations were reported significant at the level of 0.01 (2-tailed).

Regression Analysis: The values of the regression analysis are captured in Table 4**.** Multiple regression analysis was conducted to establish the predictive relationship between OC factors (normative commitment, affective commitment and continuance commitment), JS and OCB. Regression analysis was performed to test whether OC, as an independent variable, predicted dependent variables, JS and OCB. The results of the regression analysis are reported in Table 4.

Table 4: Results of the Regression Analysis

Model 1	**Dependent Variable: JS**				
Independent variable:	Unstandardised coefficients		Standardised coefficients		
	B	Std. error	Beta	t	Sig
Normative	.160	.064	.155	2.514	.013
Affective	.515	.061	.518	8.389	.000
Continuance commitment	-.029	.046	-.032	-.637	.525
R= .626a R^2=.392 Adjusted R^2 =.385					
Model 2	**Dependent variable: OCB**				
Independent variable:	Unstandardised coefficients		Standardised coefficients		
	B	Std. error	Beta	T	Sig
JS	.516	.044	.598	11.738	.000
R= .598a R^2=.357 Adjusted R^2 =.355					
Model 3	**Dependent variable: OCB**				
Independent variable:	Unstandardised coefficients		Standardised coefficients		
	B	Std. error	Beta	T	Sig
Normative commitment	.387	.051	.435	7.602	.000
R= .435a R^2=.189 Adjusted R^2 =.186					
Model 4	**Dependent variable: OCB**				
Independent variable:	Unstandardised coefficients		Standardised coefficients		
	B	Std. error	Beta	T	Sig

Affective commitment	.354	.050	.413	7.132	.000
R= .413a	R^2=.170 Adjusted R^2 =.167				
Model 5	**Dependent variable: OCB**				
Independent variable:	Unstandardised coefficients		Standardised coefficients		
	B	Std. error	Beta	T	Sig
Continuance commitment	-.053	.050	-.067	-.1.056	.292
R= .067a	R^2=.004 Adjusted R^2=.000				

For Model 1 the results of the regression analysis indicated an adjusted R^2 of .385. The beta coefficients for the independent variables and the attendant significance level of the predictive relationships were as follows: normative commitment (β= .155; p<0.01), AC (β= .518; p<0.01) and CC (β=. -032; p<0.01). In Model 2, the independent variable in the regression equation was JS and the dependent variable was OCB. Regression analysis results indicated an adjusted R^2 of .355. The beta coefficient for the predictive relationship between JS and OCB was .598 (β= .598; p<0.01). Model 3 reflects the predictive association of NC (independent variable-IV) on OCB (dependent variable-DV). The result of the regression analysis was a beta coefficient of .435 (β= .435; p<0.01). The adjusted R^2 of .186 was recorded for the predictive relationship between normative commitment and OCB. In Model 4, the affective commitment was entered as an independent variable, whereas OCB was inserted as the dependent variable. The beta coefficient of affective commitment was .413 (β= .413; p<0.01). The regression results for the relationship between affective commitment and OCB was an adjusted R^2 of .167. Finally, in Model 5, continuance commitment and OCB were independent and dependent variables respectively. The beta coefficient for continuance commitment was -.067 (β= -.067; p<0.01) and the adjusted R^2 of .000 was registered for the predictive relationship between continuance commitment and OCB.

Discussion: The results of the predictive association between the three OC factors and JS showed that the three factors of OC collectively contributed 39 percent of the variance in employees' JS. This implied that the factors together contributed 39 percent to the occurrence of JS. Based on the regression results, the normative commitment had no significant effect on JS, which suggested that normative commitment did not predict JS. However, a positive connection was observed between NC and JS. As a result of this finding, the hypothesis: A positive link exists between normative commitment and JS (H1) was supported. A significant positive correlation between JS and normative commitment implies that if employees are satisfied with their jobs they tend to be indebted and morally obliged to remain with the organisation. JS could be influenced by a number of factors such as a supportive work environment, leadership, relationship with co-workers and OC (Lau & Oger 2012). Should these factors be present, employees will be morally obliged to commit to the well-being of the organisation (Yang 2008). The finding on the lack of predictive relationship between JS and normative commitment is supported by the study of Lumley et al. (2011), which confirmed that the relationship between normative commitments with JS is inconsistent and non-existent. Elias (2007) reiterates that the reason for the non-existent relationship is based on the notion that normative commitment relies strongly on factors external to employees' control such as work conditions and social norms rather than psychological attachment and as such, it does not relate to employees' JS.

Affective commitment contributed positively to the prediction of JS. Based on the finding, the postulated hypothesis that a positive association exists between affective commitment and JS (H2) was supported. Strong correlations between JS and affective commitment indicated that the water utility employees generally express high levels of affective commitment, resulting in high JS. Research has found JS to correlate strongly with AC; in fact, JS is a function of affective commitment (Boles, Madupalli, Rutherford & Wood, 2007). This view corresponds with Chang's (2015) findings, which reveal that employees' high level of employees' JS renders them willing to identify with, engage in organisational activities and show loyalty to the organisation. There is also substantial evidence that shows that the relationship can also be the other way round in which job characteristics such as salary, relationship with co-workers and the job itself could induce employees with affective commitment to an organisation (Anari, 2012). In another study, Adekola (2012) propounds that employees remain highly committed to their organisation because of factors such as pay, freedom, training and development programmes. There is also empirical evidence that confirms that affective commitment can be improved through improved job characteristics such as autonomy and empowerment (Boles et al., 2007). This finding echoes the assertion of Namasivayam and Zhao (2007) that affective commitment of employees is subject to the adjustment of job characteristics by the organisation. Conversely, continuance commitment was not a predictor of JS and no correlations were observed between the variables, resulting in the rejection of the following hypothetical statement: There is a positive relationship between continuance commitment and JS (H3).

This finding intimates that the water utility employees' level of JS is not in any way influenced by their continuance commitment. These results are congruent with the findings of Kaplan, Ogut, Kaplan and Aksay (2012). The authors opine that employees who have psychologically calculated the costs associated with leaving the organisation may feel imprisoned and ultimately develop negative attitudes towards their job and the organisation. As a result, these employees display low levels of JS (Namasivayam & Zhao, 2007). This contention is congruent to the previous research, which demonstrates that the lack of predictive relationship between the aforementioned variables could be attributed to the feeling of entrapment experienced by employees, which results in a negative attitude towards the organisation and their work. Implicit in the finding on the relationship between JS and OCB was that job satisfaction contributed 36 percent to the prediction of OCB, which firmly confirms that OCB occurs as a result of JS. The result was indicative of the predictive relationship between JS and OCB; hence, the hypothesis: Job satisfaction is positively associated with OCB (H4), was accepted. Compared with the findings of the predictive association between AC and OCB, the higher beta coefficient of JS relationship with OCB suggests that JS played a significant mediating role between affective commitment and OCB. The finding in respect of the relationship between JS and OCB is confirmed by previous studies, which seem to suggest that employees with a high level of JS tend to engage in extra-role behaviours such as helping others, generating innovative solutions to help the organisation achieve its goals and adhering to rules and procedures (Cohen & Keren, 2008; Modassir & Singh, 2008; Alizadeh et al., 2012). It is vivid from the data that normative commitment contributed 18 percent to the prediction of OCB, thereby indubitably confirming that normative commitment contributed to the incidence of OCB. Thus the hypothesis normative commitment and OCB are positive correlates (H5) was supported.

OCBs predictive relationship, as indicated, concurs with other studies, which propound that employee who show high levels of normative commitment exhibit high levels of OCB (Zayas-Ortiz, Rosario, Marquez & Gruñeiro, 2015). Additionally, the study by Meyer and Parfyonova (2010) reveals that moral imperative influences employees to pursue organisational citizenship behaviours because of their conviction that it is a morally right to do so. A predictive relationship between normative commitment and OCB affirmed that the occurrence of OCB in the water utility company was a sequel of the employees' moral obligation to remain with the organisation. Namasivayam and Zhao (2007) are of the view that when employees have positive social experiences at work and are offered advancement opportunities they feel morally bound to reciprocate by retaining membership of an organisation. Tojari, Esmaeilli and Majedi (2013) add that positive feeling about social experiences and advancement opportunities are a moral inspiration for employees to exert effort beyond the job requirements in pursuance of the attainment of an organisation's interests and goals. Model 4 indicated a 17 percent predictive nature of the relationship between AC and OCB. The results were central to validating the hypothetical statement: there is an existence of a positive association between AC and OCB (H6).

A similar view is expressed by Ibrahim and Aslinda (2013) that an emotional connection between individuals created with the employing organisation generates the desire to display OCB. In this regard, Fatimah, Amiraa and Halim (2011) amplify that committed employees sacrifice their personal interests, espouse discretionary behaviours that exceed in-role requirements of the job, thus leading to the organisation's effectiveness. In the final analysis, no correlations were observed between continuance commitment and OCB and the predictive relationship between continuance commitment and OCB was equally non-existent, with continuance commitment contributing absolutely nothing to the prediction of OCB. Therefore, the hypothetical statement: hypothesis: CC is positively related to OCB (H7), was rejected. A weak correlation between continuance commitment and OCB attested that employees' OCB was not influenced by the fear of losing investment they have made to the organisation or vice versa. It is not surprising that the finding of Özdem (2012:58) established that employees who displayed high continuance commitment did not have the best interest of the organisation at heart and were not loyal to the organisation compared to affectively committed employees. This finding is congruent to the findings of Khan, Naseem and Masood (2016) who found that continuance commitment was not associated with desired work behaviours, such as OCB, job performance and reduced absenteeism. Other studies (Wang, 2008; Hur, Park & Kim, 2010) refer to this form of commitment as passive commitment, an indication that employees stay with an organisation because they have no alternative job.

Implications, limitations of the Study, Future Research and Recommendations

Theoretical Implication: Previous studies explored the nature of OCB and its impact on organisational performance. To cite a few, Cohen and Keren (2008); Mishra, Mishra, Kumar (2010) and Runhaar, Konermann & Sanders (2013) contributed to the OCB literature. Earlier research has also advanced the importance of the relationship between OC and JS or OC and JS (Noor 2009; Mohammad, Habib & Alias 2011; Zeinabadi & Salehi, 2011). This study enhanced insight to the relationship by highlighting the significance of the predictive relationship of both JS and OC with OCB. Thus, employees' willingness to exhibit OCB is attributed directly to the strong presence of employees' JS, normative commitment, affective commitment and continuance commitment. This study expanded the information on OCB by providing insight on the theory that underpins OCB, to demonstrate how employees progress to display OCB and its contributing nature to an organisation's effectiveness. The level of display of OCB varies on the type of the precursor.

Implicit is that JS, normative commitment, affective commitment and continuance commitment have varying levels of correlational and regressive association with OCB. JS emerged as a significant variable that induced the enactment of OCB. Furthermore, the study also confirms and expands the knowledge of OC by providing the literature that supports OC as a multi-dimensional construct. Continuance, affective and normative commitments have provided a context for the deeper understanding of the construct. Subsequent to a thorough review of the literature on the three-component model of OC and analysis of data collected from a water utility company, the affective commitment was found to be a great source for the display of OCB. Over and above, OC occurred to influence a wide range of organisation-relevant results, like organisational efficiency, low staff resignation, employee-satisfaction and return on investment (Morrow 2011). If employees realise that management recognises and rewards their efforts, they would develop an emotional attachment and desire to maintain a long-term relationship with the organisation, thus triggering the display of OCBs.

Limitations of the Study: As with most field research, this study had several limitations that should be taken into consideration when interpreting the results. First, the study was limited in that it was undertaken among employees of a water utility company in Gauteng province only. The study could not be generalised to other provinces. Secondly, this study was limited in scope in that there might have been other factors that could also have had a mediating role on the effect of JS and OC on OCB. Thirdly, data collection relied on data provided voluntarily by the respondents, who could have been biased in completing the questionnaire. Finally, of the 400 questionnaires issued, only 250 were completed and returned, thus limiting the size of the sample. A larger sample size of 400 might have yielded somewhat different results.

Future Research: The present study aimed to investigate the impact of OC and JS on OCB at a water utility company in Gauteng. The scope of this study could be extended to other provinces in order to examine similarities and differences in various sites of delivery across the country. This could also maximise the full participation of employees in the entire organisation and yield better results for generalisation. To enhance insight into OC and OCB, a comprehensive study could be undertaken to explore the mediating role of organisational support and distributive justice on the relationship between OC and OCB. This study could be conducted in private or public entities. The value of demographic characteristics, such as employees' level of education, gender, age, marital status race length of service, employment status and position held was not explored in this study. It is possible that a comprehensive examination of these characteristics could offer additional insight to the knowledge of JS, OC and OCB. Thus, future studies need to investigate the relationship between demographic characteristics of employees with JS, OC and OCB.

5. Conclusion

In summary, regression analysis revealed significant predictive relationships between affective commitment and JS; JS and OCB: normative commitment and OCB; affective commitment and OCB. Moreover, it can be concluded that the more employees are committed affectively to the organisation, the greater they will express high JS. Equally so, the more satisfied employees are with their jobs, the more likely they will exhibit citizenship related behaviours and the more the organisation will benefit. In the same manner, the higher the employees' sense of internalised obligation and affective commitment, the more they will be willing to display organisational citizenship behaviours.

Recommendations: In relation to the finding pertaining to the relationship between JS and OCB, management should consider improving human resources management processes such as supervision, skill variety, pay and job autonomy to ensure that employees find enjoyment in their jobs, which could lead to the development of OCBs. This finding is in concordance with the works of Chen and Johantgen (2010); Cohen and Keren (2008), which found that employees who are happy with some aspects of their job (job characteristics) are more likely to display high levels of JS and are inclined to partake in extra-role behaviours that benefit the organisation. Management could further engage in job enrichment activities to provide employees with the opportunity to decide how their jobs should be performed. Job enrichment generates JS, which could engender employee willingness to enact extra-role behaviours. In a similar vein, job-fit could be implemented in order to strike a balance between employees' skills and abilities with the requirements of the job. The relationship between OC and OCB could be improved by introducing performance-related pay to reward employees. Additionally, involving employees in decision-making processes cultivates higher levels of continuance commitment, which encourages employees to perform extra-role activities that support the attainment of organisational goals. Managers who encourage employees to participate in decision-making processes foster OC among employees and encourage them to go beyond the formal requirements of the job (OCB), to achieve organisational goals.

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Measuring Literacy Gap in the World for Economic and Social Development: Evidence from Selected Countries and the Lessons Learned

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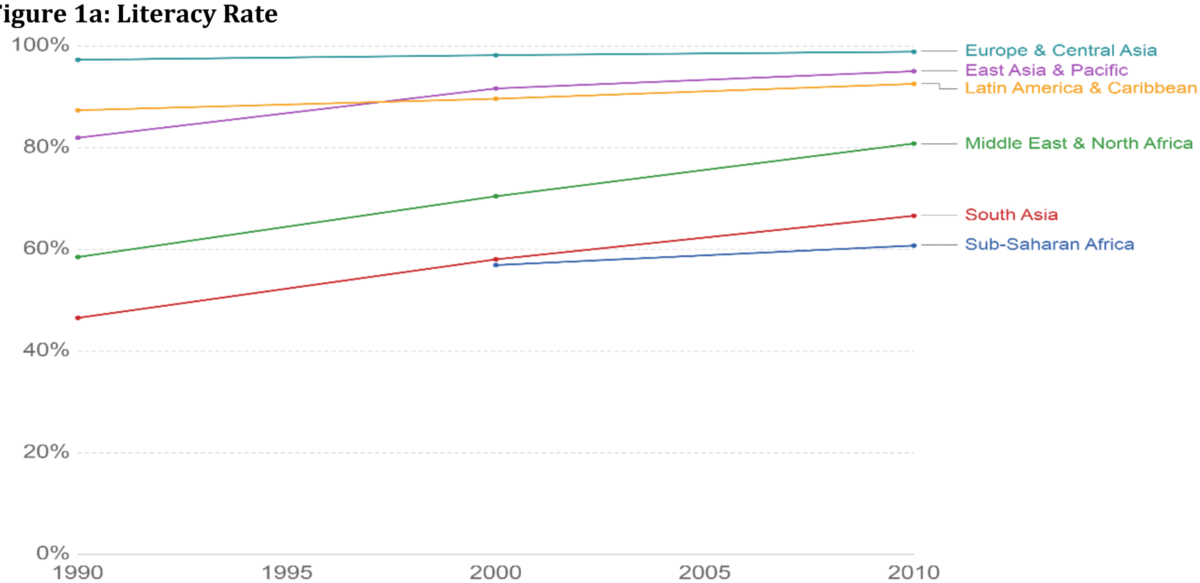
Abstract: Literacy rate is a major indicator of economic and social development, the campaign for growth and improvement in this area by several international organizations have caused significant growth in all major regions of the world. The persistent theme to these various programs is that illiteracy is nonetheless prevalent in the world and more study needed to eradicate it, thus generates a significant interest in this issue. Therefore, the primary goal of this current study is to compare five major regions in the world as classified by the World Bank in regards to the differences which exist in literacy. The study concludes that literacy rates of male and female across the regions are different for Youth literacy between the age of 15 and 24. The vast conclusion is that that there is a no significant difference in male literacy among the regions in the world except for Africa. While no significant difference in female literacy among the regions in the world.

Keywords: *Literacy rate, economic and social development, gender, World Bank, and MANOVA*

1. Introduction

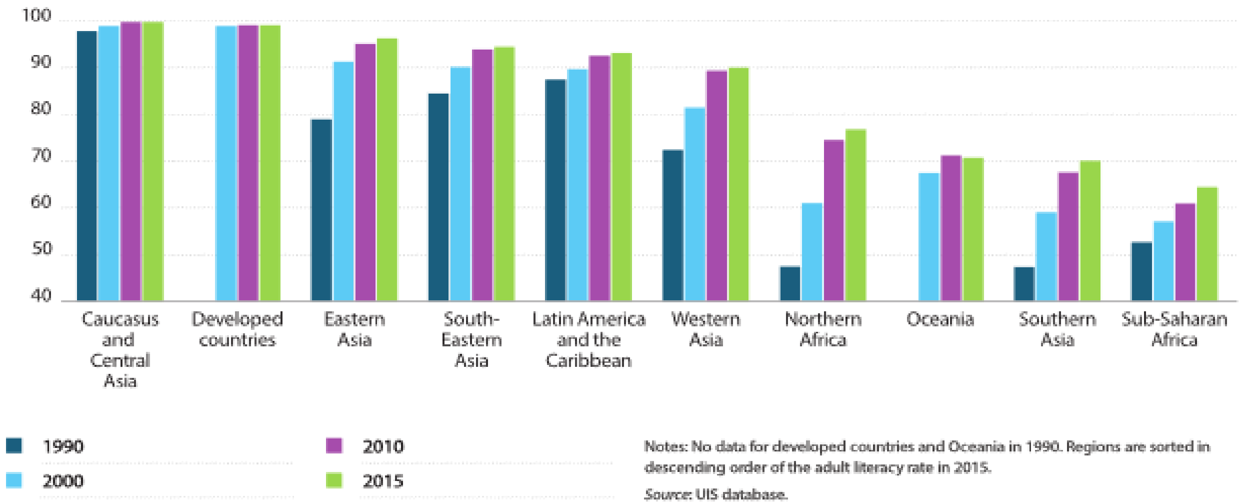
Literacy is a major world development indicator, major projects and campaigns are being put in place daily to combat youth and adult illiteracy in different countries, and regions. Roser and Ortiz-Ospina (2018) stated “literacy is a key skill and a key measure of a population’s education and despite improvements in literacy in the second half of the 20th century however, there is still a wide disparity between nations”. Rao and Sweetman (2014) suggested that about sixty-one percent about 120 million adult illiteracy across the world are women and it has been the main emphasis for international organizations and development community. While the Adult literacy index is often used to measure the number of adults who are capable of reading and writing in given states. Literacy rate deploys indicator of economic and social development, the campaign for growth and improvement in this area by several international organizations have caused significant growth in all major regions of the world. However, there is evidence that literacy gaps still exist among these regions as seen in Figure 1a and 1b.

Figure 1a: Literacy Rate



Source: unesdoc.unesco.org

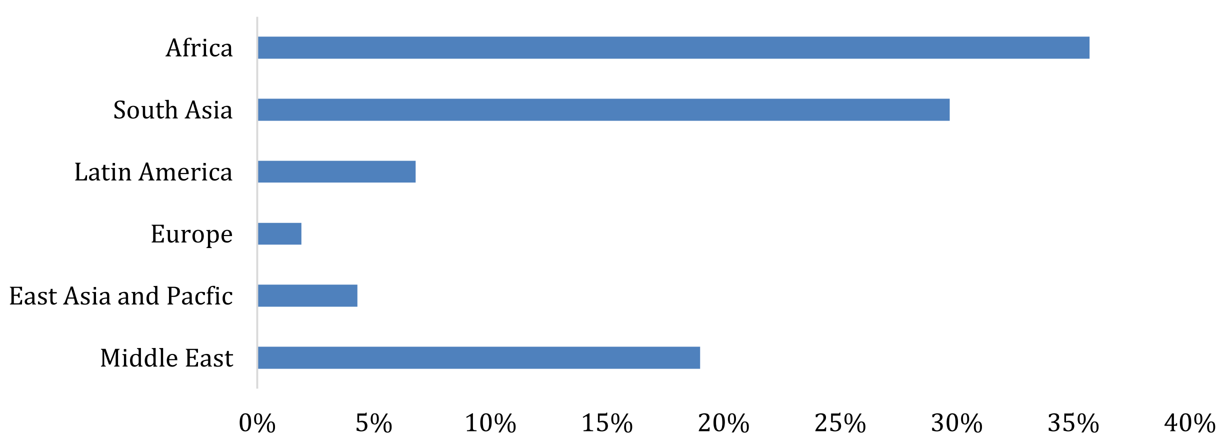
Figure 1b: Youth Literacy Rates



Source: unesdoc.unesco.org

Furthermore, several studies conducted have suggested that most governments neglect and are often not concerned with the increasing illiteracy among their populations especially with adult literacy. The pattern is evident between 1999 through 2015 where the number of literate people in the world has declined from 4.0 to 3.7 billion (Blunch, 2017). Kim (2018) observed discrepancies in literacy gaps within the framework of the United Nations Sustainable Development Goals. The results found significant intergenerational literacy gaps and several trends of literacy gaps across nations. These gaps are even more alarming when placed in the context of a global population. Within the same period, this number has jumped from six billion to roughly seven billion. The number of children studying today is a third lower than the same number in the 20th century. Women are less literate than men; a third of women in the world are illiterate and have never been to school, and only less than half have attended a secondary school. Among the latest projects and campaigns is the Adolescent Girls Initiative in Afghanistan, Emergency Youth Employment and Skills Development Project in sub-Sahara Africa, School Sector Reform Program in Nepal, to name a few amongst hundreds. The persistent theme to these various programs is that illiteracy is notwithstanding prevalent in the world and more study is still needed to eradicate it, thus our interest in this issue. Perhaps one of the major setbacks combating youth illiteracy is the discrimination that exists in educational opportunities based on a gender bias that is the focus of our study; to look at the differences in literacy rate between males and females (Olaniyan, 2008). As of 2015, the statistics indicate that the illiteracy rate between 2005-2015, Africa has the highest illiteracy rate of 35.7%, while 30.1% for South Asia, 20% in Latin American and 20% for Middle East.

Figure 2: The Illiteracy Rate of Among Adults Over 15-Year-Olds from 2005-2015 by World Regions



Therefore, the primary goal of this current study is to compare five major regions in the world as classified by the World Bank in regards to the differences which exist in literacy. Hence, this current research study would attempt to provide responses to these research questions: Is youth literacy rate as a fraction of between the age of 15 and 24 that are capable of comprehending, reading and writing for their everyday living is significant? Is there a significant gender difference in youth literacy among the world regions? Is there a significant difference in youth literacy among the world regions?

2. Research Design

By definition, the youth literacy rate is "the proportion of people between the age of 15 and 24 that are capable of comprehending, reading and writing for their everyday living. (The World Bank www Worldbank.org/projects), Similarly, Organization for Economic Co-operation and Development (OECD) in 2013 assessment data construct literacy as a multidimensional skill to be learned and measured." Therefore, the primary goal is to compare the literacy rate of males and females among five major regions in the world as classified by the World Bank. To study this variation, this research conducts a multivariate analysis of variance. Cleophas and Zwinderman (2018) noted that is the general technique for analyzing multivariate data but are restricted in the scope of variables that were included and owing to the weakness of associations among variables decreasing the statistical power of the test. In addition, complete statistics are missing and MANOVA of male literacy and female literacy (Yokozeki 1999). This research subscribed to MANOVA because we measure two IV's and by measuring two DVs rather than one, we believe we can improve the chance of figuring out how the regions different relative in literacy. MANOVA may also reveal differences not detected by separate MANOVAs. In this analysis, a multivariate F-value was used because the two measures are associated when carrying out the significance test. The following research hypotheses for the multivariate study are:

(1) H_0: There is no significant difference in literacy rate among the five regions in the world.
H_0: $\mu_1=\mu_2=\mu_3=\mu_4=\mu_5$

(2) H_0: There is no significant gender difference in youth literacy among the five world regions.
H_0: $\mu_1=\mu_2$

(3) H_0: There is no significant interdependence between factors Country and Gender. All the main differences between treatment conditions are explained by the main effects of the two factors.

The subjects for the analysis are 50 countries randomly selected from five regions of the world. A sample of 10 countries from each region randomly selected for the analysis. The data source is The World Bank; yearly data in which countries are ranked countries based on progress in different areas including education. The dependent variable for the analysis is the youth literacy rate, for females and males (% of females and males 15-24 age), one of the world development indicator data (www Worldbank.org/projects).

3. Technical Report

The distributional form of the data is illustrated in Figure 3. The boxplots illustrate wider spread than what has been claimed by the different organizations that have been involved in the study and discussion in Literacy in the world. Greatest difference between males and females among the five regions is seen mainly in the Middle East. The boxplots also illustrate the medians for males and females among the five regions that significantly measure out. The study presents a descriptive statistics of the data in Table 1 where the means and standard deviations of the countries for both dependent variables are categorized for the independent variable in the regions. The range is used to show some differences, however, as seen in box plot graph the most difference is evident in the Middle East.

Table 1: Country 1 Dependent Variable: Male Literacy

Country	Mean	Std. Error
Africa 1	81.825	11.572
Middle East 2	92.685	5.836
Europe 3	99.04	1.824
Asia 4	87.867	11.655
Latin America 5	96.298	9.637

Table 2: Country 1 Dependent Variable: Female Literacy

Country	Mean	Std. Error
Africa 1	80.760	15.693
Middle East 2	90.095	12.471
Europe 3	99.180	1.306
Asia 4	86.808	12.454
Latin America 5	96.654	4.763

Multivariate Test: The research computes a multivariate test using Predictive Analytics Software (PASW). The output results show that the multivariate test is significant. Wilks' Lambda for school effect shows a significance value of .001 and $p < .05$. Therefore, there is enough evidence to conclude that literacy rates of male and female across the regions are different i.e. literacy rate of male and female is significantly affected by regions (Table 2).

Figure 3: Male and Female Literacies Comparison

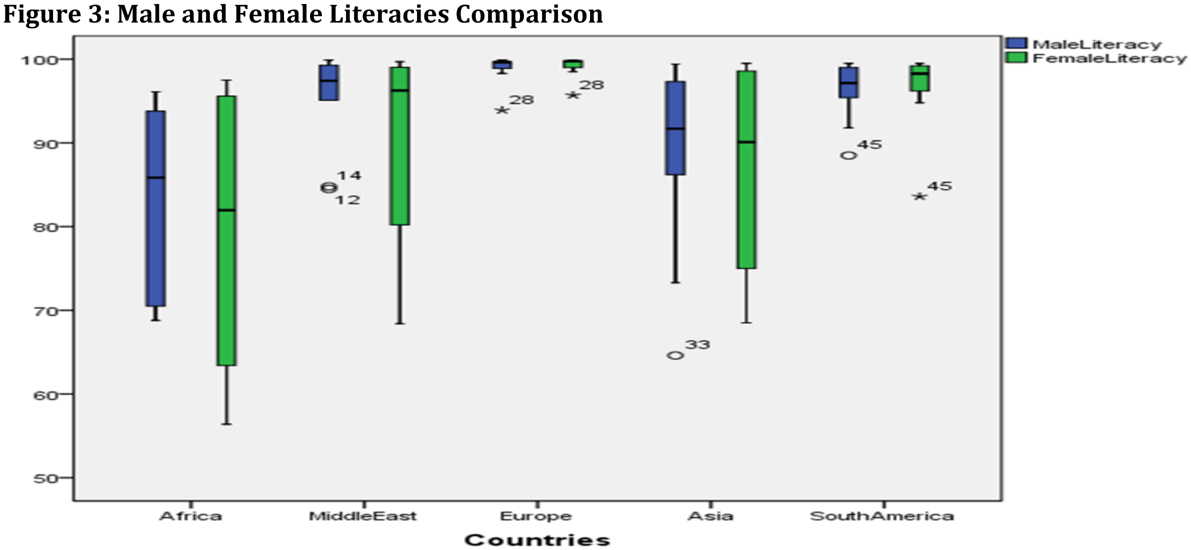


Table 3: Country 1 –Descriptive Statistics for Gender

			95% Confidence Interval	
Gender	**Mean**	**Std. Error**	**Lower Bound**	**Upper Bound**
Male	92	1	90	95
Female	91	1	88	93

The results of the Multivariate Analysis of variance MANOVAs are presented in Table 3. Bonferroni α correction of .025 is used for each t-test to account of Multiple MANOVA's Country region has statistical significance on both male and female literacy (Hox, & van de Schoot 2018, and Pituch & Stevens 2016*)*.

Country region has a statistically significant effect on both male and female literacy. This study also includes MANOVAs with Tukey's HSD post-hoc tests, as shown in Table 4. The analysis suggests that gender disparity in education is still an issue among some countries in the world today, perhaps much more present in the Middle East than all other regions.

Table 4: Tests of Between-Subjects Effects for Literacy

Source	Type III Sum of Squares	DF	Mean Square	F	Sig.
Corrected Model	3941.497	9	438	4.848	.000
Intercept	838012.38	1	838012.38	9276.4	.000
Country	3761.564	4	940.391	10.410	.000
Gender	79	1	79.123	.876	.352
Country * Gender	101	4	25.202	.279	.891
Error	8130.35	90	90.337		
Total	850084.24	100			
Corrected Total	12071.852	99			

First, for the H_0: There is no significant difference in literacy rate among the five regions in the world.
H_0: $\mu_1=\mu_2=\mu_3=\mu_4=\mu_5$

At 0.05, level of significance this analysis was carried out. The result reveals that the constructed Multivariate Tests- Dependent Variable and there is a significant difference in literacy rate among the five regions in the world. The results on the Multivariate Analysis of variance (MANOVA) for the model are shown in Table 5. The results of Multivariate Tests- Dependent using Wil's Lambda test with (DF = 8, F = 473.48a, P < 0.05), indicated a statistically significant difference in literacy rate among the five regions in the world.

Table 5: Multivariate Tests- Dependent Variable: Countries

Effect		Value	F	Hypothesis DF	Error	Sig.
Intercept	Pillai's Trace	0.9994	3430.59[a]	2.000	44.000	0.000
	Wil's Lambda	0.006	3430.59[a]	2.000	44.000	0.000
	Hotelling's Trace	155.936	3430.59[a]	2.000	44.000	0.000
	Roy's Largest Root	155.936	3430.59[a]	2.000	44.000	0.000
Countries	Pillai's Trace	0.479	3.48a	8.000	90.000	0.000
	Wil's Lambda	0.561	3.68[a]	8.000	88.000	0.000
	Hotelling's Trace	0.709	3.81	8.000	86.000	0.000
	Roy's Largest Root	0.585	6.58[b]	4.000	45.000	0.000

Second, for the H_0: There is no significant gender difference in youth literacy among the five world regions.
H_0: $\mu_1=\mu_2$

For the null hypothesis a 0.05 level of significance, this analysis was carried out using Tests of Between-Subjects Effects- Dependent Variable for Gender and Literacy. The analysis reveals that there is a significant difference in male literacy among the five regions in the world. The results on the MANOVA for the model are shown in Table 6 (DF = 4, F = 6.538, P < 0.05), indicated a statistically significant difference in Male Literacy among the five regions in the world. Also using a 0.05 level of significance this test result shows a significant difference in Female Literacy among the five regions in the world. The results on the MANOVA for the model are shown in Table 6 (DF = 4, F = 4.699, P < 0.05), indicated a statistically significant difference in female literacy among the five regions in the world.

Table 6: Tests of Between-Subjects Effects for Gender and Literacy

Source	Dependent Variable	Types III Sum of Squares	DF	Mean Square	F	Sig.
Corrected Model	Male Literacy	1672.686a	4	418.171	6.538	0.000
	Female Literacy	2189.709b	4	547.427	4.69	0.003
Intercept	Male Literacy	427187.428	1	427187.428	6678.901	0.000
	Female Literacy	410902.88	1	410902.88	3520.657	0.000
Country	Male Literacy	1672.686	4	418.171	6.538	0.000
	Female Literacy	2189.708	4	547.427	4.699	0.003
Error	Male Literacy	2878.2333	45	63.961		
	Female Literacy	5252.039	45	116.712		
Total	Male Literacy	431738.348	50			
	Female Literacy	418344.628	50			
Corrected Total	Male Literacy	4550.919	49			
	Female Literacy	7441.747	49			

Third, H_0: There is no significant interdependence between factors Country and Gender. All the main differences between treatment conditions are explained by the main effects of the two factors

Male Literacy: For the null hypothesis a 0.05 level of significance, this analysis was carried out using Tests of Multiple Comparisons between Gender Literacy and Countries. First, when using male literacy as the dependent variable and Africa as a base country, the result indicates a significant difference in male literacy among five regions expect Asia Table 7. Second, with the Middle East as a base region, the result shows a no significant difference in male literacy among the regions in the world except for Africa Table 7. Third, with Europe as a base region, the result shows a no significant difference in male literacy among the five regions expect for Africa Table 7. Fourth, with Asia as a base region, the result indicates a no significant difference in male literacy among the five regions expect for Africa Table 7. Finally, with Latin America as a base region, the result shows a no significant difference in male literacy among the five regions expect for Africa Table 7.

Table 7: Tests of Multiple Comparisons: Gender Literacy and Countries

Dependent Variable	(I)Country	(J)Country	Mean Difference(I-J)	Std. Error	Sig.
Male Literacy	Africa	Middle East	-12.3850*	3.57661	0.010
		Europe	-16.0100*	3.57661	0.000
		Asia	-6.0340	3.57661	0.451
		Latin America	-13.2830*	3.57661	0.005
	Middle East	Africa	12.3850*	3.57661	0.010
		Europe	-3.6250	3.57661	0.848
		Asia	6.3510	3.57661	0.400
		Latin America	-0.8980	3.57661	0.999
	Europe	Africa	16.0100*	3.57661	0.000
		Middle East	13.2830	3.57661	0.848
		Asia	9.9760	3.57661	0.400
		Latin America	2.7270	3.57661	0.999
	Asia	Africa	6.0340	3.57661	0.452

		Europe	-6.3510	3.57661	0.400
		Middle East	-9.9760	3.57661	0.057
		Europe	-7.2490	3.57661	0.270
	Latin America	Africa	13.2830*	3.57661	0.005
		Middle East	0.8980	3.57661	0.999
		Europe	-2.7270	3.57661	0.940
		Asia	7.2490	3.57661	0.270
Female Literacy	Africa	Middle East	-9.3354	4.8314	0.316
		Europe	-18.4200	4.8314	0.004
		Asia	-6.0486	4.8314	0.721
		Latin America	-15.6636*	4.8314	0.018
	Middle East	Africa	9.3354	4.8314	0.316
		Europe	-9.0846	4.8314	0.342
		Asia	3.2867	4.8314	0.960
		Latin America	-6.3282	4.8314	0.687
	Europe	Africa	18.4200*	4.8314	0.004
		Middle East	9.0846	4.8314	0.342
		Asia	12.2714	4.8314	0.095
		Latin America	2.7564	4.8314	0.979
	Asia	Africa	6.0486	4.8314	0.721
		Europe	-3.2867	4.8314	0.960
		Middle East	-12.2714	4.8314	0.095
		Europe	-9.0846	4.8314	0.287
	Latin America	Africa	15.6636	4.8314	0.018
		Middle East	6.3282	4.8314	0.687
		Europe	-2.7564	4.8314	0.979
		Asia	-9.0846	4.8314	0.287

Female Literacy: For the null hypothesis a 0.05 level of significance, this analysis was carried out using Tests of Multiple Comparisons between Gender Literacy and Countries. First, when using female literacy as the dependent variable and Africa as a base country, the result shows a significant difference in female literacy among the regions in the world except Europe and Latin America Table 7. Second, with the Middle East as a base region, the result indicates a no significant difference in female literacy among the regions in the entire world (Table 7). Third, with Europe as a base region, the results also show a no significant difference in male literacy among the regions in the world except for Africa Table 7. Fourth, with Asia as a base region, the result indicates no significant difference in female literacy among the regions in the world except for Africa Table 7. Finally, with Latin America as a base region, the result shows a no significant difference in female literacy among the regions in the world except for Africa Table 7.

4. Conclusion

This current study suggests that there are countries that are still lagging behind in education. However, the gender gap has significantly reduced across. The findings of the results were examined vis-à-vis the study's research questions. The first research question is to assess youth literacy rate as the fraction people between the age of 15 and 24 that are able to read and write. With regard to this, the findings show the largest difference between males and females among the five regions is seen mainly in the Middle East. Hence, the study concludes that literacy rates of male and female across the regions are different for Youth literacy rate is the fraction people between the age of 15 and 24. The second research questions identified and test whether there is a significant gender difference in youth literacy among the world regions. As illustrated as above and field observations of their activities, the analysis suggests that gender disparity in education is still an issue among some countries in the world today, perhaps much more present in the Middle East than all other regions. The conclusion is that there is a significant difference specifically in female Literacy among the five regions in the world. The third objective measured differences between factors Country and Gender. All the main differences between treatment conditions are explained by the main effects of the two factors. The overwhelming conclusion is that that there is a no significant difference in male literacy among the regions in the world except for Africa and specifically, there is no significant difference in female literacy among the regions in the world.

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When Performance Management Fails: Attitudes and Perceptions of Staff at a Higher Education Institution

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Abstract: The implementation of Performance Management (PM) in an institution can come with barriers that affect its success rate. The aim of the study was to assess the perceptions and attitudes of staff towards the implementation of PM at a higher education institution. The research was undertaken at a higher education institution (HEI) in South Africa where employee performance suffered as a result of PM implementation challenges within the institution. The research study was exploratory and employed mixed methods, that is; quantitative and qualitative research methods. A survey questionnaire was administered to groups of university employees drawn through stratified random sampling. The strata groups were academics, administrators, and senior executive managers. Hundred questionnaires were distributed with eighty-three questionnaires returned. In qualitative research, a heterogeneous focus group interview was scheduled which involved twelve people. Results from the questionnaires indicated that respondents perceived PM process as lacking transparency, unaligned to employee rewards and development lacks objectivity from appraisers and poorly implemented due to lack of training for its users. Key themes that emerged from the focus group interviews revealed that the majority of participants perceived PM as a management punitive tool that is not developmental in orientation, a political tool that lacks objectivity and benefits only the employer. Furthermore, they articulated that it was not aligned with their rewards and development. It was therefore recommended that; proper design and implementation of the PM system is vital, fairness, training of all parties involved, moderation of results and providing effective feedback should be employed in PM, effective communication, transparency, consultation and shared benefits for all participants are key to ensuring a broadly supported PM within the institution.

Keywords: *Performance Management, Perceptions, Attitudes, Higher education institutions, PM strategy.*

1. Background and Introduction

Globally countries invest a lot of capital into universities, research and development in general (UNESCO, 2018; OECD, 2018), the expectation is that the return on investment will be greater in the form of a highly skilled national workforce and increase in the country's economic growth. As a result of poor PM processes, most universities fail to effectively carry out that national mandate and expectation (Mapesela & Strydom, 2005; Seyama & Smith 2015). Consequently, public higher education universities are encouraged by global society to improve their reporting frameworks in order to improve accountability and sustain equitable corporate governance mechanisms. Ter Bogt and Scapens, (2012:451) indicate that the drive of promoting more accountability in universities has been highly influenced by the rise of New Public Management (NPM), which has forced managers in public sector spaces to adopt business models when attempting to improve efficiency and productivity in public organisations. Universities also find themselves having to adopt such models including PM models to improve performance and ensure quality in their operations and in the calibre of professionals they produce.

The overall objective of the research study is to assess the attitudes and perceptions of employees towards the implementation of PM strategy at a higher education institution. The findings will enable the institution's management to have a broader understanding of what employees perceive as PM challenges that should be addressed, along with what they perceive to be PM support factors that should be nurtured for PM process to be effective. The study focused on an institution whose PM was not managed effectively and consequently employees resisted to participate in the process. The institution had a PM policy in place that was not effectively implemented within the institution and also faced challenges with regards to attitudes and perceptions of employees towards PM. As a result of poor PM, the quality of services rendered by the institution was compromised. The following broad question was addressed in the research study: Which important factors need to be considered when designing and implementing an effective PM strategy?

2. Literature Review

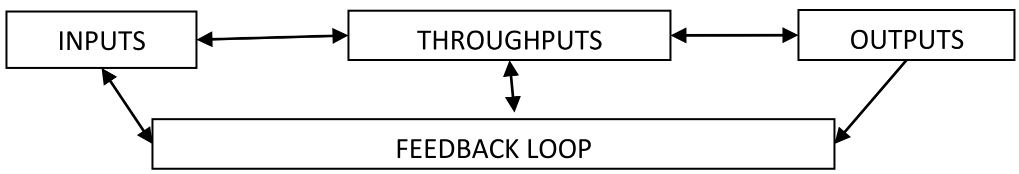
PM in Higher Education Institutions: Definitions and Overview: Aguinis, Joo and Gottfredson (2011:504) define PM as "a continuous process of identifying, measuring, and developing the performance of individuals and teams and aligning performance with the strategic goals of the organisation". Ana-Maria, Constantin and Radu (2009:277) describe PM strategy as "an integrated approach to delivering sustained success to organisations by improving the performance of the people who work in them and by developing the capabilities of the teams and individual contributors". Freitas, Uren, Brewster and Gonçalves (2016:2) define performance measurement as "a process of quantifying the efficiency and effectiveness of an action which leads to performance". Adams (2013:384) maintains that universities, including graduates and professors, are expected by society to lead the development that affects people and the universe. The significant influence that universities have on future leaders, teachers and parents, shapes the actions of future generations. Furthermore, the influence of the public interest to universities is not only directly related to education, transfer of knowledge and research, but also towards the management of universities, which includes accountability for its performance (Adams, 2013:384). As of consequence, higher education institutions and all organisations in general have a pressure to perform optimally and effectively in their operations. This then means effective PM should take centre stage as the main tool to propel institutions towards optimal performance.

As argued by de Waal and Kerklaan (2015:85) Higher Education Institutions (HEIs) that have developed effective management control systems are fundamental to the development of a country. Therefore, most HEIs are under pressure to develop management control systems that will ensure they perform optimally. De Waal (2015:384) further states that the pressure for universities to improve their performance is influenced by many factors, including globalisation trends, since the HEIs have moved towards massification of their operations. Thus, market-driven transparency and accountability have been pushed as part of the education sector's agenda by increasing the regulations of central governments to monitor academic work through institutional, organisation management, utilisation of quality assurance, and 'evidence-informed practice' (Turk, 2016:21). As a result, all HEIs might be obligated to be efficient in their operations, expand the services they offer, as well as improve and diversify their operations. For example, massification as stated by de Waal (2015: 384) results in a large influx of new students both locally and internationally, with increasing student demands for better and more diverse education, funded through public funds acquired through taxes and government subsidies. Subsequently, it may seem that due to the high dependence of HEIs on public funding, budget constraints from governments globally have affected the sustainability of various institutions, including universities in South Africa. Likewise, de Waal and Kerklaan (2015:85) indicate that HEIs have to manage growing student numbers, arrange support for improved infrastructure and facilities, provide revised relevant curricula, source sustainable funding opportunities, and improve the attractiveness of graduates in the labour market.

It may appear that the increased focus on the development of effective PM systems in universities has also been highly influenced by constrained budgets and resources allocated to the public sector. Some of the resource challenges of universities are due to increased massification of higher education. Conversely, the South African higher education sector is impacted by a variety of socio-economic conditions that affect the allocation of resources by the government. Moreover, HEIs are required to direct resources towards strategies geared to improving support for staff and management capacity, along with promoting technology and innovation in teaching and learning processes (de Waal and Kerklaan, 2015:85). Furthermore, HEIs have to change and adapt their managerial models towards business-oriented practices in order to remain competitive and to survive. In addition, Stukalina (2015:70) finds that HEIs today also have to focus on ways of increasing their revenues, in entering the continuously evolving, global education market. Similarly, the institution under this study finds itself with challenges, such as increasing of revenue and decreasing costs that affect its sustainability. Therefore, these institutions in order to survive in the global market, have to ensure that their managers focus on decreasing the costs while improving performance to ensure that the university stays competitive, affordable and sustainable (Stukalina, 2015:70). Why do employees and senior executive managers resist the implementation of PM strategy? What are the attitudes and perceptions of employees and senior executive managers towards PM?

Theoretical Framework: Systems theory (Figure 1) illustrates how PM is interdependent of other organisational variables and how it links up with organisational processes to create a desired output for the organisation. Figure 1 depicts that PM strategy is seen as an input that when implemented appropriately through approved systems by using adequate tools and instruments (in the throughputs section), will lead to the desired outputs. System thinking is important for implementation of PM in universities. Besides, universities are considered key agents in economic and social transformation (Kapetaniou and Lee, 2017:1). This proves that universities are regarded as open systems that are impacted by what happens in the societies they are in. Kapetaniou and Lee (2017:2) indicate that universities are constantly engaged with other role players in order to develop innovative processes to enhance the development of communities.

Figure 1: Systems Theory Diagram (Diagram Source: Author)



Systems thinking relate to PM formulation and implementation as PM is a sub-system of an organisation. Hutchinson (2013:2) explains that the main objective of PM is focused on improving othe verall performance of the organisation, which may be viewed from various wider perspectives at an organisational, sectoral, departmental, and personnel-manager level, as well as individual employee level. Therefore, PM is the key to drive execution of a business strategy as it is integrated in the business strategy and forms part of a system connected to other organisational systems, in order to lead to organisational effectiveness.

Performance Management Challenges and Perspectives in Higher Education Institutions: Gerrish (2016:48) finds that PM systems are so common they have even been allocated to public institutions with the expectation that they could improve the competitiveness of public institutions. As much as the motive for PM is good, unfortunately outcomes are not always as expected. Experience has revealed that in some if not most institutions PM fails to deliver because of multiple challenges the process usually encounters. To mention a few of the factors that lead to PM experiencing challenges; Kalman (2016:22) state that PM systems have a tendency to sometimes not improve the performance of public organisations but rather encourage behaviors that increase measured performance, while negatively affecting the actual performance of workers. In addition, some programmes in the public sector seem to experience difficulties in the use of performance measurement techniques and this includes HEIs. This is mainly due to the complexity of the roles they play, and where outputs or outcomes are difficult to quantify (Poister et al., 2013:626). Along the same lines, Kalman (2016:22) maintains that most people do not enjoy formulating and implementing a PM strategy. There are some workers that believe that PM systems are misguided, or that management poorly applied the PM system, and in some instances one finds arguments that PM systems are used for political gains within organizational settings (Kalman, 2016:22).

PM may be viewed by some managers as a tedious process that escalates problems between managers and employees. These and many more complexities in the design and implementation of PM results in its challenges in looking at another perspective towards a solution, Barr (2016:16) puts a possible way forward when she states that PM has been traditionally developed for manufacturing organisations where 'outputs are tangible' and consistent making it easier to control and not for non-manufacturing organisations where outputs are intangible and fluctuate. Universities are mainly focused on teaching and learning, research and engagement. These are the activities focused on intangible processes carried out by personnel of the university, leaving the question of whether PM strategies and systems are beneficial to the academic educational sector. This is the question that these institutions need to interrogate when planning their PM strategies in order to ensure that they design and implement PM systems that are relevant to the needs of a higher education institution.

Another perspective on how HEIs worked in the past before introduction of strict and standardised PM systems; Simmons (2002:87), states that universities in the past (during the 1970s) adopted a 'laissez-faire' approach to the management of performance. For instance, the managers of universities delegated any form of management of performance to individual staff members, who subsequently demonstrated that staff were totally trusted and believed to perform to the best of their abilities and thus meeting organisational goals. Universities in the past operated through trust within an ethos that promoted high independence of academics and scholarship and valuing academic freedom and collegiality between academics and management (Simmons, 2002:87). On the other hand, during the 1980s, universities, as with most public sector entities, were forced to adapt their management control models due to economic pressures that threatened their sustainability; they were thus forced to become market driven and customer-focused by ensuring value for money to the public as a strategic direction to improve sustainability (Simmons, 2002:87). The various pressures, which include political, financial, and social justice issue influenced universities to change and improve how they manage their performance with the aim of assuring the public of their accountability.

Furthermore, government regulations have emphasised the standardisation of quality assurance in teaching and learning to ensure uniformity of practice (Simmons, 2002:88). Overall, Wilkes et al. (2011:23) comment that PM problems are inherent in any management system, as most people do not appreciate having their performance constantly monitored. It is important to note that any management system will pose some challenges to the design and implementation of a PM strategy in any organization. The thinking that PM leads to higher performance comes from the logic of goal clarification and performance monitoring across the organization in order to ensure the attainment of goals (Poister et al., 2013:626). After all, have been said and done organisations need to design and implement PM relevant to specific needs and context of that particular institution. The PM should be embedded in the strategic plan of the organization, which guides how outcomes will be regularly monitored to assist managers with useful information for better decision-making that will improve overall performance.

3. Research Methodology

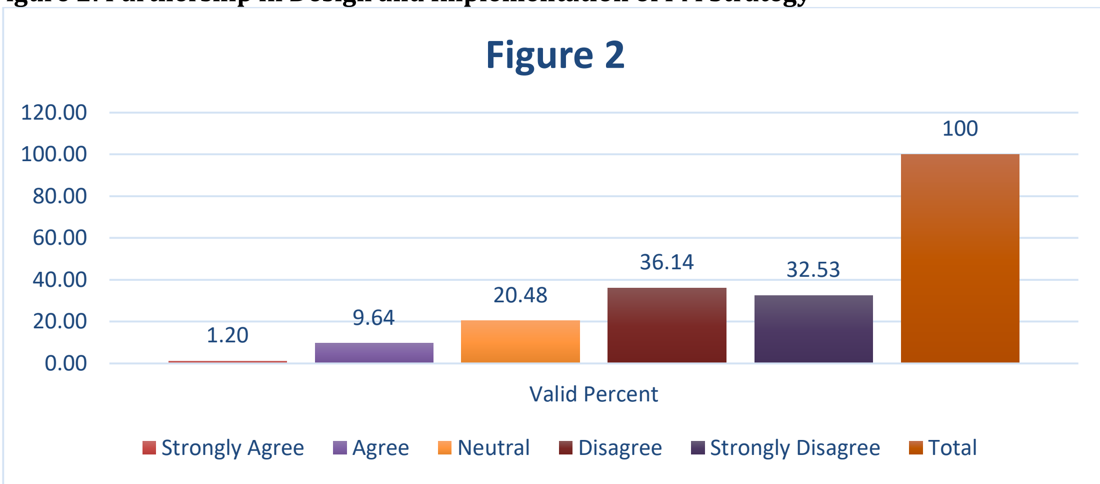
A triangulation of mixed methods approaches combining quantitative and qualitative research methods was used. This in order to provide the researcher with corroboration, complete and comprehensive understanding of the phenomenon from all vantage point. The sample was selected using stratified random sampling. Stratified random sampling is used when various groups within the population have to be selected (Sekaran and Bougie, 2014:256). The study employed the sample size determination table by Krejcie and Morgan, developed in 1970, as a guideline to simplify the decisions for a representative sample size. A survey questionnaire was administered to the selected sample of employees. In a quantitative study, a sample of hundred respondents was selected from three categories that formed the strata groups; academics, administrators, and senior executive managers. These groups were selected to ensure that all employees from different levels and units within the institution were fully represented. Hundred questionnaires were distributed with eighty-three questionnaires returned.

The qualitative method consisted of open-ended questions. A heterogeneous focus group interview was conducted with twelve participants selected again from the three strata groups namely, academics, administrators and senior executive managers. A Likert scale type questionnaire in the quantitative study as well as interview schedules in qualitative study were used in data collection. To ensure data quality the researcher employed the methods of validity and reliability. According to Sekaran and Bougie (2014:225), validity measures how well an instrument that has been developed in the research study measures the particular concept it is intended to measure. As described by Sekaran and Bougie (2014:228), reliability focuses on the extent to which a measure has no bias or is error-free. Reliability ensures that the measurement is consistent every time it is applied. SPSS version 25 was used to analyse quantitative data and manual thematic analysis to analyse qualitative data collected.

4. Presentation and Discussion of Results from Quantitative Study

Partnership in the Design and Implementation of a PM: Results revealed that there was not much partnership between employees and management in the design and implementation of PM strategy in the institution. As shown in figure 2 below, more than 60 percent of the respondents disagreed that there was a partnership between management and employees in the design and implementation of a PM strategy.

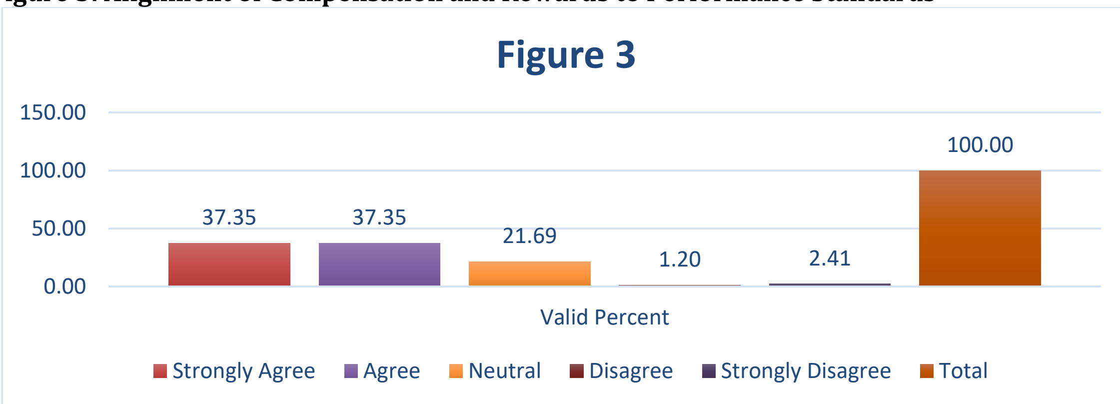
Figure 2: Partnership in Design and Implementation of PM Strategy



As stated by Thursfield and Grayley (2016:789) the ideology of PM is criticised for being embedded in the unitarist approaches where management tends to develop PM programme without taking into consideration the concerns and interests of employees. Unitarist ideology is seen to converse acceptability through propagating management control that does not support employee active involvement. The question/ concern raised by the results of this study is whether a collaborative design and implementation of a PM strategy play a vital role in shaping the attitudes and perceptions of employees towards PM. Judging by results of employee attitudes and perceptions in the organization under study, one can confidently conclude that collaboration in the design of PM does play a role in shaping employee attitudes and perception towards PM. Scholars agree that partnerships in the design and implementation of PM are vital to ensure its success as emphasised in the statements by the following; Türk (2016:19) views PM as consisting of regular information and communication consistently geared towards employee development, as well as the attempt to create an encouraging work environment. Hutchinson (2013:2) states that PM is generally portrayed as an integrated process in which managers engage with employees to set expectations, measure and review results, agree on improvement plans, and sometimes reward performance. Thursfield and Grayley (2016:789) further state that from the perspective of pluralism, the employment relationship is characterised by an imbalance between employers and labour, which results in unequal power relations and competing class interests that are dealt with through collective bargaining and collective solutions to individual problems.

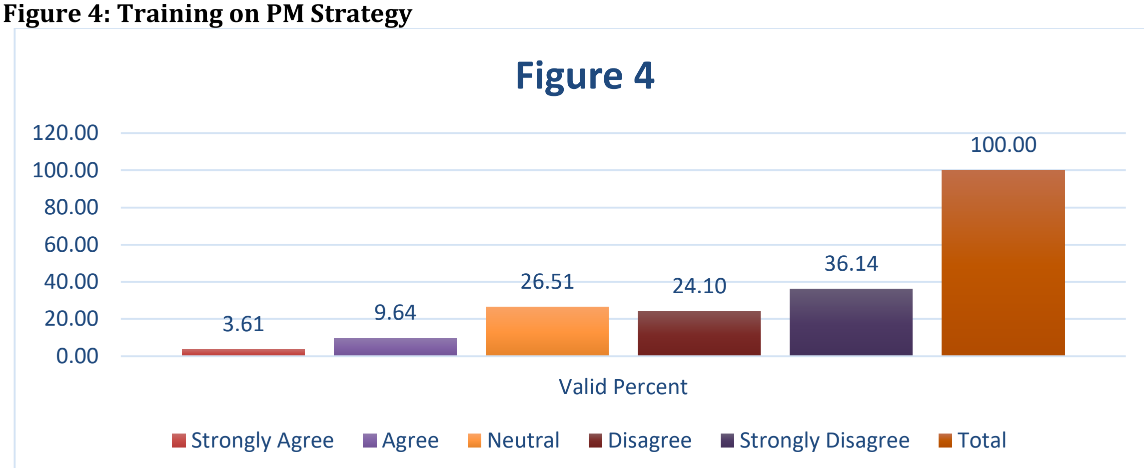
Alignment of PM to Employee Rewards and Compensation: Results in figure 3 illustrate that 37, 35 percent of the respondents strongly agreed that their compensation and rewards are not tied to their performance standards. Another 37, 35 percent of the respondents agreed that their compensation and rewards are not tied to their performance standards. This means more than 75% of respondents stated that PM was not tied to their rewards and compensation. This then gives one an indication that PM in the institution was mainly done only as a compliance exercise and a policing tool for poor performers without providing any incentives for high performers. The above results complement what Seyama and Smith (2015) also observed in their study of PM and rewards at a South African HEI, they observed that "PM reward strategy not only have a limited effect in promoting high-performance behaviour, but was a cause of discontent due to implementation inconsistencies, nebulous award criteria, lack of transparency about ratings, and the negligible monetary value of the reward" (Seyama and Smith, 2015:1). Mapesela and Strydom (2005) in their study at three South African higher education institutions also emphasised that "Staff in all three institutions supported the linking of performance to pay. They further stated that; the complexities surrounding the linking of pay to performance was apparent from their study.

Figure 3: Alignment of Compensation and Rewards to Performance Standards



Training for Parties Involved in PM: Majority of respondents, which in this case was more than 60 percent of employees as shown in Figure 4 disagreed that they received any kind of training on PM processes. It was also clear that better integration was needed between the PM system and the promotion systems in the institutions" (Mapesela and Strydom, 2005:6)

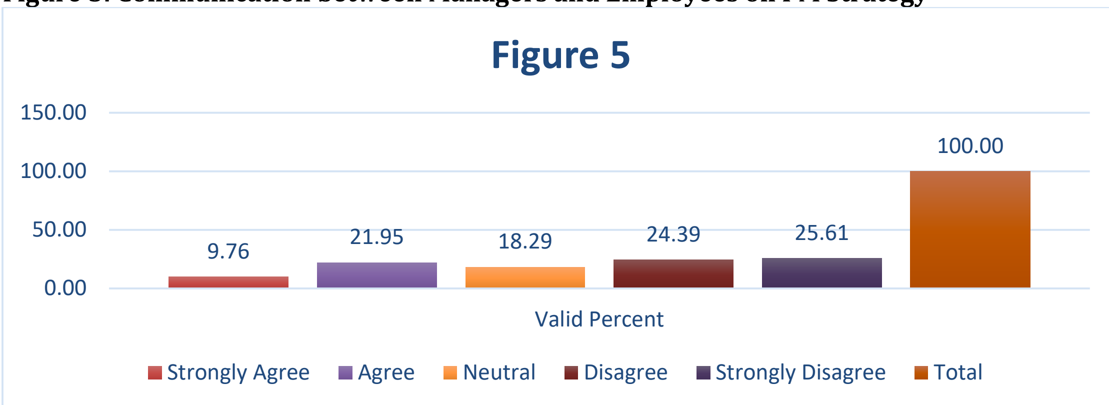
Figure 4: Training on PM Strategy



Falola, Osibanjo and Ojo (2014:161) state that organizational survival in the globally competitive environment is dependent on the firm's ability to train and develop its human capital so as to enhance creativity, as well as innovation that will improve performance, and competitive advantage. Communication and availability of training opportunities are the fundamental factors in the implementation of PM strategies. PM is regarded as most effective through management by objectives, whereby managers negotiate and agree on performance standards with employees. Effective human resource management has shifted from the view where people are considered as a variable cost to the view where people are regarded as a resource, and as social capital, that can be developed and can contribute to the company's sustained competitive advantage. The lack of existing programmes to build employee and managerial capacity, with which to conceptualise a PM strategy and design effective systems for measuring performance, negatively impacts on the organisational drive of implementing a PM strategy. The organisation should align its training and development plans to the PM strategy. Employees of the organisation are indispensable assets that create the firm's competitive advantage and training opportunities are able to help employees perform at their level best (Falola et al., 2014:161).

Communication between Managers and Employees on PM Strategy: As reflected in figure 5, half (50 percent in total) of the respondents surveyed disagreed that open communication exists between managers and employees to implement PM strategy.

Figure 5: Communication between Managers and Employees on PM Strategy



Effective communication between employees and managers is fundamental to ensure proper design and implementation of a PM strategy. This can be done in the form of open channels of communication, consultation forums with employees and their trade unions in which all stakeholders can be afforded an opportunity to have an input in the process. Daniela (2013) contends that a lack of communication and poor management of PM results in major challenges such as lack of skills and organizational culture that does not value information sharing. All parties involved in PM in the workplace should be free to talk about the PM strategy of the organisation to everyone, including managers and colleagues. There should be clear lines of communication for people to voice their concerns about the design and implementation of PM systems and processes. Kalman (2016:23) comments that in order for the PM programme to have integrity, senior management must communicate the standards up front, affording everyone the opportunity to participate in the dialogue. Transparency is fundamental to ensure that people know what is expected, earlier rather than later. Human capital buy-in is necessary in order to build teams that will work tirelessly to achieve the corporate strategy. Organisational communication represents the critical component in PM (Daniela, 2013).

Results from Qualitative Study: Five major themes emerged from interviews as indicated in table 1 below. These themes explicitly revealed employee attitudes and perceptions towards PM and reasons why employees resist the implementation of the PM process in the institution. These themes were also discussed during the focus group interviews and various sub-themes emerged from these discussions (Table 1). Feedback from participants was categorised in various sub-themes. Responses are outlined below in table 1 and discussed from section 1 below.

Table 1: Identified Themes and Sub-Themes from Focus Group Interviews

Themes	Sub Themes
Employees fear of victimisation	Employee prejudiced
	Favouritism
	Dismissals
	Subjectivity
Lack of knowledge and understanding around PM issues	No transparency in management models
	PM standards vague
	Poor communication channels between managers and employees
No training programmes	Lack of managerial training on PM
	Lack of employee training on PM
	Lack of career planning and development
Compensation / rewards not aligned to	Poor grading systems

performance	No performance rewards/incentives No transparency on budget allocation for PM awards
Partnerships on PM strategy implementation between management, labour and their trade unions and Council.	No consultative forums between employer and labour (in the form of unions) Poor communication on PM issues between managers and employees.

Fear of Victimisation: Keywords fear, victimisation, prejudice, intimidation were prevalent during focus group discussions. In their own words some participants stated the following; "The implementation of a PM strategy that is not effectively designed and implemented leads to some employees being prejudiced" (Interviewee 1, male) "Some employees are subjected to disciplinary proceedings due to poor performance and others even face dismissals" (interviewee 3, male) "If a manager does not like an employee for certain personal reasons they then tend to be biased and unfair in how they evaluate that employee's performance" (Interviewee 2, female) "The general perception amongst the workforce is that there are many CCMA cases that are based on poor performance standards which have never been agreed upon" (Interviewee 4, male) Thursfield and Grayley (2016:789) state that people in organisations find problems with PM as managers apply unitarist approaches to conceptualise and implement strategies for managing performance in the organisation. Workers are then forced to conform to developed systems and submit to the prevalent management control which drives PM though employees fear and victimisation.

Lack of Knowledge and Understanding about PM Strategy: Participants in the focus group interviews also revealed that all parties involved in the planning and implementation of PM including managers did not have efficient knowledge and capacity to implement PM effectively. In their own voices some participants stated the following: "Due to the little knowledge managers possess about PM strategy, their process of performance measurements is not transparent. Managers threaten employee's job security by using performance reviews" (Interviewee 6, female) "No consultation, collaboration and communication channels when it comes to setting of PM standards and there are no avenues available to assist employees who are poor performers to achieve the standards" (Interviewee 3, male) Kalman (2016:23) comments that in order for the PM programme to have integrity, senior management must be well equipped on PM through training, managers must also communicate the standards up front, affording everyone the opportunity to participate in the dialogue. Transparency is fundamental to ensure that people know what is expected, earlier rather than later. Human capital buy-in is necessary in order to build teams that will work tirelessly to achieve the corporate strategy. Organisational communication represents the critical component of PM.

Training of All Parties Involved in PM: Regarding training of parties involved in PM, focus group interviews revealed the following; "Managers have not been trained to implement PM strategy" (Interviewee 1, male) "Training and development is fundamental for the effective design and implementation of PM strategy" (Interviewee 10, female) "There are no employees that have received training and who have participated in the design and implementation of PM strategy" (Interviewee 4, male) The organisation should align its training and development plans to the PM strategy. Employees are indispensable assets that create the firm's competitive advantage and training opportunities are able to help employees perform at their level best (Falola et al., 2014:161). This places training as one of the key components towards the achievement of an efficient and effective PM.

Compensation and Benefits: Participants in the focus group interviews indicated that there was no link between PM and their rewards in their own words they stated the following; "The institution's grading system is not aligned with the PM strategy and employee pay is not tied with the current performance standards" (Interviewee 8, male) "There are no performance rewards, monetary and non-monetary" (Interviewee 3, male)**.** Türk (2016:18) states that PM practices involve goal setting and planning, monitoring and evaluation, communication and feedback, as well as an appraisal of employees and compensation of employees based on their actual performance results. These findings are consistent with those of Seyama and Smith (2015) who also found that HoD's at a South African HEI were "sceptical of the PM as they view it as a business-oriented practice that is not compatible with the nature and objectives of higher education institutions with its reward strategy having a limited effect in promoting high performance behaviour, but is a cause of discontent due to implementation inconsistencies, nebulous award criteria, lack of transparency about ratings, and the negligible monetary value of the reward" Seyama and Smith (2015:1). These findings emphasise the significance of aligning pay to performance to ensure a fair and meaningful PM exercise in the organization.

Partnerships between Council, Management, Labour and their Trade Unions: On the area of partnerships and stakeholder collaborations, participants stated the following; "No consultative forums on PM" (Interviewee 10, female) "There is no signed agreement or memorandum of understanding between management and the concerned university stakeholders on PM" (Interviewee 1, male) Türk (2016:19) explains that PM is regarded as give-and-take system of job-related information. The employer through management and employee has an opportunity to express their wishes and ideas towards creating a relationship based on mutual benefits. The lack of employee involvement in the design of a system to manage their performance is a problem, as people in the workplace refuse to use frameworks, systems and processes which they did not participate in their development. The practice towards managing the performance of employees in an organisation is guided by the mutual relationship between employees, their unions and management.

It is important that employees are given the opportunity to express their views and wishes regarding information relative to their performance. Nonetheless, it is evident that PM strategies that fail have not been developed in collaboration with the employees, whose performance is monitored. It is held that managers always monitor workers as they want them to improve their performance (Barr, 2016:16). Nonetheless, most employees do not appreciate being monitored as they feel they are judged based on past performance data and this impacts employee job security, as well as relations built between managers and employees. The tools used in PM systems provide useful information that must be contextualised to the mission, aims and objectives of the organisation that are developed through the engagement of the diverse stakeholders (Secundo, Perez, Martinaitis and Leitner, 2017:3).

5. Conclusion and Recommendations

To facilitate progressive and productive PM system, institutions must ensure adequate consultation and communication with all stakeholders concerned regarding PM strategy to be implemented. Impeccable planning, design and implementation of the PM systems are vital for the PM to be successful. Openness, transparency and fairness in how PM is done also of huge significance training of all parties involved, moderation of results and providing effective feedback should be employed in PM. Involving external assessors, moderators and evaluators also assist in ensuring that PM is fair with minimum bias. Furthermore, a PM system aligned with employee compensation and rewards with shared benefits for all participants is key to ensuring a broadly supported PM within the institution. Significantly, it must be understood by all that PM is a development tool than a punitive one, the main purpose of PM should be to develop, grow and motivate employees to perform at their optimal best for the benefit of both the employee and the organization. PM as a strategy should lead to the development of an organisation-wide framework that connects the different systems and processes implemented across various organisational levels to effectively monitor and measure the performance of organisations. The fundamental element in improving and strengthening the value of PM management within the institutions lies in co-operation and collaboration between all the involved stakeholders. There is a need to provide organizational spaces for all stakeholders to discuss the existing PM policy, in order to revise the policy and make it relevant to the employee and organisational needs. Training and support have also been identified as fundamental managers would need to immediately take into consideration prior to introducing a PM strategy.

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The Nexus between Macro-Prudential Banking Regulation, Interest Rate Spread and Monetary Policy in South Africa

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Abstract: This study is an empirical attempt to investigate the nexus between macro-prudential banking regulation, interest rate spread and monetary policy in South Africa. The effectiveness of monetary policy and alarmingly wide interest rate spread has been a contentious issue in the corridors of central banks across the globe in this lifetime. This has been largely because monetary policy alone proved to be less efficient in mitigating the effects of systemic risk, particularly during the 2007 financial crisis, necessitating the need for macro-prudential banking regulation. Time series dataset spanning from 1994Q1 to 2016Q4 is employed to carry out this study using the restricted Vector Autoregressive (VAR) model, that is, the Vector Error Correctional Model (VECM). The results show that there is no long-run causality running from trade openness, real exchange rate financial depth interest rate spread and credit growth to the repo rate in South Africa. A short run causality running from credit growth to the repo rate exists from the estimated model. In addition, the empirical results exhibited evidence that interest rate spread has a dampening effect on monetary policy but in the long-run this effect seems reversible in South Africa. Therefore, in order to ensure financial stability, care has to be taken by the South African Reserve Bank and government in choosing the best tool-kit of macro-prudential banking regulation as it can be used to disguise the symptoms of a lax monetary policy framework.

Keywords: *Macro-prudential banking regulation; Interest rate spread; Monetary policy; New Keynesian Dynamic Stochastic General Equilibrium Model; Financial stability.*

1. Introduction

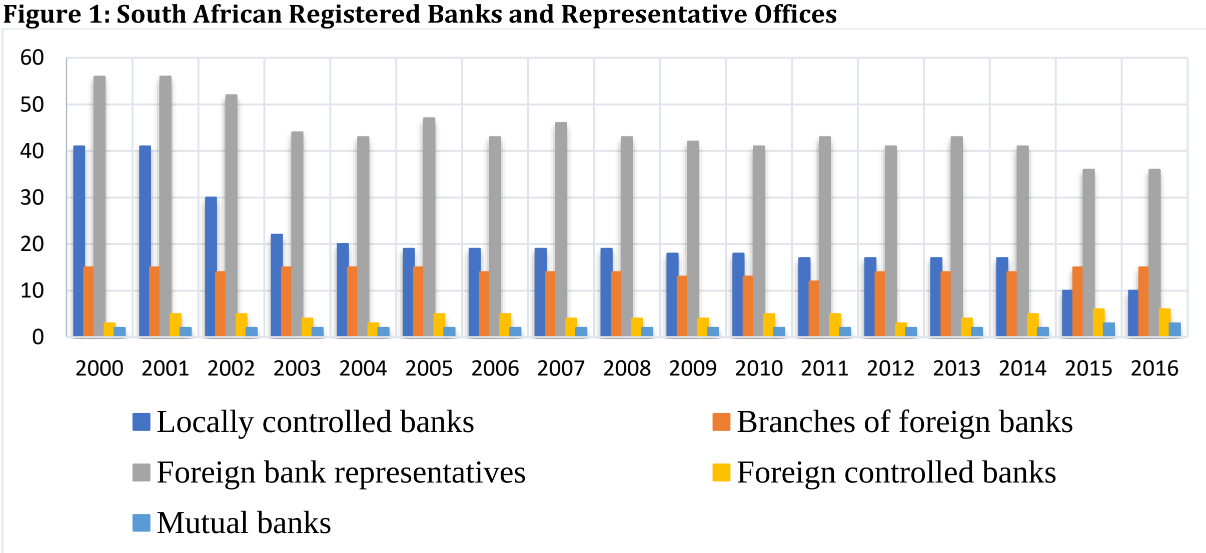
The inflation targeting framework was adopted as the flagship of monetary policy in South Africa since the year 2000. It has been a policy that has long been used as the anchor of monetary policy under the jurisdiction of the South African Reserve Bank (SARB). The general target of inflation in South Africa is a range between 3% and 6% (SARB, Annual Report, 2015). In order to keep the rate of inflation within the desired range, the SARB uses the repo rate as a policy tool. However, the annual rate of inflation in South Africa has evolved above the targeted range since early 2007 (SARB, Annual Report, 2015). This has been partly due to the persistent increase of the repo rate in order to bring down the rate of inflation, thereby accelerating its trend rather than subduing it. Accordingly, various views, policies and a menu of strategy objectives arose in the wake of the recent global financial maelstrom as to how financial stability can be sustained in the face of economic shocks across the globe. Nonetheless, the use of monetary policy to attain financial stability has proven to be an insufficient condition on its own (Vanhoose, 2007). In addressing certain financial vulnerabilities, for instance, excessive leverage and maturity transformation, the effectiveness of monetary policy is less direct compared to regulatory or supervisory interventions.

These interventions, commonly known as macro-prudential banking regulation, according to Van Roy (2005), refer to policies that emphasise the use of prudential instruments to mitigate systemic risk across the financial market. In other words, Adrian, Fleming, Shachar and Vogt (2015) define it as a framework that improves the lines of defence against financial instability or vulnerability. The deleterious after-effects of the 2007 financial crisis clearly indicated the weaknesses of the micro-prudential regulation and monetary policies in mitigating systemic risk. It is no surprise, therefore, that the SARB openly acknowledges the association between macro-prudential banking regulation and monetary policy (SARB, Annual report, 2016). The need to carry out this study has been stirred by the fact that much of the empirical literature pertaining to prudential and supervisory oversight of financial institutions is found in advanced economies ((MAG, 2015); Were and Wambua (2014), (Woodford, 2012); Adrian, Fleming, Shachar and Vogt (2015)). The prominent of these studies used Bayesian estimation techniques and the Generalized Method of Moments (GMM), and their findings cannot be divorced from the relationship between minimum capital requirements and financial stability. Empirical studies in South Africa mainly focused on the effects of minimum capital requirements on banking efficiency and productivity (Havemann, 2014); Tabak and Souto, 2010). It follows therefore that there is a need to empirically investigate the relationship between macro-prudential banking regulation, interest rate spread and monetary policy in the context of South Africa.

This is important for three main reasons. For one, knowledge on the nexus between macro-prudential regulation, interest rate spread and monetary policy enables policymakers and the government to select and implement the correct prudential and monetary policy tool-kits that are aimed at strengthening the financial system and the general growth of the economy. In addition, this particular study will provide monetary authorities with empirical evidence in order to come up with precise and targeted policy measures as to when the monetary policy or macro-prudential regulation need to be tightened or contracted for any given various economic shocks. Thirdly, this study is of importance because the adoption of the inflation targeting in South Africa has never been empirically tested with current data to determine the nexus between macro-prudential policy, interest rate spread and monetary policy in South Africa.

Overview of Banking, Interest Rate Spread and Monetary Policy in South Africa: The structure of the South African banking sector is exhibited in Figure 1. Kganyago (2016) maintains that South Africa has a world-class banking system because of its compliance with the international banking regulation standards. The South African banking sector comprises 15 branches of foreign banks; 36 foreign bank representatives; 6 foreign-controlled banks; 10 locally controlled banks, and 3 mutual banks (SARB, 2016).

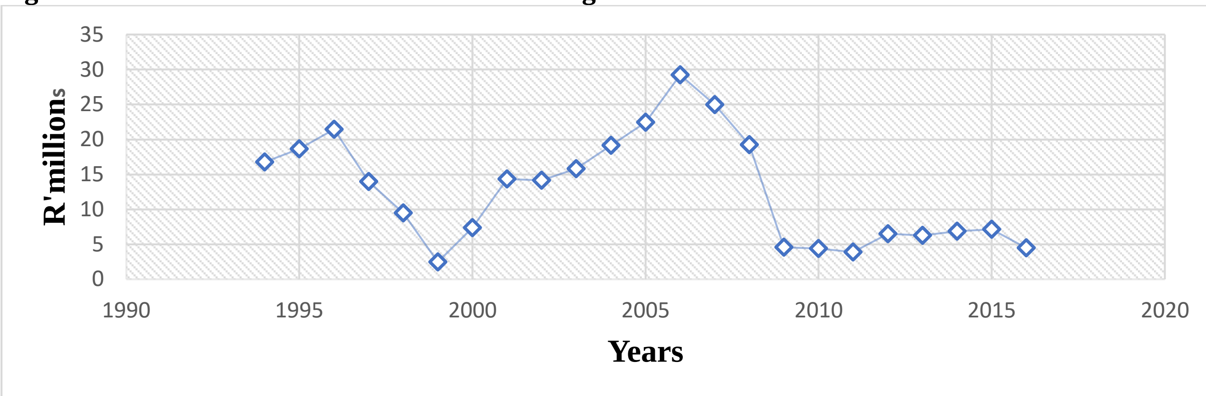
Figure 1: South African Registered Banks and Representative Offices



Source: SARB Annual Report (2015) and SARB Annual Report (2016)

The trends in credit growth for the South African banks are exhibited in Figure 2. Credit growth, as will be indicated in the methodology section, is used in this study as a proxy of macro-prudential banking regulation. Figure 2 clearly shows that credit growth swiftly dropped soon after the 2007-2009 financial crises. This could be attributed to the deepening of the banking regulation standards by the SARB, and the adoption of an accommodative monetary policy framework. The general growth in all the credit advanced to households averaged about 4% during 2014 and 2015. During the end of 2015 to the first quarter of 2016, the total lending to households has been negative in its real terms (SARB, 2016).

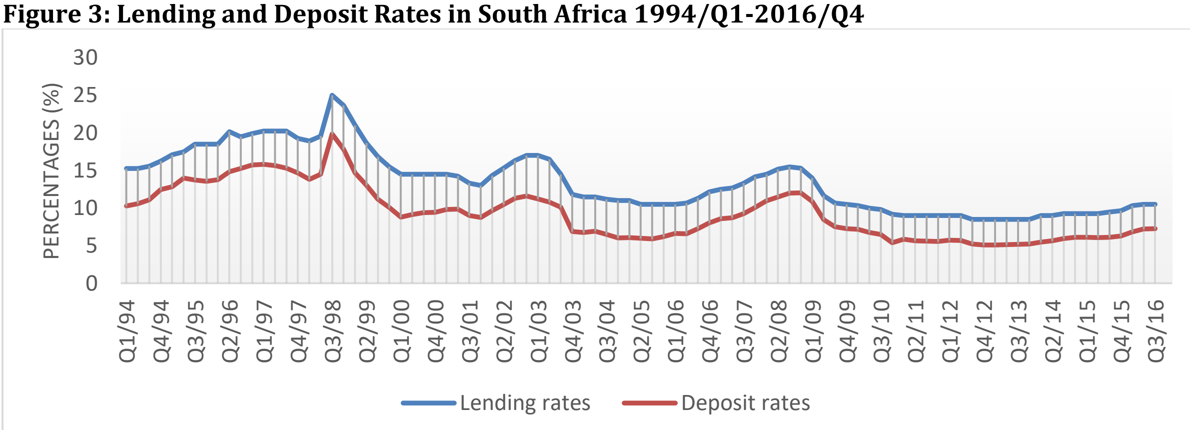
Figure 2: Trends in Credit Growth of the Banking Sector in South Africa



Source: SARB (2016)

The trends in the lending and deposits rates are exhibited in Figure 3, and the difference between these two rates is the interest rate spread. It can be seen from Figure 3 that the deposit and lending rates follow the same pattern, with lending rates fluctuating above the deposit rates. The lending rate in South Africa has remained unchanged during 2016, at about 10% from an average of 9% in 2014. The lending rates averaged 12% from 1994 until 2017, reaching an all-time high of 26% in August 1998 and a record low of 5% during the apartheid era in September 1990 (Kganyago, 2016).

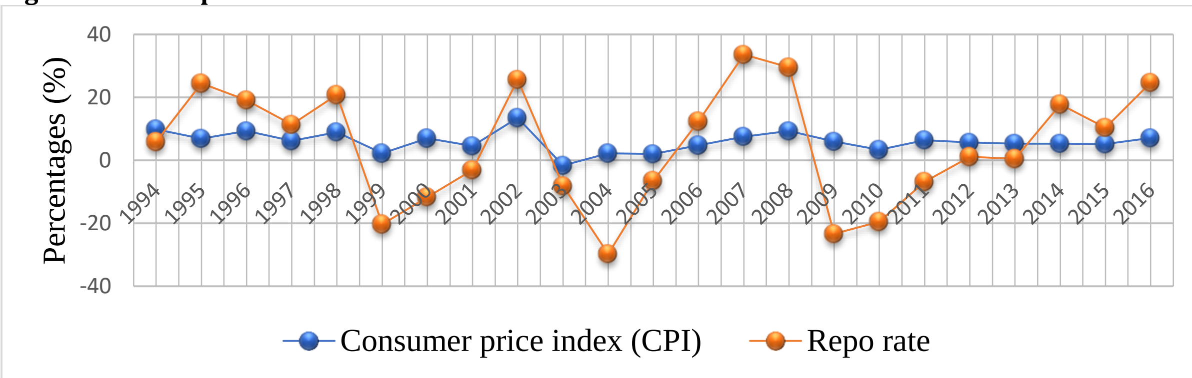
Figure 3: Lending and Deposit Rates in South Africa 1994/Q1-2016/Q4



Source: SARB (2016)

The trends in the South African repo rate and the inflation rate are depicted in Figure 4. Before the adoption of the formal inflation targeting in South Africa, inflation averaged 10%, which has declined to an average of 6% during the formal inflation targeting period (SARB, 2016). In addition, the average nominal policy rate slumped from 16% to 9% as the average real policy rate plummeted from 6% to an average of 3% since the year 2000 (Mboweni, 2010). A closer look on the economic trends in South Africa from 2010 indicate that the inflation rate has averaged 5%, real growth in GDP at about 3%, the repo rate 5.5% and the real repo rate at an average of 0.3% (SARB, 2016). It is interesting to note that the volatility in the trends of these variables is much lower in the formal inflation targeting period as compared to the period before the adoption of the formal inflation targeting in South Africa. The trends presented in Figure 4 shows that interest rates were sharply decreased to 6% between 2007 and 2009, with the inflation rate plummeting above 11% in 2009. The short-term interest rates were hiked by 0.5% during 2015, in anticipation that the inflation rate will remain above the maximum target of 6% (SARB, 2016). This was a cumulative increase of about 2% since the first quarter of 2014. The consumer price index (CPI) averaged 9% between 1994 and 2016, reaching a record low of 0.20% in the second quarter of 2004.

Figure 4: The Repo Rate and Inflation Rate in South Africa



Source: EIU (2016) and Quantec data

The rest of the paper is structured as follows: Section 2 deals succinctly with the literature review of the study. Section 3 presents the methodology employed in this paper. The results and discussion of findings are presented in section 4. Lastly, section 5 converses the conclusion and policy implications of the study.

2. Literature Review

The concept of macro-prudential banking regulation is founded within the traditional banking theory which is strongly built on the tenets that systemic risk is a major ingredient of financial instability. This theory, like the efficient market theory by Keynes, proposes that financial vulnerabilities, such as the 2007 financial melt-down, signifies inefficiency in policies to mitigate the effects of systemic risk (Meh & Moran, 2010). At the heart of the concept of systemic risk is the hypothesis of the inherent instability of financial systems (Vanhoose, 2007). When the financial system is unstable, the transmission mechanisms of monetary policy become ineffective and the inefficient intermediation functioning of financial institutions become a common phenomenon. Therefore, in order to ensure stability across the financial system, a number of studies have been undertaken to investigate the need for prudential regulation and oversight. One of the major studies in this area was undertaken by Macroeconomic Assessment Group (MAG) (2015), which used the Bayesian estimation techniques in the Arab region, and found that an increase in capital adequacy ratios of 1% point increases lending spreads by about 15 basis points, but this depends crucially on how banks can adjust their profitability.

Another study was conducted by Woodford (2012) in Spain to establish the correlation between macro-prudential regulation and the banking system soundness. It was found that capital adequacy requirements are asymmetric with an average of about 0.5% decrease in capital-to-assets ratio inducing about 1.6% increase in interest rates. However, they also concluded that a sudden increase of 1.5% in capital-to-assets ratio translates to an expansionary move of the monetary policy. Bebchuk and Goldstein (2011) estimated the effects of the Basel III minimum capital requirements on economic growth of the three main Organizations for Economic Cooperation and Development (OECD) economies, that is, Japan, USA, and the Euro area. It was found that a 1% rise in the ratio of capital to risk-weighted assets expanded interest rate spreads by about 14.4 basis points on average in these economies. It was further found that to conform to the new Basel III standards banks have to averagely increase their lending spreads by 15 and 50 basis points. The Basel III principles were found to drop the output growth rate by about 0.23% subsequent to 5 years of implementation translating to an average annual decline of the output growth rate of 0.05%.

Analogous results were confirmed by the MAG (2015) in their study of the effects of bank capital ratios in member countries. It was found that a 1% increase in the ratio of common equity to risk-weighted assets would bring about an increase in interest rate spreads of about 15.5 basis points. This was estimated to increase till the 35th quarter since the execution of the Basel III requirements and show signs of waning from then on. This was as a result of a 1.4% decrease in the lending capacity of banks. In another study by Havemann (2014) investigating the counter-cyclical capital buffers and interest rate policy as compliments in South Africa, it was found that a 1%-point shock to capital adequacy ratio has similar effects to an interest rate shock of between 0.3 and 0.4 percentage points. This study extended the standard large-scale macroeconomic model to include capital adequacy ratio as a policy lever. Similarly, Havrylchyk (2010) developed a macroeconomic credit risk model for stress testing the South African banking sector and it was found that macroeconomic shocks exert an average of 0.5% to 0.8% credit losses on the banking sector.

3. Methodology

The New Keynesian Dynamic Stochastic General Equilibrium Model (NKDSGEM) underpins the theoretical foundations of this study. Peersman and Straub (2006) maintain that the NKDSGE economic model is made up of four agents, namely, households, firms, the government and a monetary policy authority (the South African Reserve Bank). The representative household has the following budget constraint:

$$\frac{\beta_{t-1} + W_t l_t + D_t}{P_t} \geq c_t + \frac{\frac{\beta_t}{r_t}}{P_t} \tag{1}$$

Where, $W_t l_t$ represents nominal factor payments received by households after supplying some quantity of labour, $l_t i$, at a nominal wage rate of W_t. $\frac{B_t}{r_t}$ denotes the nominal price of new bonds and P_t represents the prices of goods and services. The notation D_t is a measure of the dividends that are paid to households. To prevent the households from excessive borrowing, we impose the No-Ponzi-game restriction, and the expected utility maximisation function of the representative household will take the form:

$$\mathrm{E}\sum_{t=0}^{\infty} \beta^t \left(\frac{c_t^{1-\delta}}{1-\delta} - \mathrm{x}\frac{l_t^{1+\eta}}{1+\eta}\right), \tag{2}$$

The subscript, $0 < \beta < 1$, captures the discount factor and $x > 0$ is a measure of the relative weight of the labour disutility the inverse of the elasticity of intertemporal substitution of consumption is denoted by the parameter $\delta \geq 0$. The Frisch labour supply elasticity is measured by $\eta \geq 0$. In order to decipher the optimisation problem of the representative household, the following Langrangian is formed:

$$\max_{c_t, l_t, \beta_t} A = \mathrm{E}\sum_{t=0}^{\infty}\left[\beta^t\left(\frac{c_t^{1-\delta}}{1-\delta} - \mathrm{x}\frac{l_t^{1+\eta}}{1+\eta}\right) - \beta^t \lambda_t\left(C_t + \frac{\frac{\beta_t}{r_t}}{P_t} - \frac{\beta_{t-1}}{P_t} - \frac{W_t l_t}{P_t} - \frac{D_t}{P_t}\right)\right], \tag{3}$$

The second agent in the NKDSGEM is the firms or businesses with an aggregate price level (P_t) of the form:

$$P_t = [\theta P_{t-1}^{1-\varepsilon} + (1-\theta)\,(P_t^*)^{1-\varepsilon}]\,\frac{1}{1-\varepsilon}, \tag{4}$$

The third agent is the government that exhibit the following budget identity:

$$P_t G_t + \beta_t - 1 = \frac{\beta_t}{R_t} - T_t + M_t M_{t-1}, \tag{5}$$

Where, G_t represents the consumption of the government of final goods that are financed by lump sum taxes and borrowing denoted by T_t, and the government issues bonds that are domestically held, these are represented by M_t. Lastly, the interest rate target is defined by means of a simple monetary policy rule that depends on inflation and the output gap as follows:

$$\frac{R_t}{R} = \left(\frac{\pi_t}{\pi}\right)^{\tau\pi} \left(\frac{Y_t^{gap}}{Y^{gap}}\right)^{\tau y} \nu_t, \tag{6}$$

Where, $\pi_t = \frac{P_t}{P_{t-1}}$, represent the gross inflation rate between period $t-1$ and t, and Y_t^{gap} denotes the output gap. The monetary policy shock v_t, captures the unsystematic components of the interest rate policy. The primary assumption of this model is that all agents in the economy are assumed to be conversant with this interest rate rule and the central bank supplies money stock to the extent that is demanded by households at the existing nominal interest rate, income and prices. The summation of formulation (the 3), (4), (5) and (6) gives the standard NKDSGE model.

Model Specification: Guided by the NKDSGE model discussed above, this study develops and extends upon the econometric model of Peersman and Straub (2006). Therefore, the model to be estimated takes the following form:

$$logRPRR_t = \alpha_0 + \beta_1 logFDEP_t + \beta_2 logTOPN_t + \beta_3 logIRS_t + \beta_4 logREXR_t + \beta_5\, logCRGW_t + v_t \tag{7}$$

The South African monetary policy is represented by $logRPRR_t$, $logFDEP_t$ denotes the financial depth, which is calculated as $\frac{M2}{GDP}$, trade openness $\left(\frac{(exports+imports)}{GDP}\right)$ is described by $logTOPN_t$, $logIRS_t$ represents the interest rate spread (lending rates – deposit rates), the South African real effective exchange rate is denoted by $logREXR_t$ and credit growth (a proxy of macro-prudential banking regulation) is represented by $logCRGW_t$, and v_t depicts the error term. The subscript α_0 denotes the intercept term, and β_1 to β_5 represents the coefficients of the regressors respectively.

Estimation Techniques: This study is an econometric attempt to establish the nexus between macro-prudential banking regulation, interest rate spread and monetary policy using the restricted Vector Autoregressive (VAR) model, that is, the Vector Error Correctional Model (VECM). However, prior to the estimation of the econometric model, the unit root in the series was analysed using the unit root tests, namely, the Augmented Dickey-Fuller (ADF) and the Generalised Dickey-Fuller (DF-GLS) test proposed by Elliot, Rothernberg, and Stock (1996). In order to carry out this study quarterly time series data extracted from two sources within the Quantec database, namely, the South African Reserve Bank and the Statistics South Africa was employed. The selection of the data period was informed by the interest to investigate the nexus between macro-prudential banking regulation, interest rate spread and monetary policy covering the inflation targeting period and the pre-and post-crisis phases that bruised the South African banking system. The econometric tools used to carry out this study were chosen because the vectors proved to be I(1) in their second difference form and I(0) in levels. To investigate the long run relationship between the variables, the Johansen cointegration technique was employed.

Cointegration Tests and the VECM: If the variables are found to be non-stationary and integrated of the same order, then the Johansen (1995) and Johansen and Juselius (1995) cointegration test will be performed to determine the long-run association ship between the variables. The pre-condition of the VECM methodology is that the data should become stationary after first difference and it should be integrated of the same order (Clemente, Montanes and Reyes, 1998). If the data series satisfy this pre-condition then the restricted VAR, namely the VECM (otherwise the unrestricted VAR will be run) and other econometric tests such as the Wald test, diagnostic checks, residual tests and the test of normality in the residuals will be performed.

4. Results and Discussion

In order to give proper treatment to time series data, the variables must be non-stationary in levels. The most econometric applications will be possible if all the variables become stationary after they are converted into first difference (Gujarati, 2004). According to the results depicted in Table 1, all of the ADF statistics become integrated of the same order after the first difference. Similarly, the DF-GLS test results of unit root, as shown in Table 1, shows that all the other variables become stationary or integrated of the same order after being first differenced.

Table 1: Unit Root Results

ADF Unit Root Test				DF-GLS Test		
Variable	**Statistics in levels**	**Statistics in 1st difference**	**Order of integration**	**Statistics in levels**	**Statistics in 1st difference**	**Order of integration**
CRGW	-2.98	-2.475**	1(1)	-1.623	-2.592***	1(1)
RPRR	-1.345	-3.876	1(1)	-2.306	-6.283	1(1)
IRS	-4.901*	-5.243	1(1)	-5.298*	-5.298	1(1)
FDEP	-1.98	-9.922	1(1)	-1.683	-3655	1(1)
TOPN	-2.322	-13.771	1(1)	-2.031	-2.564**	1(1)

*/ **/ *** denotes rejection of H_0 @ 10%/ 5%/ 1% level of significance respectively
Source: Author's computation using E-views 9 Econometric Software

Cointegration Test Results: The vectors in the model have met the preconditions of the Johansen test of cointegration, namely, non-stationarity of variables in levels or integrated of the same order after first difference. Therefore, we proceed with the testing of the existence of any long-run relationship between the vectors using the Johansen test of cointegration. The test results of the Johansen cointegration are shown in Table 2(a) and 2(b). This study applied the unrestricted cointegration rank test (Trace) and the Maximum Eigenvalue rank test of cointegration to test the long-run relationship between the vectors.

Table 2(a): Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.509377	169.9344	95.75366	0.0000
At most 1*	0.405674	107.2715	69.81889	0.0000
At most 2*	0.313563	61.48264	47.85613	0.0016
At most 3	0.174623	28.37350	29.97907	0.0723
At most 4	0.099534	11.48497	15.49471	0.1834
At most 5	0.025342	2.258850	3.841466	0.1329

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values

Table 2(b): Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None*	0.509377	62.66292	40.07757	0.0000
At most 1*	0.405674	45.78881	33.87687	0.0012
At most 2*	0.313563	33.10914	27.58434	0.0088
At most 3	0.174623	16.88852	21.13162	0.1773
At most 4	0.099534	9.226125	14.26460	0.2678
At most 5	0.025342	2.258850	3.841466	0.1329

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values
Source: Author's computation using E-views 9 Econometric Software

The unrestricted cointegration rank test (Trace), as exhibited in Table 2(a), shows 3 cointegrating equations at the 5% significance level. Deducing from Table 2(a), the p-value of 0.0000 is very small and below 5% warranting the rejection of the null hypothesis that there are no cointegrating equations in the model. The p-value of 0.16% is below 5% meaning that the null hypothesis that there are at most 2 cointegrating equations is rejected hence the hypothesis that there are 3 cointegrating equations at a p-value of 7.23% accepted. The maximum Eigenvalue cointegration test results also confirm 3 cointegrating equations at the 5% significance level. According to Table 2(b), the p-value of 17.73% is above 5% meaning that the null hypothesis that at most 3 cointegrating equations exist in the model cannot be rejected. The results of the VECM are presented in Table 3.

Table 3: The VECM Results

Variable	Coefficient	Standard error	T-statistic
RPRR	1.000	0.181	2.035
TOPN (-1)	-16.670	2.631	-6.336
REXR (-1)	0.066	0.010	6.784
FDEP (-1)	-7.396	0.910	-8.127
CRGW (-1)	4.660	1.100	4.137
IRS (-1)	8.897	1.472	6.044
Constant	56.802	0.281	1.036

Source: Author's computation using E-views 9 Econometric Software

The Johansen cointegration results have exhibited the existence of cointegrating vectors in the model, thus necessitating the estimation of the restricted VAR, that is, the VECM. The standard econometric analysis practice recommends that the signs of coefficients of variables be reversed when inferring the results under study. The results show that the estimated model has a constant of -56.80 and the repo rate (RPRR) is the dependent variable with a coefficient of 1. The variable of trade openness (TOPN) and financial depth (FDEP) are positive (16.70) and (7.396) respectively, and their t-statistics are greater than the critical value of 2, thus, there exists a long-run positive relationship between trade openness, financial depth and the repo rate in South Africa. These results concur with the findings of Woodford (2012) who later concluded that an increase of 1.5% in capital-to-assets ratio translates to an expansionary move of the monetary policy. This means that there exists a positive relationship between monetary policy and financial depth in South Africa. A negative long-run relationship exists between the real exchange rate (REXR), credit growth (CRGW) interest rate spread (IRS) and the repo rate.

This is because the coefficients of the real exchange rate (-0.07), credit growth (-4.66) and interest rate spread (-8.90), are negative in sign and their t-statistics, -6.78, -4.14 and -6.04 respectively, are all significant. Likewise, Bebchuk and Goldstein (2011) could not refute the evidence that a 1% rise in the ratio of capital to risk-weighted assets expanded interest rate spread by 14.4 basis points on average in Japan and USA. Their findings pointed to a lower negative relationship between credit growth and the repo rate compared to the 5% effect credit growth have on the repo rate in South Africa. In addition, the results of the error correction term, in their automatic first difference form, shows that trade openness (coefficient = -0.193 and t-statistic = -0.98), indicates that the model will move back to equilibrium at an average speed of 19%. The real exchange rate, financial depth and interest rate spread also indicate that the model will return to equilibrium after an exogenous shock at a speed of about 0.23%, 17% and 121% respectively. This speed of adjustment is a bit higher than that obtained in previous studies in South Africa, for instance, Havemann (2014) concluded that a 1%-point shock to capital adequacy ratio has similar effects to an interest rate shock of between 0.3 and 0.4 percentage points.

Nevertheless, the results of the VECM presented in Table 3 do not have probability values to critically analyze the VECM results. To obtain probability values, the systems equation was employed and the results are reported in Table 4. The error correction term or the speed of adjustment towards the equilibrium, according to Table 4, is represented by C (1). If C (1) is negative in sign and significant, then there is a long run causality running from the regressors to the dependent variable. The coefficient of C (1) is 0.028 and its p-value is 39%, therefore, there is no long-run causality running from the explanatory variables to the regress and because the coefficient and the probability value of C (1) are non-negative and insignificant respectively. The non-existence of a long run causality running from, for example, credit growth to the repo rate, was confirmed in the empirical findings of Havrylchyk (2010) who asserted that macroeconomic shocks exert an average of 0.5% to 0.8% credit losses on the banking sector. This study further concludes that consideration should be given to the stock of credit that is extended by financial institutions when setting the monetary policy.

Table 4: The Systems Equation of the VECM Test Results

	Coefficient	Std. Error	T-Statistic	P-value
C (1)	0.028187	0.32639	0.863574	0.3909
C (2)	0.792688	0.129852	6.104537	0.0000
C (3)	-0.403510	0.158483	-2.546077	0.0132
C (4)	-0.110652	0.133233	-0.830521	0.4092
C (5)	-0.002188	0.004421	-0.494948	0.6222
C (6)	0.001471	0.004440	0.331362	0.7414
C (7)	-0.006536	0.004480	-1.459155	0.1491
C (8)	-0.193133	1.969956	-0.098039	0.9222
C (9)	1.889877	2.045336	0.923993	0.3588
C (10)	4.487606	1.816190	2.470890	0.0160
C (11)	5.87E-06	5.48E-06	1.070660	0.2881
C (12)	3.00E-06	5.73E-06	0.522982	0.6027
C (13)	4.74E-07	6.05E-06	0.078323	0.9378
C (14)	0.779065	0.403779	1.929435	0.0579
C (15)	-1.210195	0.408053	-2.965776	0.0042
C (16)	0.343549	0.407048	0.844002	0.4016
C (17)	-0.165013	0.516123	-0.319716	0.7502
C (18)	0.320942	0.435313	0.737266	0.4635
C (19)	-0.118568	0.476199	-0.248989	0.8041
C (20)	-0.194055	0.197756	-0.981285	0.3299

R-squared = 0.612412 Adjusted R-squared = 0.504115 Prob(F-statistic) = 0.000000

Source: Author's computation using E-views 9 Econometric Software

Table 5: Analysis of the VECM

Null hypothesis	Test Statistic	Probability
C (5) = C (6) = C (7) = 0	F-statistic	0.1060
	Chi-square	0.0956
C (8) = C (9) = C (10) = 0	F-statistic	0.4947
	Chi-square	0.4901
C (11) = C (12) = C (13) = 0	F-statistic	0.0000
	Chi-square	0.0000
C (14) = C (15) = C (16) = 0	F-statistic	0.8830
	Chi-square	0.8834
C (17) = C (18) = C (19) = 0	F-statistic	0.5258
	Chi-square	0.5219

Source: Author's computation using E-views 9 Econometric Software

The null hypotheses, test statistics and probability values for the long run and short run causality analysis of the VECM are presented in Table 5. Using the Wald test, the short run causality running from the independent variable to the dependent variables was carried out. The null hypotheses given in Table 5 have probability values greater than 5%, except for the null hypothesis that C (11) = C (12) = C (13) = 0. This means that, in exception of the null hypothesis with a probability value less than 5%, we fail to reject all other null hypotheses and it can be concluded that there is no short-run causality running from real exchange rate, trade openness, interest rate and financial depth to the repo rate. The null hypothesis that C (11) = C (12) = C (13) = 0, with a probability of 0%, which is less than 5%, is rejected and it can be concluded that there is a short run causality running from credit growth to the repo rate.

Diagnostic Test Results: Table 6 shows the diagnostic test results of the estimated model. The R^2 (61%) is greater than 60%, and F-statistic (0%) is significant and it can therefore be concluded that the data is fitted well in the model.

Table 6: Diagnostic Test Results

Test	Null hypotheses	Obs-R^2	p-values
Breusch-Godfrey Serial Correlation (LM)	No serial correlation	4.89	18.03
Breusch-Pagan-Godfrey	There is conditional heteroscedasticity	37.85	3.59
Jarque-Bera (JB)	Residuals are normally distributed	14.86	0.06

Source: Author's computation using E-views 9 Econometric Software

The presence of serial correlation in the model was tested using the Breusch-Godfrey Serial Correlation LM Test. The observed R-squared is 4.89 and the probability Chi-Square using 3 lags is 18.03%. This means that the null hypothesis that there is no serial correlation in the model cannot be rejected rather we accept the null hypothesis. This is good for the model. The Heteroskedasticity test was performed using the Breusch-Pagan-Godfrey test. The observed R-squared and the probability Chi-square are 37.85% and 3.59% respectively. The probability value (3.59%) is significant and less than a 5% significance level, therefore, the null hypothesis that there is heteroscedasticity in the residuals is rejected. Rather the alternative hypothesis that there is no heteroscedasticity in the residuals is accepted. This means that the residuals are homoscedastic and this is desirable for the model. The test of normality in the residuals shows Jarque-Bera of 14.86 and a probability value of 0.06%, which is less than 5%. This demonstrates that the null hypothesis that the residuals are normally distributed is rejected, which is not desirable for the model.

5. Conclusion and Policy Implications of the Study

In this paper, we have examined the nexus between macro-prudential regulation, interest rate spread and monetary policy in South Africa using quarterly time series data spanning from 1994Q1 to 2016Q4. The results of the unit root tests exhibited that the variables used in this study were I(1) processes. A long-run relationship between the vectors under study was confirmed by the Johansen tests of cointegration. As a result, the VECM test was employed. The results of the VECM show that there exists a long-run positive relationship between trade openness, financial depth and the repo rate in South Africa. Moreover, a negative long-run relationship exists between the real exchange rate, credit growth, interest rate spread and the repo rate. In addition, the findings of this study provided strong evidence that the model will move back to equilibrium after an exogenous shock. Using the systems equation to analyse the restricted VAR model, it was found that no long-run causality running from credit growth, interest rate spread and other regressors to the repo rate exists in South Africa. However, the results of this study demonstrated that a short-run causality running from credit growth to the repo rate is present in South Africa. These results concur with the findings of Aikman et al. (2015) who, though with different explanatory variables, confirm a short-run causality running from credit growth to the real interest rate in South Africa. The SARB should carefully monitor the conditions across the credit market in line with its inflation targeting monetary policy rule.

Nonetheless, the endogeneity of credit raises concern in the South African financial sector as interest rates are used to influence credit growth. The findings of this study support the idea that a sound monetary policy must swiftly deal with credit bubbles and equally accommodate the prudential mechanisms in dealing with systemic risk. To achieve this government and monetary authorities must be prepared to encounter the challenge of choosing the most suitable and directed tools of each policy such that the stability of the economy is ensured. This study recommends that caution should be taken on the appropriate selection of measures of macro-prudential regulation and its tool-kit as it can be used to cover for the lax of the current monetary policy in South Africa. The tightening of the monetary policy, usually in the form of risings the repo rate should be motivated by an increase in demand and inflation risks. Conversely, a domestic boom in economic growth and persistent current account surpluses should attract the appreciation of the real exchange rate not necessarily an increase in credit growth. Therefore, this study strongly recommends that the SARB maintain its primary mandate of price stability with some variations targeted at improving the lives of the South Africans. Lastly, the estimation techniques that were used to carry out this study do not constitute a final and definitive work. Further research could be carried out using other techniques to broaden the understanding of the nexus between macro-prudential banking regulation, interest rate spread and monetary policy in South Africa.

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Emotional Intelligence as a Moderator in the Relationship between Occupational Stress and Organizational Citizenship Behavior among Nigerian Graduate Employees

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Abstract: The study investigated emotional intelligence as a moderator in the relationship between occupational stress and organizational citizenship behavior among graduate employees in Nigeria. The purpose of the study was in twofold: firstly, to empirically examine the relationship between occupational stress and organizational citizenship behavior. Secondly, to empirically investigate if emotional intelligence would moderate the relationship between occupational stress and organizational citizenship behavior. The study was conducted to demonstrate whether the presence of emotional intelligence could result in a better level of employee performance, even as employees experience a certain level of occupational stress. In view of the above, the study has contributed to the formation of a new model of psychological intervention for occupational stress and organizational citizenship behavior. The study adopted the positivist explanatory cross-sectional (survey) research design to systematically sample opinions of 1,532 male and female graduate employees across. The various sectors of the Nigerian economy, using a structured and validated questionnaire and version 20 of the Statistical Package for the Social Sciences (SPSS), two hypotheses were stated and analyzed using Pearson Correlation Analysis and Multiple Regression Analysis while the percentage, mean, standard deviation and the frequency of the biographical and occupational data were also determined by the descriptive statistics. The results showed that there was a weak positive relationship between occupational stress and organizational citizenship behavior. Emotional intelligence significantly moderated the relationship between occupational stress and organizational citizenship behavior. Human resource managers should develop emotional intelligence in employees in order to increase the level of organizational performance, and reduce the negative impact of occupational stress. This could be achieved through training and seminar participation. Recommendations of the study could assist in training and developing effective manpower capacity towards improving the economy of the nation.

Keywords: *Emotional intelligence, human resource management, occupational stress, organizational citizenship behavior, performance, psychological intervention.*

1. Introduction

Scholars have linked challenges that relate to organizational citizenship behavior to high levels of occupational stress (Baxter, 2010; Laschinger, 2011; Shafaghat, Zarchi & Kavosi, 2018). In the same vein, studies have shown that occupational stress is significantly related to both task-related work behavior and non-task related work behavior of employees (Adebiyi, 2013; Arogundade & Lawal, 2016; Niks, de Jonge, Gevers & Houtman, 2018). The World Health Organization has also reported occupational stress as a global epidemic (WHO, 2010). The consequences of an increasingly strenuous work environment are evident in Nigerian work settings, as cases of job dissatisfaction, a high rate of absenteeism, employee intention to quit, labor turnover, and poor job performance (contrast to organizational citizenship behavior) is prevalent (Adebayo & Ogunsina, 2011; Adebiyi, 2013; Adetayo, Ajani & Olabisi, 2014; Arogundade & Lawal, 2016). One variable that has been identified in the literature that can reduce the impact of organizational stress on outcomes is that of emotional intelligence (Greenidge & Coyne, 2014).

The study describes emotional intelligence as the capacities of individual employees to precisely observe feelings, to access or elicit emotions so as to promote desirable organizational behaviors, to understand feelings and emotional information regarding the realities of organizational resources and goals, and to thoughtfully control reactions in order to enhance organizational performance (Soran, Balkan & Serin, 2014). Further, the study explains emotional intelligence as a graduate employee's ability to think about feelings and emotions in order to enhance reasoning, in the face of challenging and stressful work situations (Gökçe, Emhan, Topuz & Şimşek, 2015). It was considered in the study as a moderator, because it is believed to have the potential to reduce the negative impacts, which occupational stress may have on organizational citizenship behavior.

So far, broad studies throughout the years have centred more on identifying stressors (Paillé, 2011; Brynien & Igoe, 2016). The literature further reveals that most studies conducted on occupational stress have concentrated on determinants. As opposed to outcomes such as employee performance, turnover intention, turnover behavior and employee productivity (American Psychological Association, 2013; Goh, Pfeiffer & Zenios, 2015), hence, few scientific investigations have been conducted to devise psychological intervention strategies to ameliorate the situation and ensure organizational citizenship behavior (Ahmad, Hussain, Saleem, Qureshi & Mufti, 2015; Niks, de Jonge, Gevers & Houtman, 2018). Furthermore, though there is increasing consideration of the phenomenon of organizational citizenship behavior by researchers, a thorough review of the literature shows a lack of agreement about the scope of the concept (Farzianpour, Foroushani, Kamjoo & Hosseini, 2011). However, the current study sought to fill the existing vacuum identified in the literature through the research purpose stated below. The purpose of the study is in twofold; firstly, to empirically examine the relationship between occupational stress and organizational citizenship behavior. Secondly, to empirically investigate if emotional intelligence would moderate the relationship between occupational stress and organizational citizenship behavior.

2. Literature Review

Conceptual Literature

Organizational Citizenship Behavior: Organizational citizenship behavior is an essential phenomenon in the formal work setting because of its potential to facilitate interpersonal relationships among employees, and also to increase organizational performance (Pradhan, Jena & Bhattacharya, 2016). Organizational citizenship behavior is an alternative form of performance behavior, which is differentiated from the traditional performance that relies heavily on official assignments and tasks (Karolidis, 2016). For instance, having subordinates who are highly engaged in organizational citizenship may improve managers' efficiency by allowing them to devote a greater amount of time to long-range planning matters. Hence, managers, employees and organizations at large benefit from these positive behaviors (Lelei, Chepkwony & Ambrose, 2016). These behaviors are explained by concepts such as pro-social behaviors, extra-role behaviors, contextual performance, spontaneous behaviors or organizational citizenship behavior. In the contemporary world of work, organizational citizenship behavior is one of the variables that improve performance and the quality of services that are provided by the employees (Behtooee, 2016). It can lead to greater achievement of organizational aims and objectives. Organizational citizenship behavior is a central part of performance management. Employees who engage in the behavior are mostly found to be predisposed to it while others are shaped by the influence of the environment. It consequently implies that organizational citizenship behavior could be the result of nature or nurture in terms of development, and it could as well be accounted for by the combination of the two broad factors (Karolidis, 2016).

Occupational Stress: Occupational stress is a negative career-related concept that generates concerns among career holders, and it has the ability to influence individual and organizational outcomes (Beheshtifar & Nazarian, 2013). In other words, occupational stress is a negative phenomenon, the occurrence of which often stimulates an unpleasant response to the work environment making it appear threatening to the employees. Moreover, prolonged occupational stress could manifest itself physically, emotionally and psychologically in the lives of the affected employees. According to Chandra and Parvez (2016), a commonly reported physical symptom of occupational stress is headaches, which makes the affected employees unconsciously tense in their necks, foreheads and shoulder muscles. The other known symptoms of occupational stress are digestive problems, ulcers, hypertension, anxiety and inordinate sweating, coronary illness, strokes and even male pattern baldness.

Emotionally, an affected employee frequently displays nervousness, anger, depression, fractiousness, frustration, and an absence of focus for any assignment, because the mind of the individual is negatively impacted (Ahmad, Hussain, Saleem, Qureshi & Mufti, 2015). The psychological manifestations of occupational stress, on the other hand, include withdrawal from society, phobias, compulsive behaviors, eating disorders and night fears (Goh, Pfeiffer & Zenios, 2015). It consequently results in counterproductive work behaviors or negative work behaviors such as intention to quit, low productivity and actual turnover behavior among others (Yahaya, Yahaya, Ma'alip, Ramli & Kamal, 2012) if it is not well managed. Among the various identified job conditions that lead to occupational stress, according to Narban, Narban and Singh (2016), are the design of tasks (such as underutilization of employees' ability or skill, high workload, inconsistent rest times, long work durations.

Routinely hectic tasks, minimal control over work, and rigidity), management style (such as lack of employees' involvement in management decisions, poor organizational communication, lack of employee-friendly policies, poor consideration of employee family needs) and interpersonal relationships (such as poor social environment and low level of support or lack of help from co-employees and superiors). The other conditions are work roles (such as conflicting job expectations and overwhelming responsibility), career concerns (such as job insecurity, lack of opportunity for career development and frequent organization changes) and unpleasant or dangerous environmental conditions such as air pollution overcrowding and noise (Narban, Narban & Singh, 2016).

Emotional Intelligence: The concept of emotional intelligence (EI) is viewed by Mayer, Salovey and Caruso (2004) as a person's ability to think about feelings and emotions in order to enhance reasoning. It entails the capacities of individuals to precisely observe feelings, to access or elicit emotions, to understand feelings and emotional information, and to thoughtfully control reactions in order to enhance enthusiastic and scholarly development (Mayer & Salovey, 1997). Emotional intelligence is also described as a force that drives human behaviors and actions (Akinboye, 2002). However, Bar-On (1997) defines emotional intelligence as an accumulation of non-cognitive competencies, skills and abilities that impact one's capacity to prosper in managing situations and pressures positively. Hence there is a little assertion about whether emotional intelligence signifies a cognitive capacity for processing emotional stimuli, characteristics of personality such as integrity and charisma, or some aptitude for coping with challenging circumstances. According to Deshwal (2016), emotional intelligence is a variety of abilities and skills that covers a wide collection of individuals' expertise and personalities that are normally allude to as soft inter - and intra-individual aptitudes.

Which are beyond the conventional parts of overall intelligence, specialized or proficient aptitudes and specific knowledge in addition, emotional intelligence refers to the aptitude of a person to perceive, evaluate and control emotions. In other words, it is the awareness of emotion and enthusiastic management aptitudes which offer the capacity to adjust feeling and reason in order to expand a positive state of mind. Similarly, Venkteshwar and Warrier (2016) describe emotional intelligence as the capacity to recognize one's own moods and those of fellow human beings. According to Goleman (1997), emotional intelligence connotes what you feel, the ability to control those emotions without them overwhelm you, the ability to encourage yourself to have jobs completed, to be imaginative and operate at your peak, perceiving what others feel and managing relationships effectively. It consists of five factors: recognizing emotions in others, managing emotions, handling relationships, motivating oneself and knowing one's emotions (Palmer & Stough, 2001).

Empirical Literature Review

The Relationship between Occupational Stress and Organizational Citizenship Behavior: In a recent descriptive-correlational study of the relationship between organizational citizenship behavior and occupational stress that was conducted among 122 midwives in Mashhad, Iran, by Nourani, Kohansal, Esmaily and Hooshmand (2016), it was found that there is a significant negative association between organizational citizenship behavior and occupational stress. Likewise, Arogundade and Lawal (2016) investigated the influence of perceived occupational stress on organizational citizenship behavior among 300 male and female bankers in Lagos, Nigeria, using a simple random sampling technique. Though results of the study revealed that there is no significant difference in the levels of organizational citizenship behavior that were exhibited by bankers with higher stress levels and those with lower stress levels, there is an inverse relationship between occupational stress and organizational citizenship behavior.

Moreover, Soo and Ali (2016) studied the link between occupational stress and organizational citizenship behavior among a sample of 472 bankers in Malaysia. The findings of Soo and Ali's (2016) study revealed that there is a significant negative impact of occupational stress on organizational citizenship behavior. In the same vein, Gregory, Yitzhak and Steffen (2016) scientifically examined the proposed need to distinguish between self-initiated and organizationally imposed overload in studies of work stress, using three samples, which consisted of 116 male and female full-time employed students in three countries, some nursing staff of six private hospitals in Switzerland, and 161 middle manager-supervisor dyads in Switzerland.

The study revealed that self-initiated imposed overload is significantly positively related to organizational citizenship behavior, but organizationally imposed overload is not a significant predictor of organizational citizenship behavior. Furthermore, Ikonne and Madukoma (2016) conducted a survey on the relationship among organizational citizenship behavior, job stress and satisfaction among 109 librarians in some selected universities around the south-west region of Nigeria. The results of the study show that there is a significant negative relationship between organizational citizenship behavior and job stress. In addition, Uzonwanne (2014) conducted survey research on depression, anxiety and stress as correlates of organizational citizenship behavior, using the convenience sampling technique to sample 151 female and 149 male employees of oil and gas companies in Ogun State, Nigeria. The outcomes of the research show that there is a significant positive relationship between occupational stress and organizational citizenship behavior. The findings of the study also indicate that, though there is a statistically positive relationship between the two variables, the observed positive relationship is weak considering the r-value of 0.118, which is close to 0.

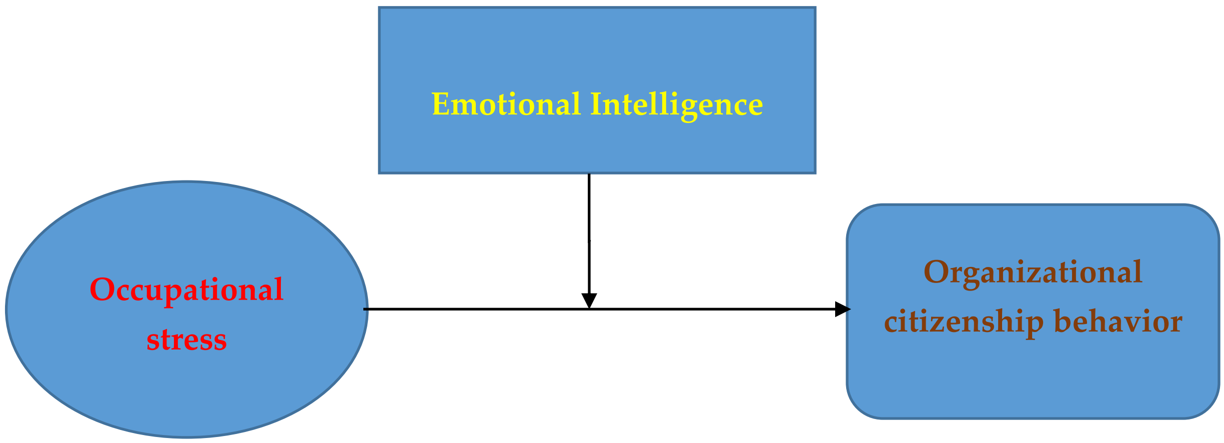
Emotional Intelligence as a Moderator in the Relationship between Occupational Stress and Organizational Citizenship Behavior: Hameed (2016) studied the moderating role of emotional intelligence in the relationship between surface acting-emotional exhaustion and deep acting-emotional exhaustion among two samples: 471 female frontline service employees and 76 supervisors and heads of different hotels in Pakistan. The results of the investigation indicate that emotional intelligence moderates surface-acting emotional exhaustion relationships as well as deep-acting emotional exhaustion connections. The findings further showed that emotional exhaustion mediated the relationship between surface acting-adaptive performance and deep acting-adaptive performance. However, Hwa and Amin (2016) in their survey of the moderating role of emotional intelligence in the relationship between emotional labor, deviant behavior and organizational citizenship behavior among a sample size of 205 male and female employees that were drawn from the population of employees in the Malaysian Employer Directory, report that emotional intelligence is not a significant moderator of the relationship between emotional labor and organizational citizenship behavior.

On the other hand, Gökçe, Emhan, Topuz and Şimşek (2015) conducted an empirical study on the mediating role of emotional regulation in the relationship between job stress and performance among a sample size of 392, which was drawn from a population of employees that were working in the automotive sector in Diyarbakır, Turkey. The findings of the study show that emotional regulation played a significant mediating role in the relationship between job stress and performance. Likewise, Soran, Balkan and Serin (2014) examined the moderating impact of emotional intelligence in the relationship between job stress and employee performance among 265 bankers in Turkey. In their study, performance was equated to employee citizenship behavior. The outcomes of the study revealed that emotional intelligence had a moderating effect on the relationship between job stress and employee performance. Similarly, Irshad and Hashmi (2014) explored the mediating role of emotional intelligence in the relationship between organizational citizenship behavior and transformational leadership among a sample size of 300 male and female employees, which were drawn from the population of employees in the banking sector of Pakistan's economy.

The results of the study provided evidence that emotional intelligence is a significant mediator of the relationship between organizational citizenship behavior and transformational leadership. Further, Greenidge and Coyne (2014) investigated the mediating role of emotions in the relationship between job stressors and organizational citizenship behaviors among a sample of 202 Caribbean employees across eight public and private sector organizations. The findings of the study show that both positive and negative emotions mediated the relation between job stressors and citizenship behaviors. Furthermore, Santo's (2012) research focused on investigating the moderating roles of personal and organizational variables in the effect of emotional dissonance on organizational citizenship behavior among a sample of 222 nurses who were drawn from the population of nurses in hospitals within the northern region of Italy. The findings of the study revealed that empathy (a measure of emotional intelligence) is a significant moderator of the relationship between emotional dissonance and organizational citizenship behavior.

Conceptual Model: Based on the previous studies reviewed and on logical grounds, a conceptual model was developed indicating the hypothesized relationship between occupational stress and organizational citizenship behavior; and the moderating role of emotional intelligence. Organizational citizenship behavior is depicted as the dependent variable, while occupational stress is the independent variable, with emotional intelligence as the moderating variable. The conceptual model demonstrated in Figure 1 indicates the moderating role of emotional intelligence in the relationship between occupational stress and organizational citizenship behavior.

Figure 1: Emotional Intelligence as a Moderator of the Relationship between Occupational Stress and Organizational Citizenship Behavior



Statement of Hypotheses:

Hypothesis 1
H_0: Occupational stress is not significantly correlated with organizational citizenship behavior.
H_1: Occupational stress is significantly correlated with organizational citizenship behavior.

Hypothesis 2
H_0: Emotional intelligence is not a significant moderator of the relationship between occupational stress and organizational citizenship behavior.
H_1: Emotional intelligence is a significant moderator of the relationship between occupational stress and organizational citizenship behavior.

3. Methodology

Research Design, Sample and Procedure: The study adopted a positivist explanatory cross-sectional survey research design. The explanatory cross-sectional survey research was considered appropriate for the study because the researchers used the positivist approach by means of quantitative data generation, and hypotheses testing (Bhattacherjee, 2012). The probability (The North Carolina Centre for Public Health Preparedness' (2013) two-stage sampling scheme, and The Research Advisors (2006) Calculated Sample Size Table), and non-probability sampling (purposive and convenience) techniques were employed in this investigation. The sample comprised of 916 (60%) male and 616 (40%) female graduate employees from 19 sectors of the Nigerian economy. Among the participants, 202 (13.2%) were graduate employees from the educational sector, 38 (2.5%) from the research institutes, 51 (3.3%) from the transportation sector, 291 (19%) from the finance and insurance sector.

Furthermore, 83 (5.4%) of those that participated were from the fast-moving consumer goods per internet (FMCGs) Industry, 21 (1.4%) from the commercial sector, 70 (4.6%) from the healthcare sector, 8 (0.5%) from the aviation sector, 77 (5.0%) from the agricultural sector and 57 (3.7%) from the information. All participants were Nigerian English speakers, and their ages ranged from 20 years to 65 years old. Relatively, 974 (63.6%) of the participants were senior staff while the remaining 558 (36.4%) were junior staff. Besides, 730 (47.7%) of the participants were government employees, and 802 (52.3%) were employees in the private sector. Data were collected by means of paper-pencil inventories (structured validated questionnaires), which were distributed to employees in large lecture auditoriums during their weekend (Saturdays) part-time professional postgraduate programs.

Ethical Consideration: The participants' voluntary participation in the study was sought through a letter of consent, signed by each of the participants. The participants were informed about the importance of the study as the findings from the study may positively influence the government policy helping in improving their conditions of employment and service respectively. Moreover, assurance was given to the participants in respect of confidentiality of all information supplied. Furthermore, the participants were instructed not to give a form of identification such as name, identity number or organizational affiliation. With utmost sincerity, information concerning the study and its outcomes was accurately submitted to the appropriate institutions. Thus, it was ensured that no instance of misleading information was given in the course of the study. The researchers also ensured that the study was conducted in a conducive, environment such that it would not expose the participants to any physical or psychological harm. The Research Ethics Committee of the University of Fort Hare furthermore granted approval for ethical clearance of the study (Certificate reference number: MJO071SADE01).

Measuring Instruments: Three established scales of measurement were used to assess emotional intelligence, occupational stress and organizational citizenship behavior. In the three renowned public and private universities (University of Ibadan, Obafemi Awolowo University and the Pan-Atlantic University), situated in Oyo, Osun and Lagos states of Nigeria.

Occupational Stress: A 9-item scale of job stress that was developed and validated by Jamal and Baba (1992) was utilized to measure occupational stress. The measure was designed with a 5-point Likert-type response format ranging from 1/ (Strongly disagree) to 5/ (Strongly agree). The sample items on the scale include "My job makes me nervous," "Sometimes when I think about my job I get a tight feeling in my chest." The authors reported a Cronbach Alpha coefficient score of 0.83 for the scale, while the present study yielded a Cronbach Alpha coefficient score of 0.80 for the measure of occupational stress.

Organizational Citizenship Behavior: A 15-item modified version of Podsakoff, Mackenzie, Moorman, and Fetter's (1990) organizational citizenship behavior questionnaire by Argentero, Cortese and Ferretti (2008) was utilized to measure organizational citizenship behavior. The construct consisted of altruism, conscientiousness and civic virtue sub-scales, with a 5-point Likert-type response format ranging from 1/ (Strongly disagree) to 5/ (Strongly agree). The sample items on the scale include "I am always ready to give a helping hand to those around me," "I guide new people even though it is not required." Argentero, Cortese and Ferretti (2008) reported the following Cronbach Alpha coefficient for the scale: altruism =0.81, conscientiousness =0.73, civic virtue =0.73 and 0.84 for the whole scale of organizational citizenship behavior. However, the outcome of the pilot factor analysis of this study reduced the scale-item to 13, and yielded Cronbach Alpha coefficient of 0.88 (altruism), 0.81 (conscientiousness), 0.86 (civic virtue) and 0.93 for the whole scale of organizational citizenship behavior, while the main study's factor analysis yielded a Cronbach Alpha coefficient score of 0.82 for the whole scale of organizational citizenship behavior.

Emotional Intelligence: A 10-item modified version of Palmer and Stough's (2001) emotional intelligence questionnaire by Seyal, Afzaal and Chin (2012) was utilized to measure emotional intelligence. The construct consisted of emotional self-control, emotional self-awareness, emotional expression and emotional awareness of others sub-scales, with a 5-point Likert-type response format ranging from 1/ (Strongly disagree) to 5/ (Strongly agree). The sample items on the scale include "I am effective in helping others to feel positive at work," "I gain stakeholders' commitment to decisions I make at the workplace." Seyal, Afzaal and Chin (2012) reported a Cronbach Alpha coefficient score of 0.92 for the whole scale of emotional intelligence. However, the outcome of the pilot factor analysis of this study reduced the scale-item to 2, and yielded Cronbach Alpha coefficient scores 0.57 for the scale of emotional intelligence, while the main study's factor analysis yielded a Cronbach Alpha coefficient score of 0.81 for the scale of emotional intelligence.

Statistical Analysis of Data: The data generated from 1,532 screened questionnaires were analyzed based on the hypotheses stated, using version 20 of the Statistical Package for the Social Sciences (SPSS). Hypothesis 1 was analyzed, using Pearson Correlation Analysis. Hypothesis 2 was analyzed using Multiple Regression Analysis, while the percentage, mean, standard deviation and the frequency of the biographical and occupational data were also determined by the descriptive statistics.

4. Research Results

Hypothesis 1, Which States the Following:

H_0: Occupational stress is not significantly correlated with organizational citizenship behavior.
H_1: Occupational stress is significantly correlated with organizational citizenship behavior was analyzed using Pearson Correlation Analysis. The results of the analysis are therefore presented in table 1 below.

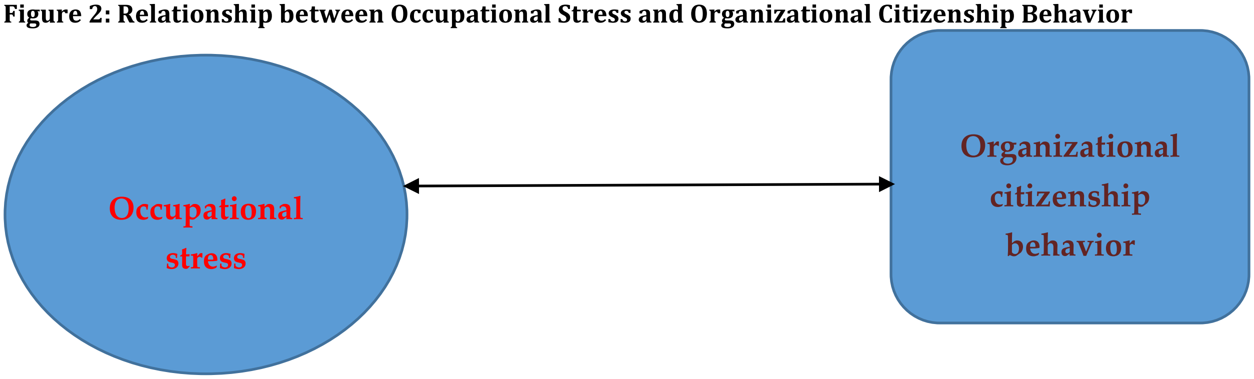
Table 1: A Summary Table of Pearson Correlation Analysis Showing the Relationship between Occupational Stress and Organisational Citizenship Behaviour

Variable	OCB	OS
Organizational citizenship beh. (OCB)	1	0.070*
sig. (2-tailed)		0.006
n	1532	1532
Occupational stress (OS)	0.070*	1
sig. (2-tailed)	0.006	
n	1532	1532

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

From Table 1 presented above, the results show that there is a positive relationship between occupational stress and organizational citizenship behavior, $r = 0.070$, $p>0.01$. Even though there is a positive relationship observed between occupational stress and organizational citizenship behavior, the level of the observed positive relationship between the two aforementioned variables is weak, considering the given significance value, 0.006 = 0.01 (approximated to 2 decimal points), which is exactly the maximum limit of acceptable value of significance at the 0.01 level (2-tailed). Though, the above results contradict the expectation that occupational stress would inversely relate to organizational citizenship behavior, yet it is understandable, particularly, when the peculiarities of the Nigerian work environment and the high level of unemployment situation of the country are put into consideration. Therefore, based on the results and interpretations, the hypothesis that states that occupational stress is significantly positively correlated with organizational citizenship behavior is to an extent confirmed. In other words, hypothesis 1 H_0, which states that occupational stress is not significantly positively correlated with organizational citizenship behavior, is rejected while hypothesis 1 H_1, which states that occupational stress is significantly positively correlated with organizational citizenship behavior is accepted. Figure 2 below depicts the relationship between occupational stress and organizational citizenship behavior.

Figure 2: Relationship between Occupational Stress and Organizational Citizenship Behavior



R = 0.070*; p>0.01 ** Correlation is significant at the 0.01 level (2-tailed)

Hypothesis 2, Which States the Following:

H_0: Emotional intelligence is not a significant moderator of the relationship between occupational stress and organizational citizenship behavior.
H_1: Emotional intelligence is a significant moderator of the relationship between occupational stress and organizational citizenship behavior was analyzed using Multiple Regression Analysis. The results of the analysis are therefore presented in table 2 below.

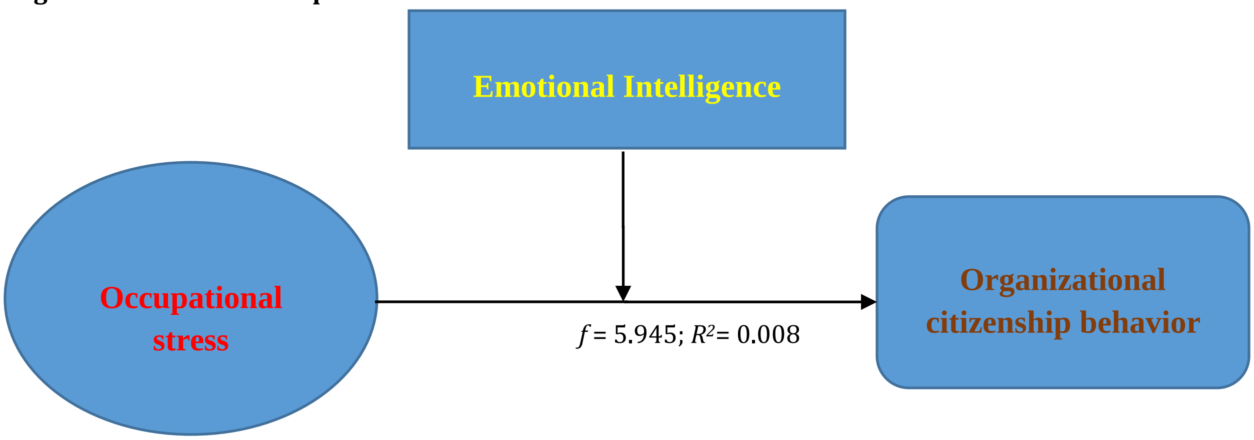
Table 2: A Summary Table of Multiple Regression Analysis Showing the Moderating Role of Emotional Intelligence in the Relationship between Occupational Stress and Organizational Citizenship Behavior

Variable	R	R^2	B	T	F	P
Occupational stress			0.063	2.473		0.013
Emotional intelligence with Occupational stress	0.088	0.008	0.054	2.092	5.945	0.003

Dependent Variable: Organizational citizenship behavior (OCB). Predictor: Occupational stress (OS). Predictor, Moderator with Predictor: OS, EI with OS

The results in the table 2 above show that emotional intelligence is a significant moderator of the relationship between occupational stress and organizational citizenship behavior, $F(2,1529) = 5.945$; $R^2 = 0.008$; $p < 0.05$. The results also indicate that occupational stress independently predicts organizational citizenship behavior, ($\beta = 0.063$; $t = 2.473$; $p < 0.05$). It further shows that the moderating role of emotional intelligence accounts for 8% of the total variance in the relationship between occupational stress and organizational citizenship behavior. It thus implies that some other factors that were not considered in the study could be responsible for the remaining 92% variance in the relationship between occupational stress and organizational citizenship behavior. In view of the above results and its interpretations, hypothesis 2 H_0, which states that emotional intelligence are not a significant moderator of the relationship between occupational stress and organizational citizenship behavior is rejected while the H_1, which states that emotional intelligence is a significant moderator of the relationship between occupational stress and organizational citizenship behavior is accepted. Figure 3 below depicts emotional intelligence moderating the relationship between occupational stress and organizational citizenship behavior.

Figure 3: Emotional Intelligence as a Moderator of the Relationship between Occupational Stress and Organizational Citizenship Behavior



Discussion: The results established the hypothesized relationship and moderation in the conceptual model (figure 1). A weak positive relationship was found to exist between occupational stress and organizational citizenship behavior. This explains that though there is an indication of a positive relationship between occupational stress and organizational citizenship behavior, the observed level of positive relationship between the two variables is not reliable enough. Thus perhaps, it requires the introduction of one or more positive variables, to serve as moderators or mediators in order to yield a more significant and reliable relationship. These findings corroborate the reports of Uzonwanne (2014), which states that there is a weak positive relationship between occupational stress and organizational citizenship behavior. Similarly, Soo and Ali (2016) report further that self-initiated imposed work-overload is significantly positively related to organizational citizenship behavior, but organizationally imposed overload is not a significant predictor of organizational citizenship behavior. In terms of moderation, emotional intelligence was found to have demonstrated a significant level of moderating role in the observed positive relationship between occupational stress and organizational citizenship. Although, the results show that there are many other variables or factors, which are of a similar nature with emotional intelligence, and could have also moderated the relationship between occupational stress and organizational citizenship behavior, but were not considered in the structured model. The observed results are supported by the findings of Hameed (2016) which indicated that emotional intelligence moderates surface-acting emotional exhaustion relationships as well as deep-acting emotional exhaustion connections. The findings further show that emotional exhaustion mediated the relationship between surface acting-adaptive performance and deep acting-adaptive performances. Likewise, Gökçe et al. (2015) reported that emotional regulation plays a significant mediating role in the relationship between job stress and performance.

5. Conclusion

The Study Makes the Following Conclusions:

- There is a weak positive relationship between occupational stress and organizational citizenship behavior.
- Emotional intelligence is a significant moderator of the relationship between occupational stress and organizational citizenship behavior.

Recommendations: In view of the above discussion of the findings, the researchers make the following practical recommendations: that model of the relationship between occupational stress and organisational citizenship behaviour, propounded in this study, should be adopted and applied by teachers, lecturers, seminar facilitators, workshop trainers, supervisors and managers during their coaching or training sessions. Specifically, the focus should be on training the individual employees or graduates to discover their covert behavioural endowments such as emotional intelligence, and makes them refined through a systematic training process that converts the covert behavioural gifts into overt psychological assets in the form of demonstrable managerial competencies, which can enhance their performance on the job, and also enable them to be pro-social among colleagues in the work settings.

The human resource managers, supervisors and practitioners should uphold and develop the concept of emotional intelligence in the psyche of employees through training, workshops, seminars and conference exposure so as to increase employee commitment and organizational performance in the face of occupational stress epidemics. Although, occupational stress is inevitable in the contemporary world of work, in as much as employee performance is sacrosanct, work stress can be effectively managed through psychological strategies. Therefore, during recruitment, training and development activities of the employee it is a challenge to the employers of labor, management of organizations and importantly experts who are saddled with the task of employing persons to the rightful positions, to consider the conclusions and recommendations of this study, so that the employee can develop more appropriate psychological coping mechanisms in their professions.

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Modelling Financial Contagion in the South African Equity Markets Following the Subprime Crisis

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Abstract: This paper used wavelet analysis and Dynamic Conditional Correlations model derived from the Multivariate Autoregressive Conditional Heteroskedasticity (MGARCH-DCC) to investigate the possible presence of financial contagion in the South African equity market in the wake of the subprime crisis that occurred in the United States. The study uses Dornbusch, Park and Claessens's (2000) broader definition which asserts that financial contagion only takes place if cross-correlation between two markets is relatively low during the tranquil period, and that a crisis in one market results in a substantial increase cross-market correlation. Using wavelet analysis, the study found high levels of correlation during the subprime financial crisis in both smaller and longer timescales. In the former, high correlation was identified as financial contagion, whereas in the latter it was found to indicate co-movement due to financial fundamentals. The high correlation was identified for small scales 3, 4 and 5 that range from a week to one month indicates the presence of contagion. The study also used the MGARCH-DCC model to compare the cross-market correlation between the SA and the US markets, during a 'pre-crisis' and 'crisis' period. The study used data for the period between January 2005 and December 2007 for the 'pre-crisis' period and that for the period from January 2008 to December 2014 for the 'crisis' period. The results indicate cross-market linkages only during the crisis period; hence, it was concluded that cross-market correlation during the period of financial turmoil in the US was the result of financial contagion.

Keywords: *Financial contagion, wavelet analysis, Maximal Overlap Discrete Wavelet Transform (MODWT), MGARCH-DCC, subprime crisis.*

1. Introduction

The 1990s will go down in history as a period of systemic financial crisis for emerging economies. The Latin American countries were the first to be hit following the 1994 Mexican peso crisis and its impact on other emerging markets (Kaminsky & Reinhart, 2000). This was followed by other crises that reverberated across emerging economies in Western Europe, East Asia and South Asia (Lam, 2002). Initially, much blame was directed toward poor domestic policies and little attention was given to the propagation aspect of these crises. It was only towards the middle of the 1990s, after more severe crises (such the Asian crises in 1994 and 1997, the Russian turmoil in 1998 and the Brazilian crunch in 1999) that researchers in the field of economics and finance started to document the propagation of these crises from one country to another (Kaminsky & Reinhart, 2000). These propagations are known as financial contagions. Kaminsky, Reinhart and Végh (2003) identified three key elements, which they dubbed the "unholy trinity", that make emerging markets prone to contagions, they are: (1) a sudden reversal in the capital inflow in the economy, (2) an unexpected announcement, and (3) a leveraged common creditor. Regarding the reversal in capital inflow Kaminsky, Reinhart and Végh (2003) noted that it is due to the fact that, prior to financial contagions, crisis-prone markets experience a surge in international capital inflow.

However, after the initial shock has taken place, the affected economies experience an abrupt halt in capital inflow. Apropos of surprise announcements, they explained that unexpected announcements trigger a chain reaction that always comes as a surprise to the financial market. With reference to the common creditor, the authors stressed that in most cases a common creditor is involved, as is the case for American banks in Latin American crises or Japanese banks in Asian crises. South Africa (SA) being an emerging economy, the current study investigates the possibility of financial contagion from the United States (US) equity market to the SA equity market in the wake of the subprime crisis. The choice of the US stock market was motivated by the following reasons (1) the US is a major trading partner of SA, with US goods and services trade with SA totalling an estimated R58.3 billion in the year 2016 (Office of the United States trade representative, 2018). (2) A significant number of financial contagions in recent years for emerging economies have emanated from the US. As a matter of fact, the US dollars index is becoming a new gauge of fear for emerging markets, as opposed to the Chicago Board Options Exchange's volatility index (VIX) (Lam, 2018).

The purpose of the study is twofold. First, it adds to the existing literature on financial contagions by testing lead/lag analysis between the US and SA equity markets, as well as testing whether or not the cross-market linkages between the US and SA equity vary over time and are asymmetric in tranquil periods compared to crisis periods. Secondly, the study provides information to investors and policymakers on the extent to which shocks in the US market affect the SA market. A better appreciation of correlations of returns in the two markets is crucial to efficient portfolio diversification. Furthermore, the understanding of cross-market correlation offers more insights to policymakers for potential decoupling or coupling strategies to protect the SA market from the contagious effects of the US market. A survey of the literature on contagion in the SA equity market by the authors identified two studies. The first, Collins and Biekpe (2003), investigated the contagion on African economies, including SA, in the wake of the Asian crisis in 1997. Using both the unadjusted and the adjusted correlation coefficient, they found evidence of financial contagion to the SA markets, only in the largest and most traded markets. The second study, Heymans and Da Camara, (2013) looked at cross-market linkages between SA and major stock market around the world, using an aggregate-shock model, they found evidence of volatility spill-over effects to the SA stock market originating from the Hang Seng, London, Paris, Frankfurt and New York stock markets.

The models used in the two studies above do not allow correlation between time series to be time-varying; furthermore, they do not allow conducting a lead/lag analysis between the time series. The current study sought to fill this gap by employing wavelet analysis and MGARCH-DCC model. Wavelet tools were appropriate because not only do they allow the conducting of a lead/lag analysis but they also enable the chronological specifications for financial variables to be examined, especially decomposing them into sub time series and by localising time series cross-correlation (Hashim & Masih, 2015). The MGARCH-DCC model was also employed as it allows correlations to be time-varying, in addition to the conditional variances. Hence, the researchers were able to assess whether or not, correlations between the US and SA stock markets are time-varying and evolve according to the situations that prevail in the markets (for example, periods of stability versus periods of turmoil). The remainder of the study is organised as follows. Section 2 presents a review of related work. Section 3 describes the models and the data employed, while Section 4 discusses the results. Conclusions and policy implications are presented in Section 5.

2. Literature Review

Despite the surge of interest in contagion, this concept has not been easy to define. Indeed, there have been disagreements on whether the term should apply between two countries that have similar macroeconomic fundamentals and are closely linked (Boyer, Dehove, & Plihon, 2004). For example, the US and Canada are located in the same geographic area and have many similarities in terms of market structure and history. These countries are always linked during stable and crisis periods. Therefore, propagation of a large scare during a period of crisis is simply a continuation of the interdependence that exists in stable periods. Forbes and Rigobon (2002) describe contagion as "a significant increase in cross-market linkage to one country or group of countries". However, this is regarded as a narrow definition and is not unanimously approved. As Ranta (2010) maintains, financial contagion cannot only be described on the basis that changes in cross-market linkages have taken place. He argues that the investigation of contagion should focus on the spread of shock from one market to another.

Dornbusch, Park and Claessens's (2000) broader, more inclusive definition of contagion portrays the vulnerability of one market to events in other market regardless of the cause or whether there are linkages between the affected countries. In other words, contagion only occurs if cross-correlations between two economies increase significantly in periods of financial turmoil. This means that contagion only takes place if two countries are modestly correlated during a tranquil period and a crisis in one country leads to a substantial rise in cross-market correlation. However, if the correlation does not rise significantly, such cross-market correlation is simply caused various interdependence, that is a result of real linkages between the two markets. Studies that analysed contagion between emerging markets and developed markets include Kenourgios and Dimitriou (2015) who analysed cross-market linkages in the aftermath of the subprime crisis, in ten sectors within six developed and emerging regions, the study was conducted throughout different stages of the crisis. Their findings indicated that the subprime crisis can be characterised by contagious effects throughout regional bourses and local financial and non-financial sectors.

However, their results indicated that for developed Pacific regions, certain sectors such as Technology, Healthcare and Consumer goods were less affected by the crisis; they also found that regions susceptible to be affected by contagious effects were observed in the emerging Asian and European regions. Ahmad, Sehgal and Bhanumurthy (2013) investigated finical contagion from Greece, Ireland, Portugal, Spain, Italy, USA, UK and Japan markets to BRIICKS (Brazil, Russia, Indonesia, India, China, South Korea and South Africa) bourses during the Euro-zone crisis period. Their empirical results indicated that among Eurozone countries, Italy, Ireland and Spain were most contagious for BRIICKS markets as opposed to Greece. The study also indicated that China, Brazil, India, South Africa and Russia, were greatly marked by the contagious effects during the Eurozone crisis. Nevertheless, they found that Indonesia and South Korea markets only experienced co-movement due to financial fundamentals and not contagion. Hemche, Jawadi, Maliki and Cheffou (2016) studied the contagion hypothesis, following the subprime crisis, for Argentina, China, Egypt, France, Italy, Mexico, Morocco, Tunisia and UK with regards to the US market. Their findings indicated that there was a rise in dynamic correlations for most markets hence the conclusion that financial contagion from the US market took place during the subprime crisis.

3. Data and Methodology

Data: This study aimed to investigate the financial contagion between the SA and US equity markets. The study used the daily stock return for the S&P 500 index as a proxy for the US stock market and the FTSE/JSE All Share index to represent the SA equity market. For wavelet analysis, the entire data from 2005 to 2015 was used. The use of a big sample for wavelet analysis was motivated by the fact that the model is able to dissect data into different scales, making it possible to decompose complex information and patterns into simple forms (Dajcman, 2013). For the MGARCH-DCC modelling the data was divided into two sets: (1) data for the 'pre-crisis' period between 01 January 2005 and 31 July 2007, and (2) data for the 'crisis' period from 01 August 2008 to 1 July December 2010. Splitting the data into two sub-periods (calm and turmoil periods) was done in order to allow the researchers to test whether or not volatility spill-over between SA and US stock markets varies from normal to turbulent periods[5]. The stock market indexes were transformed into logarithmic daily returns by taking the log difference of each index series, as follows:

$$R_t = \ln\left(P_t\right) - \ln\left(P_{t-1}\right) \qquad \text{………………………………………..3.1}$$

Where R_t is one-day return from the period t-1 to t, P_t is the daily closing price index recorded at t, and P_{t-1} is the daily closing price index recorded on the previous day t-1.

Wavelet Analysis: Wavelet analysis, according to Ranta (2010), offers researchers lenses where they can take a close-up look at the details and draw a holistic image of a series at the same time. The analysis entails estimating an initial series against a sequence of two elementary functions, called wavelets, these functions are, the father wavelet, f , and the mother wavelet, ψ. The mother wavelet can be enhanced and translated to form the foundation for the Hilbert space L^2 (¡) of squared functions that can be integrated. The father and mother wavelets are formulated as follows:

$$\phi_{j,k}\left(t\right) = 2^{\frac{j}{2}}\phi\left(2^j t - k\right) \qquad \text{………………………………………..3.2}$$

$$\psi_{j,k}\left(t\right) = 2^{-\frac{j}{2}}\psi\left(2^j t - k\right) \qquad \text{………………………………………..3.3}$$

where j = 1, ..., J is the scaling parameter in a J-level decomposition, and k is a translation parameter (j,k Î ¢). The long-run trend of the series is depicted by the father wavelet, which integrates to 1. The mother wavelet, which integrates to 0, expresses fluctuations from the trend.

[5] The authors are of the opinion that the period post December 2010 is characterised by another financial crisis emanating from Eurozone countries, hence sample from this period would not be suitable for an analysis of contagion between the SA and US markets

The Maximal Overlap Discrete Wavelet Transform (MODWT) Wavelet Analysis: According to Abdullah, Saiti, and Masih,(2014), both the Discrete Wavelet Transform (DWT) and the Maximal Overlap Discrete Wavelet Transform (MODWT) possess the ability to decompose the sample variance of a time series. However, the MODWT relinquishes the orthogonal property of the DWT to acquire other characteristics. Hashim and Masih (2015) highlight the advantages of MODWT over DWT as follows: 1) the MODWT has the capability to handle any sample size irrespective whether or not the variables are dyadic; 2) it offers a bigger resolution at greater scales as the MODWT oversamples the data; 3) translation-invariance guarantees that MODWT wavelet coefficients do not alternate if the time series is modified in a 'circular' fashion; and 4) the MODWT presents a more asymptotically effective wavelet variance than the DWT. The MODWT was chosen for the purpose of the current study.

The MODWT estimator of the wavelet correlation specified as follows:

$$\rho_{xy}\left(\lambda_j\right) = \mathrm{Corr}\left(\omega_{ijt}, \tilde{\omega}_{ijt}\right) = \frac{\mathrm{Cov}\left(\omega_{ijt}, \tilde{\omega}_{ijt}\right)}{\sqrt{\mathrm{Var}\left(\omega_{ijt}\right)\mathrm{Var}\left(\tilde{\omega}_{ijt}\right)}} \quad \text{...3.4}$$

where ω_{ijt} represents the scale of wavelet coefficient λ_j acquired by applying MODWT. The disintegration of the series using MODWT is achieved with Daubechies least asymmetric (LA) wavelet filter of length 8.

Wavelet Variance and Wavelet Correlation: The MODWT has the ability to break down a variance of a sample of a series on a scale-by-scale basis, due to the fact that MODWT conserves energy.

$$\left\|X^2\right\| = \sum_{j=1}^{j_o} \left\|\tilde{W}_j\right\|^2 + \left\|\tilde{V}_{j_o}\right\|^2 \quad \text{...3.5}$$

From equation 3.5 above a scale-dependent analysis of variance from the wavelet and scaling coefficients is Derived, as follows:

$$\hat{\sigma}_X^2 = \left\|X^2\right\| - \overline{X}^2 = \frac{1}{N}\sum_{j=1}^{j_o}\left\|\tilde{W}_j\right\|^2 + \frac{1}{N}\left\|\tilde{V}_{j_o}\right\|^2 - \overline{X}^2 \quad \text{...3.6}$$

Percival and Walden (2006) highlight that wavelet variance is characterised for both stationary and non-stationary processes by letting $\{X_t : t = \dots, -1, 0, 1, \dots\}$ be a discrete parameter real-valued stochastic process whose d th-order differencing will give a stationary process

$$Y \equiv (1-B)^d X_t \equiv \sum_{k=0}^{d}\binom{d}{k}(-1)^k X_{t-k} \quad \text{...3.7}$$

With spectral density function (SDF) $S_Y(.)$ and mean μ_Y. Let SX (.) denote the SDF for $\{X_t\}$, for which $S_X(f) = S_Y(f)/D^d(f)$, where $D(f) \equiv 4\sin^2(\pi f)$. Filtering $\{Xt\}$ with a MODWT Daubechies wavelet filter $\{\tilde{h}_{j,l}\}$ of width $L \leq 2d$, a stationary process of jth-level MODWT wavelet is derived as follows:

$$\overline{W}_{j,t} \equiv \sum_{l=0}^{L_j-1} \tilde{h}_{(j,l)} X_{t-1}, \; t=\dots,-1,0,1\dots \quad \text{...3.8}$$

where $\overline{W}_{j,t}$ is a stochastic process achieved by filtering $\{X_t\}$ with the MODWT wavelet filter $\{\tilde{h}_{j,l}\}$ and $L_j \equiv (2^j-1)(L-1)+1$.

With a series, which is the realisation of one segment (with values $X_0, \dots, X_{N-1}$) of the process $\{X_t\}$. Under condition $M_j \equiv N - L_j + 1 > 0$ and that either $L > 2d$ or $\mu_x = 0$ (realisation of either of these two conditions implies $E\{\overline{W}_{j,t}\} = 0$ and therefore $u_X^2(\tau_j) = E\{\overline{W}_{j,t}\}$), an unbiased estimator of wavelet variance of scale $\tau_j\left(u_X^2(\tau_j)\right)$ is given by (Percival and Walden, 2006):

$$\hat{u}_X^2(\tau_j) = \frac{1}{M_j}\sum_{t=L_j-1}^{N-1}\tilde{W}_{j,t}^2 \quad \text{...3.9}$$

where $\{\tilde{W}_{j,t}\}$ are the *j*th-level MODWT wavelet coefficients for time series

$$\left(\tilde{W}_{j,t} \equiv \sum_{l=0}^{L_j-1} \tilde{h}_{(j,l)} X_{t-1 \bmod N},\ t=0,1...,N-1\right) \qquad \text{.........3.10}$$

It can be shown that the asymptotic distribution of $\hat{\upsilon}_X^2(\tau_j)$ is Gaussian, which enables the preparation of confidence intervals for the estimate (Percival, 1995; Dajčman, 2013). Given two stationary processes $\{X_t\}$ and $\{Y_t\}$, whose *j*th-level MODWT wavelet coefficients are $\{\tilde{W}_{X,j,t}\}$ and $\{\tilde{W}_{Y,j,t}\}$ an unbiased covariance estimator $\hat{\upsilon}_{XY}(\tau_j)$ is specified by (Percival, 1995):

$$\hat{\upsilon}_{XY}(\tau_j) = \frac{1}{M_j}\sum_{t=L_j-1}^{N-1} \tilde{W}^{(X)}_{j,t}\tilde{W}^{(Y)}_{j,t} = \operatorname{cov}\{\overline{W}_{X,j,t}, \overline{W}_{Y,j,t}\} \qquad \text{.........3.11}$$

With $M_j \equiv N - L_j + 1 > 0$ being the number of non-boundary coefficients at the *j*th-level. The MODWT correlation estimator for scale *τj* can be obtained by using the wavelet covariance and the square root of wavelet variances:

$$\hat{\rho}_{X,Y}(\tau_j) = \frac{\hat{\upsilon}_{X,Y}(\tau_j)}{\hat{\upsilon}_X(\tau_j)\hat{\upsilon}_Y(\tau_j)} \qquad \text{.........3.12}$$

where $\left|\hat{\rho}_{X,Y}(\tau_j)\right| \le 1$. The wavelet correlation is analogous to its Fourier equivalent, the complex coherency (Gençay, Selçuk and Whitcher, 2003). Computation of confidence intervals is based on Percival and Walden (2006). With the random interval

$$\left[\tanh\left\{h\left[\hat{\rho}_{XY}(\tau_j)\right] - \frac{\Phi^{-1}(1-p)}{\sqrt{N_j-3}}\right\}, \tanh\left\{h\left[\hat{\rho}_{XY}(\tau_j)\right] + \frac{\Phi^{-1}(1-p)}{\sqrt{N_j-3}}\right\}\right] \qquad \text{.........3.13}$$

Capturing the right wavelet correlation and providing an approximate of 100(1 – 2p)% confidence interval.

Wavelet Cross-Correlation: Cross-correlation according to Percival and Walden (2006), is a method in wavelet which entails computing the intensity of the correlation between to two series. The series can be shifted, (the series can lag if π is negative or they can lead when π is positive) and then the correlation between the two series is estimated. Cross-correlation analysis enables us to single out which series' error terms are leading the other's error terms, with the latter series considered as lagging. The size and magnitude of cross-correlation denote whether the series that leads series has prognostic power over the series that lags. It is worth noting that, the wavelet cross-correlation also offers a lead/lag relationship on a scale-by-scale basis. The MODWT cross-correlation for scale τ*j* at lag π, is formulated as:

$$\rho_{\pi,XY}(\tau_j) = \frac{\operatorname{cov}\left\{\overline{W}^{(X)}_{j,t}, \overline{W}^{(Y)}_{j,t+\pi}\right\}}{\left(\operatorname{var}\left\{\overline{W}^{(X)}_{j,t}\right\}\operatorname{var}\left\{\overline{W}^{(Y)}_{j,t+\pi}\right\}\right)^{\frac{1}{2}}} \qquad \text{.........3.14}$$

where $\overline{W}^{(X)}_{j,t}$ are the *j*th-level MODWT wavelet coefficients of series {*Xt*}, at time *t*, and $\overline{W}^{(Y)}_{j,t+\pi}$ are the *j*th-level MODWT wavelet coefficients of series {*Yt*} lagged for π time units. Wavelet cross-correlation captures values, $-1 \le \hat{\rho}_{\pi,XY}(\tau_j) \le 1$, for all *τ* and *j*.

Wavelet Coherence: The study also uses a bivariate structure known as wavelet coherence to examine the interaction between two series, and how strongly they are related by a linear transformation. The wavelet coherence of two series is specified as follows:

$$R_n^2(s) = \frac{\left|S\left(s^{-1}W_n^{xy}(s)\right)\right|^2}{S\left(s^{-1}\left|W_n^x(s)\right|^2\right) \cdot S\left(s^{-1}\left|W_n^y(s)\right|^2\right)} \qquad \text{......................................3.15}$$

where *S* is a smoothing operator, *s* is a wavelet scale, $W_n^x(s)$ is the continuous wavelet transform of the time series *X*, $W_n^y(s)$ is the continuous wavelet transform of the time series *Y*, and $W_n^{xy}(s)$ is a cross-wavelet transform of the two-time series *X* and *Y* (Saiti, 2016). The supposition is that the lower scale high wavelet coherence is due to "contagion", and higher scale high coherence is due to "fundamentals" (Saiti, 2016).

MGARCH-Dynamic Conditional Correlation (DCC): The MGARCH-DCC model was formulated by Engle (2002) to capture the dynamic time-varying of conditional covariance. The MGARCH-DCC model is a dynamic model with time-varying mean, variance and covariance of return series r_t with the following equation:

$$r_t = u_t + \varepsilon_t \qquad \text{....................... 3.16}$$
$$\varepsilon_t \left|\Omega_{t-1} \rightarrow \mathrm{N}(0, \mathrm{H}_t)\right.$$

From the residuals of the mean equation, the conditional variance of each return is derived using equation (3.16) given below:

$$h_{i,t}^2 = \alpha_0 + \sum_{j=1}^{p_i} \alpha_j \varepsilon_{i,t-j}^2 + \sum_{j=1}^{q_i} \beta_j \sigma_{i,t-j}^2 \qquad \text{............ 3.17}$$

where $\sum_{j=1}^{p_i} \alpha_j + \sum_{j=1}^{q_i} \beta_j < 1$.

Then the multivariate conditional variance H_t is estimated as follows:

$$\mathrm{H}_t = \mathrm{D}_t \mathrm{R}_t \mathrm{D}_t \qquad \text{............. 3.18}$$

where H_t is the conditional covariance matrix of r_t, D_t represents a (k × k) diagonal matrix of time-varying standard deviations attained from the univariate GARCH specifications given in equation (3.17), R_t is the (k x k) time-varying correlations matrix derived by first standardising the residuals of the mean equation (3.15) of the univariate GARCH model with their conditional standard deviations derived from equation (3.17), to obtain $\eta_{it} = \varepsilon_{it} / \sqrt{h_{it}^2}$.

The standardised residuals are then used to estimate the parameters of conditional correlation as given in equations (3.19) and (3.20) below:

$$R_t = \left(\mathrm{diag}(\mathrm{Q}_t)\right)^{-1/2} Q_t \left(\mathrm{diag}(\mathrm{Q}_t)^{-1/2}\right) \qquad \text{............ 3.19}$$

and

$$Q_t = (1 - \theta_1 - \theta_2)\bar{Q} + \theta_1 \eta_{t-1} \eta'_{t-1} + \theta_2 Q_{t-1} \qquad \text{............ 3.20}$$

where $\bar{Q}$ is the unconditional covariance of the standardised residuals. The Q_t does not usually take ones on the diagonal, so it is scaled as in equation (3.19) above, to derive R_t, which is a positive definite matrix. In this model the conditional correlations are thus dynamic, or time-varying. θ_1 and θ_2 from equation (3.20) are assumed to be positive scalars ($\theta_1 + \theta_2 < 1$).

The parameters of the MGARCH-DCC model are estimated using the likelihood for this estimator and can be written as:

$$L=-\frac{1}{2}\sum_{t=1}^{T}\left(n\log(2\pi)+2\log|D_t|+\log|R_t|+\eta'_t R_t^{-1}\eta_t\right) \quad \text{......................3.21}$$

where $D_t = diag\left\{\sqrt{h_{i,t}}\right\}$ and R_t is the time-varying correlation matrix.

4. Results and Discussion

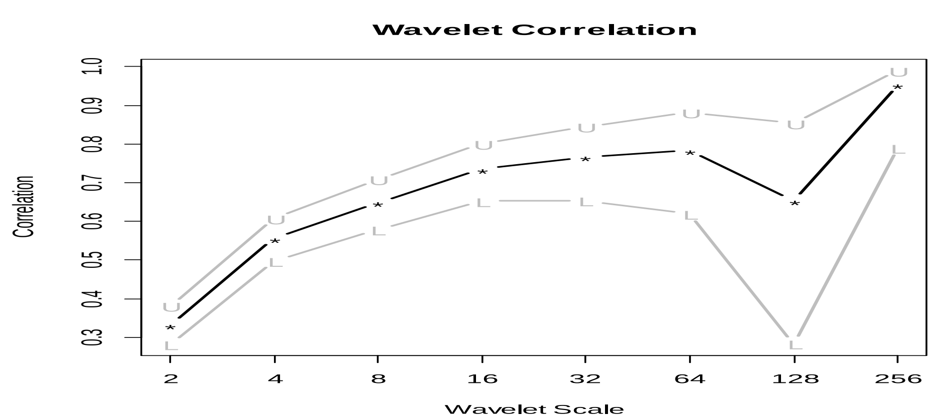
Summary Statistics: The summary statistics of the data used in the study, namely, the log difference of daily stock return for the S&P500 index and for the FTSE/JSE All Share index, are listed in Table 1. These summary statistics are the sample mean, maximum, minimum, median, standard deviation, skewness, and Anderson-Darling normality test (with their p-value). From Table 1 it is evident that all the statistics are not normally distributed and have leptokurtic properties that are shared in most financial time series (Chinzara, 2006). For the two variables, the kurtosis is more than three, meaning that the distributions are slim and long-tailed (leptokurtic). This is confirmed by the Anderson-Darling normality test that shows a significantly low p-value in all the variables under consideration; hence, the rejection of the null hypothesis of a normal distribution.

Table 1: Summary Statistics of the Data

	S&P 500	**FTSE/JSE All Share**
Number of observations	2867	2867
Mean	1.850610e-04	3.562482e-04
Median	7.822280e-04	7.215250e-04
Minimum	-9.469514e-02	-7.580684e-02
Maximum	1.095720e-01	6.833971e-02
Standard deviation	1.404760e-02	1.305817e-02
Skewness	-0.32	-0.13
Kurtosis	3.64	3.46
Anderson-Darling normality test	12.44	14.46
P value	2.2e-16	3.2e-18

Results of the Wavelet Analysis: Figure 1 reports the wavelet (MODWT) estimator for wavelet correlation from the indices' daily return series. The wavelet analysis was performed with eight scales that span from one day to one-and-a-half year dyadic steps (1-2 days, 2-4 days, 4-8 days, 8-16 days, 16-32 days, 32-64 days, 64-128 days and 128-256 days). Scales are presented on the horizontal axis and correlations on the vertical axis. To analyse statistical significance, 95% confidence intervals are used.

Figure 1: Wavelet Correlations between JSE/ALSI and S&P500



It can be seen in Figure 1 that the wavelet correlations are all significantly positive. The correlation tends to increase as the scale increases. However, there is a sharp decrease on scale 7; thereafter the correlation increases again, reaching values close to unity at scale 8. This implies that discrepancies between the two equity markets do not dissipate for a period of less than a year. In other words, for the longer period, the correlation between the US and SA equity markets is more likely. This can also be construed as perfect integration between the US and SA equity markets. The study also examined cross-correlations between the JSE/ALSI and the S&P500 at all periods with the related estimated confidence interval against lead time and lags for the different wavelet scales up to 33 days. If the curve is substantially skewed on the right, the second variable, i.e. S&P500, is leading. Conversely, if the curve is considerably skewed on the left side of the graph, the first variable, i.e. JSE/ALSI, is leading.

It can be seen in Figure 2 that the contemporaneous time scale correlation between the series indicates that the values of the wavelet correlation coefficients at lag 0 have an anti-correlation relationship. Figure 2 illustrates that at the shortest scales, i.e. scales 1 to 4, the cross-correlations around the time shift of $\pi = 3$ and $\pi = -3$ are significant and positive. It can also be seen that at these short scales the graphs are symmetrical (zero skewness) meaning that there is no clear evidence of a lead-lag potential. For coarse scales, particularly scales 5 and 6, the highest correlation is achieved at time shift of $\pi = 25$ and $\pi = -25$. It should also be noted that scales 5 and 6 the graphs are slightly skewed to the right indicating that S&P 500 leads the JSE/ALSI. This means that for a period two weeks to two months, the S&P 500 leads the JSE/ALSI for a period of 25 days. For scale 7 we can see that there is a significant negative wavelet cross-correlation on the right-hand side with implications that the S&P 500 leads the JSE/ALSI. As for scale 8 there is no clear evidence of a lead-lag relationship.

Figure 2: Cross-Correlation for Different Wavelet Scales with Leads and Lags Up to 33 Days (1.5 Months)

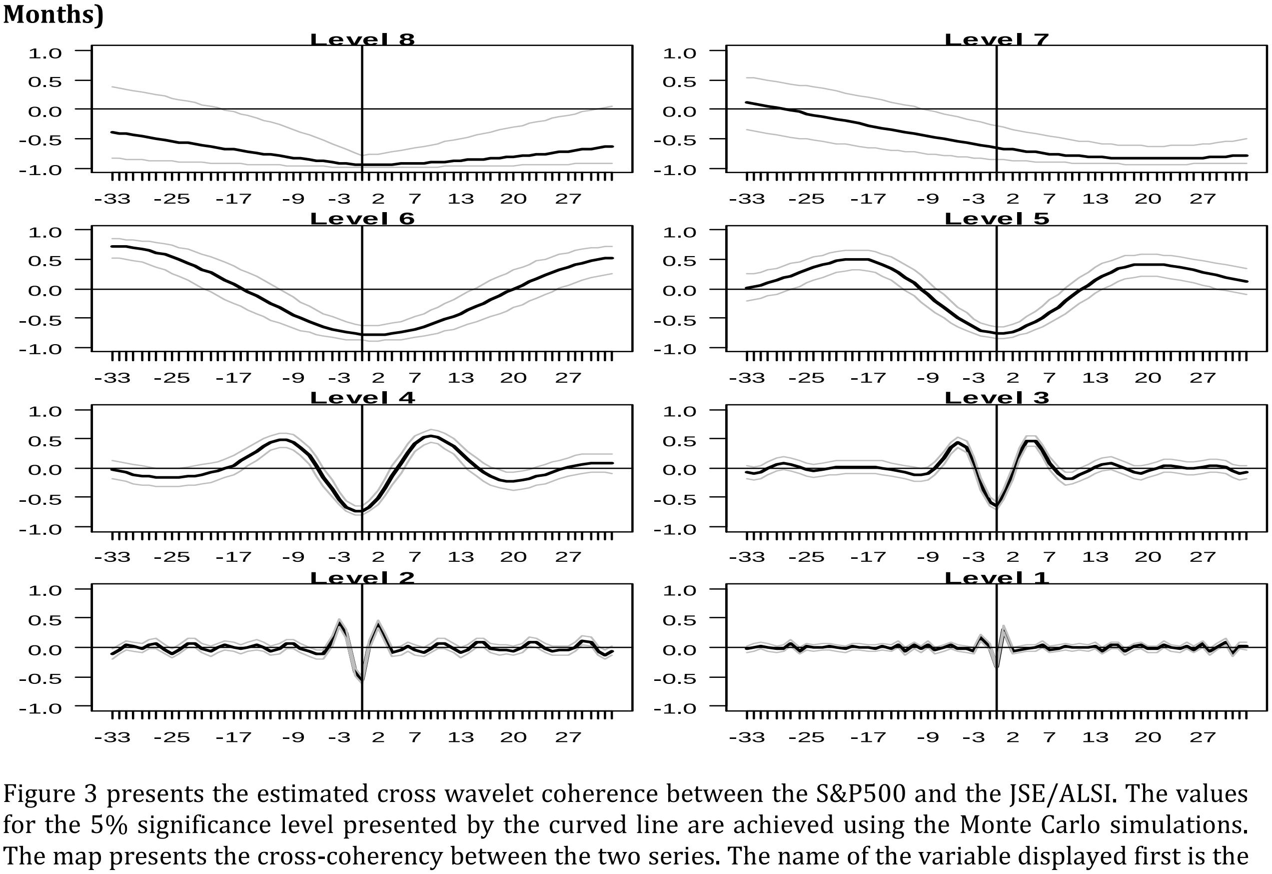
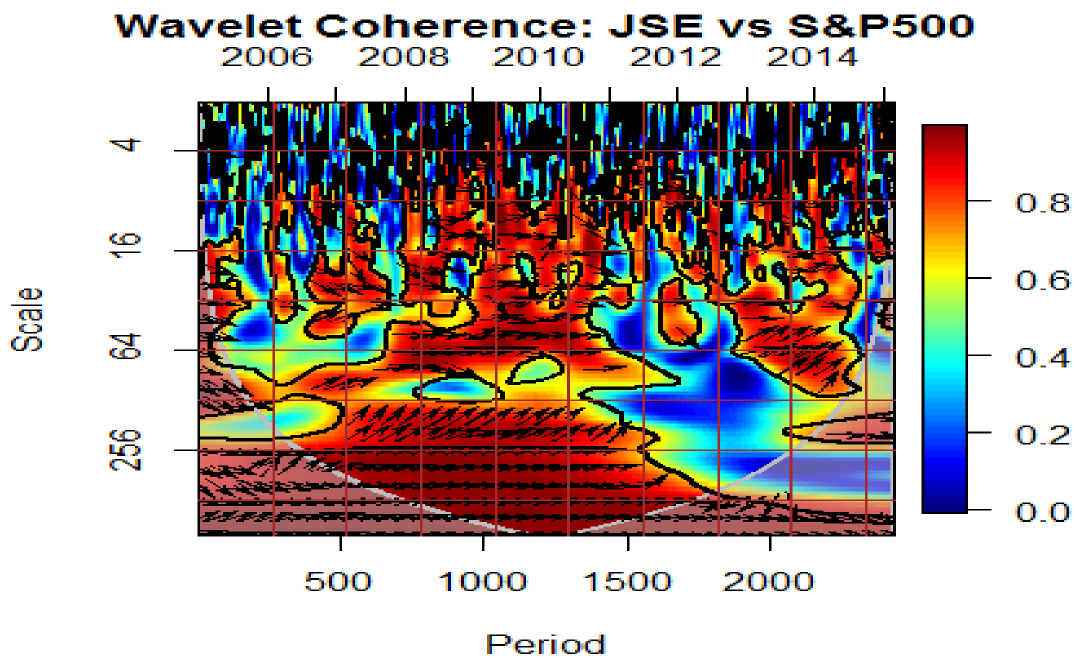


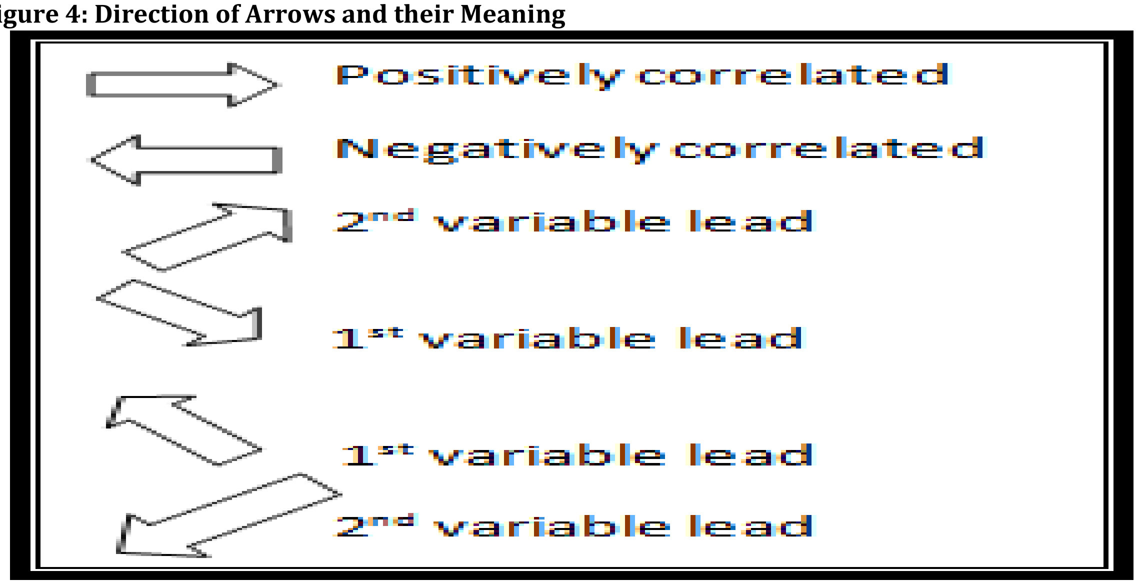
Figure 3 presents the estimated cross wavelet coherence between the S&P500 and the JSE/ALSI. The values for the 5% significance level presented by the curved line are achieved using the Monte Carlo simulations. The map presents the cross-coherency between the two series. The name of the variable displayed first is the first series (i.e. JSE/ALSI) while the following one is the second series (i.e. S&P500). In wavelet coherence mapping, time is displayed on the horizontal axis — which is converted to time units (daily)-whereas the vertical axis displays the frequency (the lower the frequency, the higher the scale). In Figure 3, warmer colours (red) signify regions with major interrelation, while colder colours (blue) signify minor dependence between the series. Cold regions outside the significant areas represent time and frequencies with interdependence in the series.

Figure 3: Wavelet Coherence Mapping for the JSE/ALSI versus the S&P500



Arrows in the wavelet coherence plots represent the lead/lag phase relations between the observed series. Arrows point to the right indicate that the time series are moving in the same direction (in phase), whilst arrows pointing to the left indicate that the series move in opposite direction (anti-phase). Arrows directing South-East (right-down) or North-West (left-up), indicate that the first variable is leading, while arrows indicating to the North-East (right-up) or South-West (left-down) show that the second variable is leading. Figure 4 displays the direction of the arrows and their meaning.

Figure 4: Direction of Arrows and their Meaning



It can be seen from Figure 3 that the direction of the arrows at different frequency bands differs over the study period. The 'crisis' period (between January 2008 and December 2010), is characterised by warmer colours, indicating high correlation during this period. It is also worth drawing to the reader's attention that during periods of high correlation, the arrows mainly point North-East, indicating a positive correlation with S&P500 leading. For instance, for scales 3, 4 and 5 corresponding to a period from one week to one month, there is a high correlation for the period between 2008 and the beginning of 2011, which is the 'crisis' period. As Saiti (2016) explains, the high correlation in lower scales indicates the presence of contagion. It can also be seen in Figure 3 that for a very short scale of 1 and 2, i.e., the ones consisting of 2-4 days and 4-8 days, there is a low correlation between the JSE/ALSI and S&P500 along the observation period. For long-term investors (256-512 days holding periods), there are strong correlations between the S&P500 and the JSE/ALSI from 2007 to 2011. It is also worth noting that during this period the direction of the arrows indicates a positive correlation, with the S&P500 leading the JSE/ALSI. These results confirm those obtained in Figure 2 which indicates that longer high correlation is found in longer holding periods and this is indicative of co-movement due to fundamentals.

Estimations of the MGARCH-DCC Model: Summary estimates of the MGARCH-DCC model parameters are displayed in Table 2 for the 'pre-crisis' period.

Table 2: Summary of Parameter Estimates for the MGARCH-DCC Model during the 'Pre-Crisis' Period

	Parameter	Estimate
$R_{S\&P,t}^{pre-crisis}$	α_0	0.000002*
	$\sum_{j=1}^{p_i} \alpha_j$	0.097050***
	$\sum_{j=1}^{q_i} \beta_j$	0.896318***
$R_{alsi,t}^{pre-crisis}$	α_0	0.000005
	$\sum_{j=1}^{p_i} \alpha_j$	0.145248 ***
	$\sum_{j=1}^{q_i} \beta_j$	0.845467***
	θ_1	0.012738
	θ_2	0.978908***
Maximised Log likelihood		6475

It can be seen in Table 2 that the univariate GARCH (1,1) parameter estimates $\sum_{j=1}^{p_i} \alpha_j$ and $\sum_{j=1}^{q_i} \beta_j$ are statistically significant. Furthermore, the volatility persistence $\sum_{j=1}^{p_i} \alpha_j + \sum_{j=1}^{q_i} \beta_j$ is significantly close to unity, indicating strong volatility persistence between the SA and US markets for the "pre-crisis" period. The MGARCH-DCC correlation parameters are different from zero, implying that the correlations between the US and SA markets were dynamic during the pre-crisis period. Furthermore, the correlation parameter estimates show adherence to the restriction imposed on them, that is, of $\theta_1 + \theta_2 = 0.9916 < 1$, suggesting that the estimated correlation matrix R_t is positive definite. However, the parameter estimate θ_1 is not statistically significant, hence inconclusive. They used the AS model and found evidence of volatility spill-over between the SA stock market and selected developed markets.

Table 3: Summary of Parameter Estimates for the MGARCH-DCC Model during the 'Crisis' Period

	Parameter	Estimate
$R^{crisis}_{S\&P,t}$	α_0	0.000005
	$\sum_{j=1}^{p_i} \alpha_j$	0.123885***
	$\sum_{j=1}^{q_i} \beta_j$	0.831295***
$R^{crisis}_{alsi,t}$	α_0	0.000003
	$\sum_{j=1}^{p_i} \alpha_j$	0.072318***
	$\sum_{j=1}^{q_i} \beta_j$	0.903435***
	θ_1	0.010942*
	θ_2	0.975063***
Maximised Log likelihood		8931

***Significant at 1%, ** Significant at 5%, * Significant at 10 %

Table 3 presents parameter estimates for the MGARCH-DCC for the crisis period. These results are similar to the pre-crisis period in that the univariate GARCH (1,1) parameter estimates $\sum_{j=1}^{p_i} \alpha_j$ and $\sum_{j=1}^{q_i} \beta_j$ are statistically significant. Furthermore, the volatility persistence measured by $\sum_{j=1}^{p_i} \alpha_j + \sum_{j=1}^{q_i} \beta_j$ provides evidence of strong volatility persistence between the US and SA markets for the crisis period, as the estimated coefficients $\sum_{j=1}^{p_i} \alpha_j + \sum_{j=1}^{q_i} \beta_j$ are significant and close to unity.

In addition, the correlation parameter estimates show adherence to the restriction imposed on them, that is, of $\theta_1 + \theta_2 = 0.986005 < 1$, suggesting that the estimated correlation matrix R_t is positive definite. The fact that the parameter estimates are statistically significant implies that the correlation is dynamic. Given the fact that the dynamic correlation is only significant during the 'crisis' period and is not significant in the 'pre-crisis' period, implies that co-movement between the US and SA markets during the 'crisis' period was due to financial contagion, as a significant increase in cross-market linkages was only identified in that period. The above results are in line with the results from the wavelets analysis where high correlation was identified during periods of financial turmoil.

5. Conclusion

This paper examined the possible existence of financial contagion in the SA equity market, in the wake of the subprime financial crisis. Contagion was defined as a significant increase in cross-market linkages after a shock to one country or a group of countries. Using wavelet analysis, the study found high levels of correlation during periods of financial turmoil in both smaller and longer timescales. The wavelet cross-correlation analysis found that for small scales, high correlation can be identified around the time shift of π = 3 and π = – 3. Similarly, for coarse scales, the highest significant correlation is achieved at time shift of π = 25 and π = – 25. The wavelet coherence analysis found that during the subprime crisis, a high correlation was identified for shorter scales (3, 4 and 5) that range from two weeks to one month, which is indicative, the presence of contagion. The study also used the MGARCH-DCC model to compare the cross-market correlation between the SA and the US markets, during a 'pre-crisis' and 'crisis' period. The study used data for the period between January 2000 and December 2007 for the 'pre-crisis' period and that for the period from 01 August 2008 to 1 July December 2010 for the 'crisis' period.

The results indicate cross-market linkages only during the 'crisis' period; hence, it was concluded that cross-market correlation during the period of financial turmoil in the US was the result of financial contagion. The results are in line with Maliki and Cheffou (2016) who identified financial contagion in emerging markets following the subprime crisis. The results also confirm Heymans and Da Camara's (2013) findings. Form the above results the study suggests the following recommendation. Since the volatility spill-over between the US and SA market is unidirectional, with the US market leading the SA market, the implications thereof are that policymakers should focus more on monitoring the volatility of the US stock market, as effort by the South African authorities to stabilise volatility spill-over from the US market to SA market will be futile. Regulatory authorities should come up with sound risk management policies and macro-prudential regulations that enable investors to reduce significantly volatility exposure from the US market.

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The Use of RONA/WACC as a Proxy for Investment Quality

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Abstract: Proxies for stock investment quality have varied from multi-factor models such as the Piotroski F-Score to simple one-factor return on capital measures. Economic value added, measured as the ratio of return on net assets relative to the weighted average cost of capital, has not been used as a proxy for stock quality. The aim of this study was to demonstrate that economic value added can be used effectively as a proxy for stock quality. Industrial stocks listed on the JSE ALSI between 31 January 2006 and 31 December 2015 comprised the population of this study. Three portfolios (comprising 33% of the population each) were formed monthly and were held for 12 months leading to the creation of 360 portfolios. The portfolios were formed on the basis of the RONA/WACC ratio; stocks with the highest ratios comprised HEV portfolios, stocks with the lowest ratios comprised LEV portfolios and stocks with median ratios comprised MEV portfolios. HEV portfolios earned a mean return of 19.52% relative to 13.09% for MEV portfolios, 16.31% for LEV portfolios and 13.73% for the overall equity market. The maximum cumulative value of R1 invested in HEV portfolios was equal to R5.30 as at the end of the study period. The maximum cumulative value of R1 invested in MEV and LEV portfolios was equal to R4.14 and R4.40 respectively. The maximum corresponding value of R1 invested in the general equity market was, R3.50. The superior returns of HEV portfolios were observed to be more risk efficient relative to both MEV and LEV portfolios and relative to the market portfolio on the basis of higher Sharpe Ratios. The RONA/WACC ratio has thus been shown to have been an effective proxy for stock quality.

Keywords: *Quality, economic value, RONA/WACC, stock, investment*

1. Introduction

Equity investments have historically outperformed other financial asset classes (Dimson, Marsh, & Staunton, 2017). Investors in equities have made use of different investment styles to exploit the superior risked adjusted returns associated with such investments. An investment style refers to the application of a systematic approach to the selection of equity investments based on their particular characteristics (Asness, Illmanen, Israel, & Moskowitz, 2015). Commonly used equity investment styles include passive; growth; momentum; value and quality-based investment styles (Asness, et al., 2015). A passive investment style involves the replication of the performance of the equity market without the desire to outperform this market. An active investment style requires the selection of stocks that are believed to outperform the equity market in the future (Bodie, Kane, & Marcus, 2017). Growth, momentum, value and quality-based investment styles represent examples of active investment styles (Asness, et al., 2015). Growth investment styles require investment in equities that exhibit strong growth in earnings (Phillips, 2018). Momentum investment styles require investment in equities that exhibit strong recent growth in stock price (Zaremba, 2018). Value investment styles seek to invest in equities that are believed to be cheap in relation to a metric that represents value (such as cash flow, earnings, equity value or sales) (Phillips, 2018). The quality investment style selects stocks on the basis of the quality of company earnings or the quality of the business operations (Phillips, 2018).

2. Literature Review

The quality stock investment style is at least as old as the value investment style (considered to be the oldest and most popular stock investment style) (Novey-Marx, 2013). Benjamin Graham, regarded as the founder of the value investment style, created a composite value investment style that was based on 7 different stock criteria. The majority of these criteria (5) were based on quality metrics (Novey-Marx, 2013). The importance of the quality investment style therefore cannot be ignored. Despite its importance, the comparison of the relative performance of different quality-based investment styles has been impaired by the fact that there is no consensus as to how to define quality (Phillips, 2018). Proxies for quality have ranged from simple one-factor measures to complex multi-factor models. The Piotroski F-Score is an example of a multi-factor model commonly employed as a proxy for quality that is based on the analysis of financial statements. The F-Score comprises 9 financial statement variables: cash flow from operations; change in asset turnover; change in the current ratio; change in financial leverage; change in gross profit margin; change in net income.

The extent of the company's accruals; the extent of external capital raised and the return on assets (Van der Merwe, 2012). A stock that was awarded 1 point for each variable indicated that it was of high quality. High F-Score stocks (scores above 5) outperformed those stocks with low F-Scores (scores below 5) (Piotroski, 2000), especially when applied to stocks with cheap value metrics (high book-to-market ratios) in the American equity markets (Piotroski & So, 2012). The superiority of high F-Score stocks over low F-Score stocks was observed in China (between 2006 and 2014) (Deng, 2016), India (between 2009 and 2015) (Tripathy & Bani, 2017), Japan (between 1986 and 2001) (Noma, 2010) and Spain (between 1996 and 2013) (Forner & Veira, 2018). High F-Score stocks were observed to outperform both low F-Score stocks and the overall equity market in South Africa (Van der Merwe, 2012). Returns on capital and returns on equity have been traditionally used as proxies for quality. Greenblatt (2005) developed an equity investment strategy that combined cheap earnings (low price to earnings ratios) with high returns on capital in the American equity market. A higher quality stock that is those with cheap earnings and high returns on capital, outperformed lower quality stocks (those with expensive earnings and low returns on capital). Elze (2010) conducted a similar study to Greenblatt's and applied this to American stocks between 1994 and 2009. This population was sorted according to the BMR and then it was independently sorted using the return on the capital measure. Three portfolios were formed from each sort representing the top 30%, middle 40% and bottom 30% of the population. Using interceptions of both sets of portfolios, 9 groups of portfolios were formed.

Portfolios of cheap stocks (based on the book-to-market ratio) with high return on capital measures formed part the 'consistent earner strategy' and represented high-quality investments. The consistent earner strategy outperformed lower quality stocks as well as the overall American equity market. Research by Novey-Marx (2013) investigated the effectiveness of different proxies for quality in the American market between 1963 and 2012. The proxies used included the Piotroski F-Score, the Greenblatt model and gross profitability (relative to total assets). High-quality stocks outperformed low-quality stocks based on each model. Quality proxies based on gross profitability provided the best result when applied to cheap stocks based on the book-to-market ratio. In the South African context, Muller and Ward (2013) investigated different proxies for quality investments on the JSE between 1985 and 2011. The proxies included return on capital and return on equity. Five equally weighted portfolios were created each quarter and their total holding return was tracked. High-quality stocks (those with high returns on capital) outperformed the JSE ALSI index as well as stocks with low returns on capital. Return on equity was a weaker proxy for quality relative to return on capital; however, stocks with a low return on equity values yielded the weakest results. A review of both international and local research into proxies for quality has revealed that economic value added-based proxies for quality have not been used. Economic value refers to the returns generated by a company in excess of the company's cost of capital (McGregor BFA, 2014).

Standardisation of the returns on capital is an advantage of economic value added measures of proxy over simple return-based proxies. A stock with a lower return on capital (in excess of its economic cost) is favourable relative to a stock with a higher return on capital (but in deficient of its economic cost). The ratio of the return on the net assets of a company relative to its weighted average cost of capital represents a model that demonstrates the relative extent of economic value added by that company (RONA/WACC) (McGregor BFA, 2014). Net assets refer to the tangible assets of a company after deductible its operating liabilities. The WACC represents the weighted average of a company's cost of equity and debt funding. The cost of equity funding was determined using the Capital Asset Pricing Model, which is the most popular method in deriving this information (PwC Corporate Finance, 2015; McGregor BFA, 2014). A RONA/WACC ratio greater than 1 indicates that returns are sufficient to generate economic value for shareholders whereas a ratio of less than 1 indicates that economic value is destroyed (McGregor BFA, 2014). Stocks that generate economic value are sought after by investors and should appreciate in price whereas stocks that destroy value (called value traps) should be avoided and depreciate in price (Bird & Casavecchia, 2007). The RONA/WACC ratio could potentially have been used to screen for stocks that appreciate in value and to screen out stocks that depreciate in value. Despite this observation, little research into using the RONA/WACC as a screen for investment quality has been done and this represents a gap in existing investment research.

Research Aims and Purpose: The purpose of this study was to determine if the RONA/WACC model of economic value could be used as a screen for high-quality stock investments on the JSE. The motivation for this study was to determine if the RONA/WACC model could serve as an effective screen for quality and to create a literature base in the field of proxies for investment quality. This study sought to test the hypothesis that mean returns earned from high-quality stocks (with high RONA/WACC ratios) are superior to the mean returns earned from low-quality stocks (with low RONA/WACC ratios). The null hypothesis is stated below:

H_0: $R_{HQS} < R_{LQS}$, R_{HQS} = Mean returns earned from portfolios of high-quality stocks

R_{LQS} = Mean returns earned from portfolios of low-quality stocks

3. Method

The study population comprised industrial stocks listed on the JSE ALSI at any time between the period 31 January 2006 and 31 December 2015. The JSE ALSI was chosen as the population source to limit the inclusion of non-liquid stocks (Schoeman, 2012). Financial and resource stocks were excluded on the basis that these are subject to different operating risks relative to industrial stocks (Mutooni & Muller, 2007). The period of the study, being 10 years, was sufficient to include a full business cycle (Bosch & Ruch, 2012). All industrial stocks that were listed on the JSE ALSI in the study period were included in the population, irrespective of whether these are now delisted to avoid survivorship bias. The RONA/WACC ratio for each industrial stock was obtained from the IRESS database. This ratio was updated once annually 3 months after the end of the financial year for each respective industrial stock to avoid look ahead bias (Langa, 2016). The population was then sorted in descending order on the basis of the RONA/WACC ratio and was then divided into 3 equally sized portfolios, namely HEV, MEV and LEV (Zuccollo & Correia, 2016). HEV portfolios represent industrial stocks with the highest relative economic value added MEV portfolios represent industrial stocks with moderate levels.

Negative levels of economic value added. Each portfolio was approximately 22 stocks in size and was held for one calendar year. Portfolios were created monthly meaning that 120 portfolios were created between the periods 1 February 2006 to 1 January 2016. Holding period returns were calculated for each of the 12-month periods between 31 January 2007 and 31 December 2016. These returns included dividends (if the last date to trade was found within the respective period) but excluded transaction costs. An average holding period return over 120 observations was then calculated to gauge the aggregated performance of HEV, MEV and LEV portfolios. Segregated mean performance for each month of portfolio formation (January to December) was also derived and was averaged over 10 observations (being 1 for each year in this study). The cumulative value of R1 invested in each portfolio was also calculated to replicate the compound returns earned from the consistent adoption of each investment style (Zuccollo & Correia, 2016). The formulas for the calculation of holding period returns, average holding period returns and cumulative investment values are presented below:

$$Holding\ Period\ Stock\ Return = \frac{(P_t + D) - P_{t-1}}{P_{t-1}} \quad (1)$$

P_{t+1}= stock price 12 months after portfolio formation date

P_t= stock price at portfolio formation date

D= dividends over the holding period for stock

$$Holding\ Period\ Portfolio\ Return = \frac{\sum HR_{ta-z}}{n} \quad (2)$$

HR_{ta-z}= holding period return of stock a to z in portfolio t over holding period t

t = holding period 1 to 120

n = number of stocks in portfolio

$$CWI_{tm} = WI_{0m}(1 + HR_{1m})(1 + HR_{2m}) \ldots\ldots (1 + HR_{10m}) \quad (3)$$

CWI_{tm}= Cumulative Wealth Index for year t for portfolios formed in month m

WI_{0m}= R1 invested in portfolio formed in month m in the first year study of the study

HR_{tm}= Holding period portfolio return in year t for portfolio formed in month m

t= Number of years in this study where $1 \leq t \leq 10$

m= Month in which portfolio was formed. The mean returns from HEV, MEV and LEV portfolios were also compared to mean returns earned from the JSE TRIX. The TRIX was selected as the market proxy since it includes dividend returns. The risk-adjusted performance of HEV, MEV and LEV were also determined for comparison purposes. The Sharpe ratio is a risk-adjusted performance measure that compares each portfolio's return in excess of the risk-free rate relative to the portfolio return's standard deviation as shown in formula 4 below:

$$Portfolio\ Sharpe\ Ratio = \frac{HR_p - R_{fp}}{\sigma_p} (4)$$

HR_p = Holding period return for portfolio p
R_{fp} = Risk-free rate of return over the 12-month holding period
p = HEV, MEV, LEV, TRX portfolio number where $1 \leq p \leq 120$
σ_p = Standard deviation of portfolio holding returns for portfolio p

The risk-free rate was proxied using the yield on the3-month Treasury note. The yields on 4 consecutive issues of Treasury notes were geometrically linked to derive an annual equivalent risk-free rate. The overall standard deviation was derived across 120 portfolio observations and the monthly standard deviation was derived across 10 observations. This method of deriving the standard deviation was deemed to be appropriate given the fact that risk-adjusted performance was presented for comparative purposes only. Statistical significance was assessed using the students' one-tailed test and p-values were presented at the 99%, 95% and 90% level of significance on the basis that data were normally distributed. The Sign Test was utilised in the cases where data were not normally distributed. Statistical tests were conducted using the SPSS package, version 25.

4. Results

The results of the study are presented in Table 1 below. HEV portfolios generated an average return of 19.52% per stock relative to 13.09% and 16.31% per stock for MEV and LEV portfolios respectively. The market portfolio yielded an average annual return of 13.73% per stock. HEV portfolios generated a premium ranging from 6.43% per stock (relative to MEV) to 3.22% per stock (relative to LEV). The HEV premia did not occur sporadically. Relative to MEV portfolios, the HEV premium was observed in 97 portfolios out of 120 (81% of all portfolios). The HEV premium was also observed in 71% and 72% of all portfolios relative to LEV and MKT portfolios respectively. All of the premia were statistically significant at the 99% level of confidence with p-values of 0.000.

Table 1: Performance Statistics of Investment Styles

General	Average return	HEV premium	Premium frequency	Sharpe ratio
HEV	19.52%			0.67
MEV	13.09%	6.43% *(0.000)*	97	0.33
LEV	16.31%	3.22% *(0.000)*	85	0.47
TRX	13.73%	5.79% *(0.000)*	86	0.38

The generalised Sharpe ratios for each investment style were also calculated. The HEV investment style showed the highest Sharpe ratio, implying that it generated the highest risk-adjusted returns relative to the competing investment styles. These risk-adjusted returns were twice the magnitude of those observed from the MEV investment style. Both the HEV and LEV investment styles outperformed the risk-adjusted returns of the general equity market. The information presented in Table 1 has been desegregated according to each month of portfolio formation. This was done in order to simulate the actual returns earned by investors over the course of the study's time horizon and this is shown in Table 2 below.

Table 2: Average HEV Premia per Month of Portfolio Formation

	Average return	Sharpe ratio	HEV premium	Premium frequency
January				
HEV	18.76%	0.67	NA	NA
MEV	9.74%	0.16	9.02% *(0.002)*	8
LEV	13.65%	0.35	5.11% *(0.013)*	9
TRX	11.64%	0.28	7.12% *(0.001)*	9
February				
HEV	19.48%	0.68	NA	NA
MEV	13.55%	0.37	5.93% *(0.027)*	8
LEV	18.06%	0.46	1.42% *(0.315)*	8
TRX	13.93%	0.41	5.55% *(0.032)*	8
March				
HEV	19.60%	0.59	NA	NA
MEV	13.92%	0.33	5.68% *(0.041)*	7
LEV	15.80%	0.38	3.80% *(0.009)*	9
TRX	15.84%	0.37	3.76% *(0.148)*	5
April				
HEV	19.01%	0.59	NA	NA
MEV	13.70%	0.35	5.31% *(0.013)*	7
LEV	15.01%	0.40	4.00% *(0.017)*	8
TRX	14.88%	0.38	4.13% *(0.115)*	7
May				
HEV	18.45%	0.61	NA	NA
MEV	12.95%	0.32	5.50% *(0.010)*	9
LEV	17.19%	0.47	1.26% *(0.293)*	7
TRX	14.72%	0.37	3.63% *(0.146)*	7
June				
HEV	19.66%	0.67	NA	NA
MEV	16.82%	0.48	2.84% *(0.022)*	7
LEV	17.35%	0.42	2.31% *(0.186)*	5
TRX	14.85%	0.42	3.81% *(0.146)*	6
July				
HEV	20.54%	0.69	NA	NA
MEV	14.11%	0.35	6.43% *(0.007)*	9
LEV	17.70%	0.50	2.84% *(0.108)*	7
TRX	14.02%	0.38	6.52% *(0.141)*	6
August				
HEV	20.95%	0.78	NA	NA
MEV	14.11%	0.37	6.84% *(0.005)*	7
LEV	17.10%	0.54	3.85% *(0.106)*	7
TRX	13.77%	0.45	7.18% *(0.059)*	7
September				
HEV	19.93%	0.63	NA	NA
MEV	12.34%	0.28	7.59% *(0.016)*	8
LEV	14.79%	0.45	5.14% *(0.063)*	6
TRX	13.00%	0.46	6.93% *(0.071)*	6
October				
HEV	19.50%	0.60	NA	NA
MEV	11.98%	0.27	7.52% *(0.004)*	9
LEV	16.58%	0.52	2.92% *(0.156)*	7
TRX	13.00%	0.37	6.50% *(0.016)*	8
November				
HEV	19.55%	0.60	NA	NA
MEV	13.00%	0.27	6.55% *(0.010)*	9

LEV	16.65%	0.54	2.90% *(0.145)*	6
TRX	12.93%	0.30	6.62% *(0.013)*	8
December				
HEV	18.82%	0.57	NA	NA
MEV	10.87%	0.21	7.95% *(0.018)*	9
LEV	15.83%	0.45	2.99% *(0.174)*	6
TRX	12.19%	0.30	6.63% *(0.034)*	9

For example, HEV portfolios formed in January earned an average return of 18.76% per stock. In comparison, MEV and LEV portfolios yielded annual returns of 9.74% and 13.65% per stock respectively. An HEV premium of 9.02% per stock was observed relative to MEV portfolios with a p-value of 0.002. An HEV premium of 5.11% per stock was observed relative to LEV portfolios with a p-value of 0.013. HEV portfolios outperformed MEV portfolios in 8 observations out of 10 (outperformance of LEV portfolios was observed in 9 instances out of 10). Relative to the general equity market, an HEV premium of 7.12% per stock was observed. This was statistically significant with a p-value of 0.001. An HEV premium over the general equity market was observed in 9 instances out of 10. HEV portfolios outperformed MEV portfolios across all months of portfolio formation. These premia were statistically significant. HEV portfolios outperformed MEV portfolios in 9 instances of 10 across 5 months of portfolio formation (May, July, October, November and December). Outperformance of 80% and 70% were noted across 4 and 3 months of portfolio formation respectively. The strongest average premium was observed in January portfolios (9.02%) whereas the weakest average premium was observed in June portfolios (2.84%). Annual HEV-MEV premia were most commonly observed between 5.00% and 6.00% per stock. HEV portfolios also outperformed LEV portfolios across all months of portfolio formation. Success rates ranged from 50% (June portfolios) to 90% (January and March portfolios).

The most common success rates were observed to be 70% (May, July, August and October portfolios) followed by 60% (September, November and December portfolios). Despite this practically significant outcome, HEV-LEV premia were only statistically significant in 4 months of portfolio formation (January, March, April and September). The maximum average premium was observed in September portfolios (5.14%) whereas the weakest average premium was observed in May portfolios (1.26%). Annual HEV-LEV premia were most commonly observed to be between 2.00% and 3.00% per stock. HEV portfolios outperformed the general equity market across all months of portfolio formation. Approximately 58% of the HEV-TRX premia were statistically significant, with portfolios formed between March and July yielding statistically insignificant premia. Success rates of 60%, 70% and 80% were observed in equal proportions (3 months). Success rates peaked at 90% (January and December portfolios) and waned at 50% (in March portfolios). The maximum premium was observed at 7.18% (August portfolios) whereas the minimum premium was observed at 3.63% (in May portfolios). Annual HEV-TRX premia were most commonly observed to be between 6.00% and 7.00% per stock. The risk-adjusted performance of HEV portfolios ranged from 0.78 in February portfolios to 0.57 in December portfolios. While this is admittedly low, HEV portfolios delivered higher Sharpe ratios relative to MEV portfolios and LEV portfolios across all months of portfolio formation. HEV portfolios also outperformed the market portfolio across all months of portfolio formation.

The Sharpe ratios for HEV portfolios were close to twice the size of the relevant ratios for the market across all months of portfolio formation. The cumulative compound value of R1 invested in each investment style (across each month of portfolio formation) is shown in Table 3 on the following page. As at the end of the investment horizon, the cumulative value of R1 invested in HEV portfolios peaked at R6.10 (August portfolios) and troughed at R4.84 (May and December portfolios). In comparison, the value of R1 invested in MEV (LEV) portfolios peaked at R4.14 (R4.40) and troughed at R2.27 (R3.16) respectively. The cumulative compound values of HEV portfolios exceeded the corresponding MEV (LEV) values across 117 (106) observations out of 120. This was equivalent to success rates of 98% and 88% respectively. HEV portfolios delivered superior cumulative results across all observations in August, September, October and December portfolios. Superior HEV performance was observed across 90% of all observations in January, March, June and July portfolios. In the remaining months of portfolio formation (excluding February), HEV portfolios delivered superior results across 80% of observations. February portfolios revealed HEV weakness, with HEV outperformance only being observed across 20% of portfolio observations. In relation to the general equity market, HEV portfolios delivered superior cumulative returns across 115 portfolios out 120 (yielding a success rate of 96%).

Table 3: Cumulative Value of R1 Invested in each Investment Style

	Cumulative value of R1 invested and rebalanced annually in January									
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
HEV	1.22	*1.00*	*1.36*	*1.85*	*1.99*	*2.83*	*3.43*	*4.07*	*4.51*	*5.02*
MEV	*1.24*	0.91	1.08	1.34	1.52	1.96	2.14	2.21	2.26	2.27
LEV	1.13	0.88	1.15	1.46	1.49	2.05	2.65	2.99	2.85	3.16
TRX	1.19	0.91	1.21	1.44	1.48	1.87	2.27	2.52	2.65	2.72
	Cumulative value of R1 invested and rebalanced annually in February									
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
HEV	1.40	1.42	1.25	1.62	2.04	2.36	3.30	3.94	*5.36*	*5.30*
MEV	1.41	1.38	1.21	1.51	1.78	2.19	2.86	3.14	3.50	3.20
LEV	*1.57*	*1.46*	*1.27*	*1.75*	*2.21*	*2.50*	*3.46*	*4.05*	5.05	4.36
TRX	1.32	1.45	1.13	1.51	1.82	2.02	2.49	2.87	3.35	3.32
	Cumulative value of R1 invested and rebalanced annually in March									
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
HEV	*1.41*	1.53	*1.21*	*1.77*	*2.16*	*2.52*	*3.46*	*4.06*	*5.42*	*5.12*
MEV	1.30	1.33	1.06	1.62	1.83	2.30	2.80	3.04	3.46	3.17
LEV	1.38	1.35	1.04	1.56	1.84	2.13	2.82	3.27	4.10	3.59
TRX	1.39	*1.69*	1.05	1.56	1.93	2.12	2.53	3.11	3.61	3.45
	Cumulative value of R1 invested and rebalanced annually in April									
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
HEV	1.38	1.33	*1.17*	*1.79*	*2.09*	*2.53*	*3.39*	*4.02*	*5.03*	*4.99*
MEV	1.24	1.22	0.96	1.41	1.57	1.96	2.49	2.68	3.10	3.18
LEV	*1.38*	1.29	1.13	1.65	1.83	2.31	2.94	3.22	3.64	3.56
TRX	1.38	*1.53*	1.09	1.58	1.81	1.95	2.39	2.95	3.32	3.43
	Cumulative value of R1 invested and rebalanced annually in May									
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
HEV	1.44	1.35	*1.21*	*1.68*	*2.02*	2.43	*3.15*	*3.82*	*4.83*	*4.84*
MEV	1.33	1.22	0.97	1.28	1.52	1.95	2.42	2.64	3.05	2.98
LEV	*1.48*	1.30	1.15	1.65	1.87	*2.47*	3.11	3.73	4.22	4.20
TRX	1.37	*1.53*	1.07	1.51	1.78	1.92	2.23	2.91	3.34	3.34
	Cumulative value of R1 invested and rebalanced annually in June									
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
HEV	1.53	1.39	*1.35*	*1.80*	*2.16*	*2.70*	*3.56*	*4.25*	*5.21*	*5.39*
MEV	1.53	1.35	1.21	1.51	1.84	2.27	3.03	3.58	4.09	4.14
LEV	*1.59*	1.29	1.17	1.59	1.81	2.27	3.21	3.83	4.05	4.09
TRX	1.43	*1.63*	1.21	1.47	1.81	1.91	2.49	3.03	3.29	3.50
	Cumulative value of R1 invested and rebalanced annually in July									
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
HEV	*1.58*	1.36	*1.45*	*1.93*	*2.25*	*2.96*	*3.76*	*4.46*	*5.55*	*5.75*
MEV	1.50	1.23	1.20	1.42	1.76	2.30	2.84	3.06	3.38	3.27
LEV	1.57	1.27	1.25	1.62	1.84	2.29	3.10	3.84	4.21	4.40
TRX	1.37	*1.51*	1.13	1.38	1.72	1.88	2.27	3.02	3.16	3.28
	Cumulative value of R1 invested and rebalanced annually in August									
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
HEV	*1.56*	*1.46*	*1.67*	*2.20*	*2.44*	*3.28*	*4.09*	*4.65*	*5.84*	*6.10*
MEV	1.49	1.25	1.26	1.44	1.61	2.18	2.72	3.00	3.36	3.32
LEV	1.49	1.21	1.35	1.73	1.91	2.38	3.10	3.84	4.02	4.31
TRX	1.40	1.40	1.27	1.51	1.71	1.96	2.41	3.09	3.22	3.37
	Cumulative value of R1 invested and rebalanced annually in September									
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**

HEV	*1.66*	*1.56*	*1.59*	*2.04*	*2.23*	*2.99*	*3.72*	*4.25*	*5.09*	*5.47*
MEV	1.42	1.25	1.20	1.32	1.50	2.13	2.51	2.81	3.00	2.86
LEV	1.38	1.17	1.13	1.37	1.45	1.97	2.46	2.99	3.25	3.58
TRX	1.34	1.33	1.24	1.38	1.62	1.91	2.34	2.92	2.95	3.20
	Cumulative value of R1 invested and rebalanced annually in October									
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
HEV	*1.51*	*1.27*	*1.47*	*2.02*	*2.07*	*2.90*	*3.85*	*4.12*	*4.81*	*5.18*
MEV	1.44	1.19	1.25	1.45	1.55	2.10	2.48	2.51	2.75	2.78
LEV	1.40	1.12	1.21	1.48	1.67	2.29	3.07	3.59	3.85	4.12
TRX	1.37	1.13	1.21	1.47	1.52	1.89	2.41	2.78	2.91	3.10
	Cumulative value of R1 invested and rebalanced annually in November									
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
HEV	*1.44*	1.14	1.52	*2.02*	*2.11*	*2.96*	*3.87*	*4.25*	*5.03*	*5.14*
MEV	1.43	1.00	1.21	1.45	1.64	2.13	2.69	2.58	3.05	2.83
LEV	1.40	*1.19*	*1.53*	1.84	2.04	2.68	3.54	4.13	4.22	4.19
TRX	1.38	0.95	1.23	1.46	1.59	1.89	2.38	2.68	2.99	2.89
	Cumulative value of R1 invested and rebalanced annually in December									
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
HEV	*1.30*	*1.01*	*1.38*	*1.93*	*1.96*	*2.75*	*3.47*	*4.06*	*4.78*	*4.84*
MEV	1.29	0.93	1.19	1.35	1.57	1.99	2.35	2.52	2.65	2.46
LEV	1.26	0.99	1.31	1.67	1.66	2.25	3.01	3.59	3.40	3.77
TRX	1.30	0.94	1.22	1.41	1.58	1.89	2.30	2.63	2.80	2.80

5. Conclusion

These results therefore show that industrial stocks with high RONA/WACC ratios outperformed those stocks with weaker economic value and also outperformed the general equity market over the period 2006 to 2016. The extent of this outperformance ranged from 6.43% per stock to 3.22% per stock. This outperformance was consistent rather than sporadic, having been demonstrated across a majority of the monthly observations. The null hypothesis has thus been rejected. Portfolios which comprised high RONA/WACC stocks outperformed portfolios which comprised lower RONA/WACC stocks. HEV portfolios also outperformed the general equity market on a consistent basis. The final cumulative value of R1 invested in HEV portfolios ranged from R5.30 to R4.84. This dominated the results from MEV, LEV and TRX portfolios across each month of portfolio formation respectively. HEV portfolios also outperformed MEV, LEV and TRX portfolios on a risk-adjusted basis across all months of portfolio formation. The RONA/WACC ratio can therefore be used to create portfolios that outperform both the general equity market and portfolios that are created using stocks with lower RONA/WACC ratios. The RONA/WACC ratio has been demonstrated to be a good proxy for quality. Future avenues for research based on this study include a comparison of the RONA/WACC proxy relative to other proxies for quality (such as return on capital) and the application of this research to financial and resource stocks respectively.

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