

**RISK GOVERNANCE & CONTROL:  
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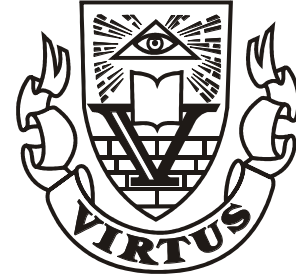
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# CHALLENGING BULLWHIP EFFECT DYNAMICS WITH ELECTRONICALLY ENABLED-SUPPLY CHAIN MANAGEMENT SYSTEMS

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## Abstract

The bullwhip effect shows the dynamics of accumulating order rate that exceeds the tentatively stable actual demand rate. This paper aimed to assess the relative role of e-SCM systems as consumer demand orders cascading upstream supply chain network. The study's population, consisting of the managers (senior and functional levels) including supervisory level (non-managerial) from retail sales, logistics, warehousing, marketing, manufacturing and IT hubs organisations, comprised of 460 respondents. In order to achieve the paper's objective, the researcher developed and distributed a survey questionnaire and collected and analysed the data using Statistical Package for the Social Sciences (SPSS). The empirical results from the study reveal that business-to-business information technology (B2BIT) diffusion frequencies have an effect on supply chain performance and e-SCM implementation promotes connectivity among supply chain partners to entrench commitment of the exchanged demand order information to mitigate the bullwhip effect.

**Keywords:** Business-to-Business IT, Electronic Integrated Supply Chain Systems, FMCG Industry, Information Technology, Integrated Supply Chain

## 1. INTRODUCTION

An integrated manufacturing procedure with highly linked facilities and distribution channels that function together to acquire raw materials, transform raw materials into intermediate and final products, and deliver final products to retailers, is referred to as a supply chain network Fu et al. (2014). Such a supply chain can be represented by a directed graph composed of nodes and arrows. According to Fu et al. (2014) supply chain management (SCM), or supply chain optimization (SCO), is a set of methods used to efficiently integrate suppliers, manufacturers, distributors and retailers, so that goods are produced and distributed in the right quantities, to the right locations, and at the right time, in order to reduce system-wide costs while satisfying service level requirements Fu et al. (2014). Lately it is gradually becoming hard for corporations to compete on a world-wide scale with only heuristic decisions on basic illustrations. In several corporations, management has reached the conclusion that optimizing the product flows cannot be attained without applying a systematic approach to the business. More and more approaches and techniques from control engineering are now utilized to design SCM strategies for achieving various goals Fu et al. (2014).

The amplitude in demand order variability (DoV) as orders surge upstream in the supply chain network epitomises a harmful effect known as the bullwhip effect. The real consumer demand orders have comparatively evinced less variability while trading supply chain members on the midstream and upstream stages experience the amplified order

vacillations. The oscillator effect reveals a number of pernicious problems throughout the supply chain networks, as downstream sites include harmful bloated inventory and shortages with poor customer service (Makui and Madadi, 2007; Croson, Donohue, Katok and Serman, 2005; Lee, Padmanabhan and Whang, 2004). The midstream and upstream sites depict the disharmonic capacity with costs and improper planning and inconsistent scheduling in production (Balan, Vrat and Kumar, 2009; Heizer and Render, 2008; Jacobs and Chase, 2008; Davis and Heineke, 2005).

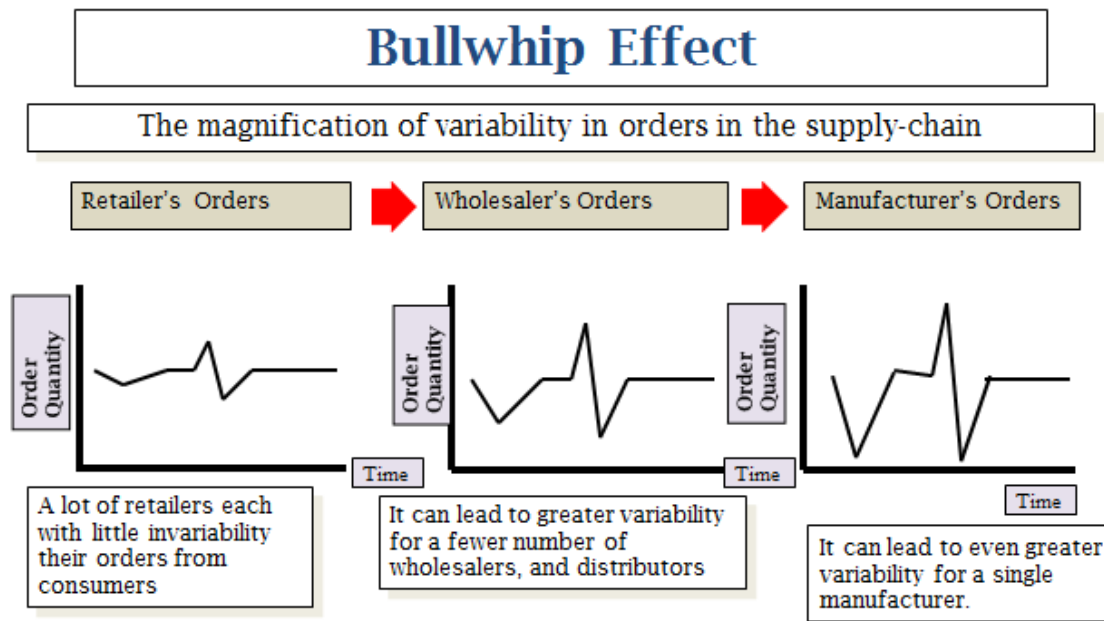
These empirical revelations exhort the supply chain trading partners to exert efforts on maximizing profits through optimisation of the product flows and availability as the operational imperative underpinned by electronically-enabled supply chain management (e-SCM) systems. Electronically-enabled supply chain management has tentatively integrative prospects to manage the overall flow of products on frequencies of order replenishment rates, quasi-real-time information sharing, and finance on transactional committed orders from the supplier's supplier to the customer's customer on reduced oscillator effect (Folinas *et al.*, 2004; Chae *et al.*, 2005; Miao and Chen, 2005). The integration of clockspeed-based flow in a given chain network involves activities such as "the sharing of information about production, inventory level, delivery, shipment, capacity, sales and performance with firms and between supply chain members" (Patnayakuni and Rai, 2002; Lin and Lin, 2006).

The synthesis of the above revelations informs the thematic configuration of this study from the

custodian of information to the lead suppliers in the industry. This study investigates the selected fast moving consumer goods (FMCG) industry on the amplified consumer DoV as orders cascade from downstream (retailers) to the midstream and upstream (distribution centres, manufacturers as capacitated suppliers, and lead suppliers and *n*-tiers) sites of the supply chain network. The authors synopsis of the consumption cycle of the end

product as stable while the orders for raw material are highly variable, increasing costs and making it difficult for supply to match demand (Chopra and Meindl, 2007; Cachon and Terwiesch, 2009). The magnitude of consumer DoV is presented in the figure below where the amplification of demand orders moves all echelon parties in the supply chain away from the efficient frontier with diminishing customer service levels.

Figure 1. Supply chain echelons with magnitude of demand order variability (DoV)



The varying demand orders lead to variation in inventory levels at each stage/tier of the SC (behavioral patterns - same patterns on the inventories throughout all elements of the SC). Note: Beyond the order vacillations → Retailers go back to its standard orders after leading to all kinds of distortions, disturbances and variations in demand

Source: Lee, L. H., Padmanabhan, V. and Whang, S. (2004) 'Comments on information distortion in a supply chain: the bullwhip effect'. *Management Science*, 15:1887-1893

Figure 1 indicates the phenomenon that occurs in a supply chain when order size variability is amplified as orders move upstream in the supply chain from the retailer to the manufacturer. In other words, when there are multiple levels to supply chain - *n*-tiers, lead supplier, manufacturer, distributor, original equipment manufacturer, customer and user the further up the chain, the less predictable the order quantities are. The approach claims that distorted demand information can lead to inefficiency in a supply chain network (Jacobs and Chase, 2008:184). Although Cachon and Terwiesch,(2009) and Sucky (2009) argue on demand volatility as one moves up the supply chain, that anti-bullwhip effect should be reflected as manufacturers depict less demand volatility than retailers through production smoothing relative to consumer demand. Generally, the bullwhip effect depicts the dynamics of accumulating order rate by the downstream site that exceeds the tentatively stable actual demand rate as one communicates demand orders to the upstream supply chain site. The objectives of this study include to:

- Analyse the challenges of e-SCM systems from the perspective of the bullwhip effect on the selected FMCG industry.
- Assess the relative role of e-SCM as consumer demand orders cascading upstream supply chain network in the FMCG industry.
- Understand the relationship of the extent to which the phenomenon of the bullwhip effect can be explained by e-SCM systems.

## 2. LITERATURE REVIEW

### Supply Chain Management and Information Technology (IT)

Information technology and internet have had a remarkable impact on the way corporations function today. This technology has developed rapidly over the past few years that it is hard to speculate what the future holds. Globalization, Internet and hyper competition give a new dimension to the market and operation. All three forces emphasize the pressure to decrease prices. The reasons should be sought in

the rising interest in electronic commerce. Trends towards globalization, logistics and the development of ICT, including e-commerce, are uniting to restructure the world's trading patterns and subsequently physical trade flows. Online commercial services and e-commerce capabilities is the reason why internet technology is quickly becoming a powerful business tool. The net is prepared to become a medium by which corporations trade, make contracts, exchange data and information, discuss designs and locate components Temjanovski (2014).

The effective supply chain management seems to rely on high levels of mutual trust, business process co-operation and strong collaboration with active communication on inter and intra-organisational supply chain performance capabilities. A number of similar definitions are available in the literature and among professional associations, although the definition of supply chain management has evolved overtime as the purposes and components of supply chains have changed. The Council of Supply Chain Management Professionals (CSCMP) defines supply chain management as follows: "Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion and all logistics management activities. It also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, it integrates supply and demand management within and across companies" (CSCMP, 2011). According to Snyder and Shen (2011:1) supply chain management is "the set of practices required to perform the functions of the supply chain and to make them more efficient, less costly and more profitable. The supply chains are a schematic network that illustrates the relationships between its elements, echelon at each vertical level of the supply chain, a stage or node at the location in the network, the flow of goods, information or money as links between stages and a portion of the supply chain from which products originate (upstream site) and the demand end (downstream site)".

These definitions dovetail the elements of internal and external integrated processes in the supply chain networks, Wisner *et al.* (2009:447) define process integration as "coordinating and sharing information and resources to jointly manage a process". Process integration can sometimes be an extremely difficult task, because it requires proper training and preparedness; willing and competent trading partners; trust; and, potentially, a change in one or more organisational cultures. The use of supply chain information technology (IT) to share and integrate data between buyers and suppliers is value-creating a virtual supply chain as information-based rather than inventory-based. The effective supply chain management should epitomise the design and reflect sound management of seamless, value-added processes across extended enterprises to meet the real needs of the end customer. Christopher (2011:103) stresses that "supply chain partners can only make full use of quasi-real-time shared information through process alignment, collaborative work between buyers and suppliers, joint product development, common systems and

shared information". The integration of IT allows for the efficient transmission of information throughout the supply chain which in-turn facilitates supply chain integration for amelioration of bullwhip effect. The underpinning view of an extended enterprise stresses a higher level of collaboration and synchronization on the underlying agile network. In modern economies, the supply chains compete with supply chains on distinct and hard to replicate capabilities to maintain the competitive essence on new revenue opportunities. The supply chain IT portrays as an essential impetus tool for global supply chain competitiveness to enable a high degree of visibility, connectivity, responsiveness and flexibility in supply chain configurations.

### Electronically-enabled Supply Chain Management (e-SCM)

According to Lin (2013) electronic supply chain management system (e-SCM) is a form of Internet-based interorganizational system (IIOS) that provide companies with a platform to improve communication, coordination, and collaboration across organizational boundaries. It is therefore important to increase competitiveness. Compared to early forms of IIOS, such as internet-based electronic data interchange (EDI), e-SCM depends greatly on socio-technical interactions (e.g., shared database and joint decision making support) to allow the integration of fragmented, silo-oriented supply chain procedures with low cost and rich content. E-SCM has been discussed in recent literatures as a technology that can offer adopters with numerous operational and strategic benefits. Whereas the short-term, operational objective of e-SCM is to increase productivity and decrease inventory and cycle time, and the long-term objective focuses on the development and innovation of the end-to-end processes between companies, their customer, and suppliers. Although e-SCM efforts sometimes fail to reach forecasted results, e-SCM is now a Strategic management system to improve competitive position and a major concern for top-level managers. Therefore, identifying and understanding the factors influencing the e-SCM adoption decision is one of the fundamental requisites for development of e-SCM solutions Lin (2013).

Information technology integration includes the exchange of knowledge with partners up and down stream of the supply chain, allowing them to collaborate and to create synchronised replenishment plans. The rationale dictates that IT should be interlinked with integration and active coordination to enhance the levels of responsiveness and flexibility while aligning diffusion with technology clock speed. Kim and Im (2002) imply that the fundamental impact of IT on supply chain performance can be achieved "when the network is evolved from a network for data exchange into knowledge sharing space". In other words, the impact of IT on supply chain is more about knowledge sharing and product development than a cost savings exercise. The organisations in an electronic supply chain network should therefore be able to share and create knowledge through the information exchange, brokerage, and integration cycle. Electronic supply chain design builds the high-

speed communication infrastructure among companies inside the supply chain based on IT and the shared information (Kim and Im, 2002). Ngai, Chau and Chan (2011:246) discovered that “a higher-competitive environment encourages supply chain partners to collaborate and develop supply chain and IT integration competence to achieve satisfactory supply chain agility”.

FMCG retail stores create value for their customers and extensively appropriate value from the markets through innovative retail business models (Sorescu, Frambach, Singh, Rangaswamy and Bridges, 2011:3). Certain retail companies like Walmart (Global Company) and the Shoprite group (South African company) seem to be competitively positioning themselves ahead of others in their territory through constant innovative business models. According to Verma and Boyer (2010:176) “RFID utilises an integrated circuit and a tag antenna printed on a tag to transmit and record information on the product with an ability to capture more information on a product in a faster, cheaper manner, offers supply chain partners a chance to exchange more information across the supply chain and improve overall forecasting accuracy”. The electronic integrated systems facilitate the exchanging and sharing of information in terms of order information, operation information, strategic information, and strategic and competition information in an inter and intra-organisational-configured supply chain network (Seidmann and Sundarajan, 1997; Daniel *et al.*, 2002). Radio Frequency Identification (RFID) is “a technology that uses waves to automatically identify individual items or products in real time in a given supply chain” (Poirier and McCollum, 2006).

Essentially, the visibility of information flow through the RFID system (figure1) facilitates the forecast accuracy, real-time data and interlink among the supply chain partners (suppliers, supplier DC, retailer DC and retail outlets) to enhance frequencies of replenishment rate. If the integrated e-SCM system is not utilised, the vacillations of demand orders sequences amplify upstream in the supply chain network (known as the bullwhip effect). This means that the retail store outlets are highly restricted on in-house systems and extensively reliant on suppliers with direct store delivery while the retail DC experiences slow information flow with no interlace electronic system on inventory status/product availability, exchange of demand orders or order tracking with RFID.

Hugo *et al.*, (2008:258) underpin an implacable IT from both figures (figures 1 and 2) as “one of the major integrating impetus behind the development of supply chain management”. The real-time accessibility to accurate and massive information in the network is greased by integrated IT. Simchi-Leviet *et al.*, (2008:405) further note that “the importance of information technology to achieve supply chain integration is emphasised when applying strategies that reduce lead time and increase the service level, the timelessness and availability of relevant information is critical”. The efficient flow of information among supply chain partners is enabled and facilitated by adopting an integrated information technology system that underpins swift responsiveness and accurate information flow along the supply chain network.

Generally, the nature of SCIT systems with exchanged information from a central hub data warehouse allow the integration of fragmented, silo-oriented supply chain processes with low cost and rich content. Yao *et al.*, (2007:884) describe electronic supply chain management (e-SCM) systems as “one kind of inter-organisational systems (IOS) that enhance communication, coordination and collaboration between trading partners”.

### Strategic nature of Electronically-enabled Supply Chain Management (e-SCM)

The inter-connectivity nature of modern supply chains are embedded in highly desirable electronically-enabled supply chain management systems. These seamless linkages between supply chain partners seem to entrench velocity on real-time information flow in consumer demand and supply sides, inventory status and availability, and capacity availability. Li *et al.*, (2009), and Darwish and Odah (2010) support that supply chain management technology has an ability to achieve accurate forecasts by communicating real-time data (accurate point-of-sales data) and increase in inventory visibility (access updated current retail, distribution centres and supplier inventory status) in which the costs of transacting will be reduced amongst the trading supply chain partners. The insights into e-SCM systems diffusion uphold the importance of electronic intra-and inter-organisational systems that enhance communication, coordination and collaboration between supply chain partners.

The contemporary business environment reveals that competition is “no longer between organisations, but between supply chains” (Heizer and Render, 2008; Wu and Chuang, 2012), and a seamless integrated network of key business processes from end users should embrace e-SCM diffusion as an open collaborative system. The e-SCM diffusion “involves both internal diffusion among functional units within an organisation and external diffusion across a large number of inter-organisational trading partners” (Smith *et al.*, 2007:2595). In an operationally defined three diffusion stages, Wu and Chuang (2012:476) examine “e-SCM diffusion: 1) Adoption is defined as the extent to which a decision requires being made for the use of e-SCM and a preparation needs to be initiated for the redesign of business processes; 2) Internal diffusion refers to the extent to which e-SCM is used to support key internal organizational activities of the firm; 3) External diffusion indicates the extent to which the firm has integrated its trading partners by e-SCM to perform transactions with them”. Wu and Chuang (2012:475) explain further that “the adoption stage describes sub-stages of knowledge acquisition, persuasion and learning, and decision, leading to the actual adoption decision.

The implementation stage comprises activities of preparation of changes to task structure, task process, and technology necessary for innovation deployment”. According to Wu and Chuang (2012:474) e-SCM is defined as “the physical implementation of supply chain management process with a support of information technology while also attempting to make a distinction from the

concept of supply chain management". "If the e-SCM diffusion between supply chain partners is complex and dynamic in nature, the benefits from e-SCM systems can be disseminated unequally and skewed in favour of members with dominance than dependence members in the chain network" (Subramani, 2004:45-74). Ke *et al.* (2009:839) investigate "how different types of power exercised by the dominant firm affect the focal firm's e-SCM system adoption through the effects on the focal firm's trust and perceived institutional pressures. Electronically-enabled supply chain management systems allow trading partners to share real-time information on demand, such as inventory and new product ideas". The uncertainty of e-SCM system diffusion has an effect on adopting updated innovation, and the insufficiency of e-SCM system diffusion is regarded as a "major critical failure factor of supply chain management" (Wu and Chuang, 2012:103-115).

### Electronic integrated supply chain systems

Systems integration should support the facets of organisations in terms of flexibility, agility, efficiency and quality to meet the consumer demand, shorten lead-times and provide excellent customer service by mitigating the oscillator effect. Camarinha-Matos and Afsarmanesh (2002:439) define integration as "the process through which individuals of a lower order get together to form individuals of a higher order and also, to integrate is to make it a whole, to complete". Integration implies the creation of proper conditions for various components (independently of the level of autonomy) to be able to dialogue, link, collaborate and cooperate in order to achieve the goals of the supply chain system. Although supply chain collaboration and integration were used interchangeably as "a tight coupling process between supply chain partners" (Cao and Zhang, 2011:163-180), supply chain integration means "the unified control (or ownership) of several successive or similar process formerly carried on independently" (Flynn *et al.*, 2010:58-71). Yu *et al.*, (2010:2891) stress that "effective supply chain management is not achievable by any single enterprise, but instead requires a virtual entity by faithfully integrating all involved partners, who should come up with the insightful commitment of real-time information sharing and collaborative management

The challenging problem in a chain network is still the bullwhip effect, even "small fluctuations in consumer demand or inventory levels of the final company in the chain are propagated and enlarged throughout the chain" (Forrester, 1961; Holweg and Bicheno, 2002; Jacobs and Chase, 2008; Simchi-Levi *et al.*, 2008). In the same token, the systems integration is also a complex process facing a number of obstacles (Camarinha-Matos and Afsarmanesh, 2002), such as heterogeneity, distribution (physical/geographical), legacy systems without global optimisation/systems or sociable, and continuous and rapid technology evolution, unless the supply chain integration in terms of customers, internal processes functionality and suppliers as a demonstration of strong commitment

to the supportive capabilities of segmentation, relevancy, responsiveness and flexibility.

These statements denote that the e-business, supply chain management, and customer relationship management require close integration of information and process across different parts of the organisation on electronic integrated supply chain systems. Furthermore, Lam (2005:149-157) challenges the sheer scale of integrating so many different systems that it adds to the complexity of the project with the required skills and expertise in integration may also prove to be problematic. The electronic integrated supply chain systems should, therefore, entrench the alignment of core capabilities of available channel partners with the product and service needs and priorities of customers anywhere in the supply chain. The e-SCM systems should also allow in-stock availability and prices to be communicated from the wholesaler to the retailer, and orders can be placed in real-time from the retailer to the with reduced consumer demand variability. Eventually the e-SCM should better integrate the virtual value-chain activities that focus on the consumption cycle commencing from product process design to the customer accommodation stage of logistics. Gunasekaran and Ngai (2005:423) advocate that "supply chain management emphasises the overall integration and long-term benefit of all parties on the value chain through cooperation and information sharing". These signify active supply chain communication, usefulness of e-SCM and the application of IT in supply chain management, and seemingly palliate the variability on consumer demand ordering (Yu *et al.*, 2001; Barratt and Barratt, 2011).

## 3. RESEARCH METHODOLOGY

### Research design

The research design outlined a plan and structural framework of how the researcher intended to conduct the study to solve the research problems (Cooper and Schindler, 2008:140). The overall research design was an exploratory survey on the empirical research design framework that constituted the blueprint for the data sources, data collection, data sampling methods and measurement, and statistical analysis of data. This design manifested the plan and structure of the investigation so conceived as to obtain answers to the research questions of the bullwhip effect, and electronically-enabled supply chain management (e-SCM) systems. Blumberg, Cooper and Schindler (2008:195) cited Kerlinger (1986:279) who stated that "a research design expresses both the structure of the research problem and the plan of investigation used to obtain empirical evidence on relation of the problem". This study used a cross-sectional quantitative approach (that is, measurements were taken at one point in time on numerical exploration) to analyse data, and the self-administered questionnaire survey instrument was used for the data collection.

### Data Sources

The organisations in retail sales, logistics, warehousing, marketing, manufacturing and IT hubs



were the units of analysis in this study, as such the managers (senior and functional levels) including supervisory level (non-managerial) are the subjects within the organisations. Although the supervisory positions, known as the non-managerial category, have been considered for their reliable information and comprehensive understanding of individual retail outlets as well as retail warehousing systems, the senior executives were ideal participants for this study. Nevertheless, it is crucially important for this study to make inferences with intelligible thoughts, sound rational and, above all, cooperative attitudes to produce integrated research on new knowledge and solution-based findings.

## Data Collection

### Survey Instruments

A survey instrument incorporating a list of cases from bullwhip effect, inventory positioning, information sharing, electronic supply chain management and strategic global optimisation activities has been constructed based on the literature reviewed. The content validity of the instrument is established by grounding it in existing literature. A self-developed survey instrument was designed based on the constructs of the conceptual framework using structured questionnaires to enhance research objectivities. While it could be argued that objective scales are more insightful, the study uses the subjective scales because of the multi-sectional nature of the survey. Sekaran and Bougie (2009:197) describe the questionnaire as an efficient data collection mechanism with a pre-formulated, written set of questions to which respondents record their answers, usually within rather closely defined alternatives.

The pre-formulated thematic instrument (bullwhip effect, information sharing, inventory positioning and optimisation strategies) was grounded within the extant literature review and it was pre-tested using key industry practitioners and academics on a discipline based for suitability to enhance face and content validity. The survey questionnaire was structured into five sections where section one included typical demographics, personal profiles and general information for both the company and individual respondents; representing nominal data (mutually exclusive and collectively exhaustive) and rank-ordered statements (ordinal data). Section two included dichotomous questions (Yes or No) on general perceptions of, inventory management systems to mitigate bullwhip effect, representing nominal data. Sections three and four included interval data with a series of statements that covered operational supply chain networks on bullwhip effect, information sharing, electronic supply chain management integration and global optimisation strategies to ameliorate bullwhip effect. According to Anderson (2009:312) the clarity about research questions and types of data collected should allow the researcher to identify the most appropriate quantitative data analysis tools to use on the main underlying option for parametric and/or non-parametric data (Collis and Hussey, 2009; Cooper and Schindler, 2008; Davies, 2007; Hair *et al.*, 2003). The last section enlisted numerous

e-SCM systems that were being used or to an extent recommended by the respondents.

Respondents indicated the degree of agreement or disagreement, where 5 represented "strongly agree" and 1 represented "strongly disagree". In other words, multi-question Likert-type five point scales ranged from strongly agree to neutral to strongly disagree. Sections three and four were used to derive composite scores of data for each variable as representative of interval data. The respondents were assured that the researcher would not disclose the names of the participating firms or individual respondents to honour the confidentiality of the participants from an ethical point of view. The anonymity of respondents tends to yield confidence and create avidity around participation in a research study. The extensive organizational levels question on executives, functional managers and non-managerial supervisory staff seem to provide responses at the personal and business levels with proviso of assurance for anonymity and confidentiality.

### Data Sampling Methods and Measurement

A non-probability sample that conformed to this study's criteria with purposive sampling is called judgment sampling. Non-probability sampling has some compelling practical advantages to meet the sampling objectives of the study (Blumberg, Cooper and Schindler, 2008:235). This sampling occurs when a researcher selects sample members to conform to some criterion (Cooper and Schindler, 2008: 397). This method calls for special efforts to locate and gain access to the individuals that do have the requisite information. Convenience sampling was identified based on the design of deliberate sampling for heterogeneity, in which one defines target ranks and departmental persons, and ensures that a wide range of instances from within each echelon are represented. Sekaran and Bougie (2009:276) describe convenience sampling as perhaps the best way of collecting information quickly and efficiently from members of the population who are available to provide it. Referral sampling proved to be the most efficient and effective approach that eventually yielded the majority of the potential respondents of the sampling frame. Snowball sampling relies on approaching a few individuals from the relevant population and these individuals then act as informants and identify other members from the same population for inclusion in the sample (Welman, Kruger and Mitchell, 2005:69).

The retailers (downstream supply chain) and capacitated suppliers (mid and upstream supply chain) in the selected FMCG industry constituted the population of 800 proportionate representatives within five major retail chain stores in eThekweni Metro, South Africa and approximately 300 selective suppliers for these retail groups in food (dairy, frozen, canned and general) and beverages (hot and cold), and a personal health care category were considered for this empirical research study. The sample size of 456 (260 retailers and 196 suppliers) was considered where Sekaran (2003:295) alludes to the fact that sample sizes of larger than 30 and less than 500 are appropriate for most research on population-to-sample size ratios. According to

Sekaran (2003:294) and Bartlett, Kotrlík and Higgins (2001:48) the representative population size of 800 (retailers) and 300 (suppliers) in determining minimum returned sample size is 260 and 196 sample size respectively with an alpha of 0.05 and a degree of accuracy of 0.05. The alpha value or level of significance (0.05) would become enshrined as the threshold value for declaring statistical significance in this study. This study has produced a sample size of 448 respondents with a return rate of 98% [(448/456) 100]. According to Krejcie and Morgan (1970) researchers typically set a sample size level of about 500 to optimally estimate a single population parameter, in turn, this will construct a 95% confidence interval with a margin of error of about ± 4.4 % for large populations. Regarding an inverse relationship between sample size and the margin of error, smaller sample sizes will yield larger margins of error. Larger sample size generally leads to increased precision when estimating unknown parameters (Cooper and Schindler, 2008; Babbie and Mouton, 2001; Krejcie and Morgan, 1970).

**Administering the Survey**

The method of distributing the questionnaire was self-administered through scheduled delivery and collection of questionnaires within the agreed time intervals to enhance the return rate. The questionnaires were delivered to individual

gatekeepers to administer the survey within their domain and most questionnaires were personally administered by the researcher within the eThekweni Metro, South Africa. The relevant letters (gatekeeper’s letter, ethical clearance certificate, and consent letter to ensure confidentiality and anonymity) were consistently given to the gatekeepers where the researcher was given permission to enter their domain.

**4. STATISTICAL ANALYSIS OF DATA**

The statistical analysis is aimed at examining the research objective for this study. The summarised uni-variate technique examined the distribution of cases on one variable at a time using descriptive statistics (mean and standard deviation) and the bi-variate technique using inferential statistics (cross-tabulation with chi-square and correlation) and non-parametric statistics. Multivariate analysis as a statistical technique is organised around a scheme of dependence (regression analysis) procedures for the underlying objective to develop models that best describe the population as a whole. Data analysis was realized using statistical methods of analysis, with computer software SPSS. The following dichotomous questions were used to assess the perception of inventory policy and IT within the challenges of the bullwhip effect.

**Figure 3. Perceptions on inventory policy and IT**

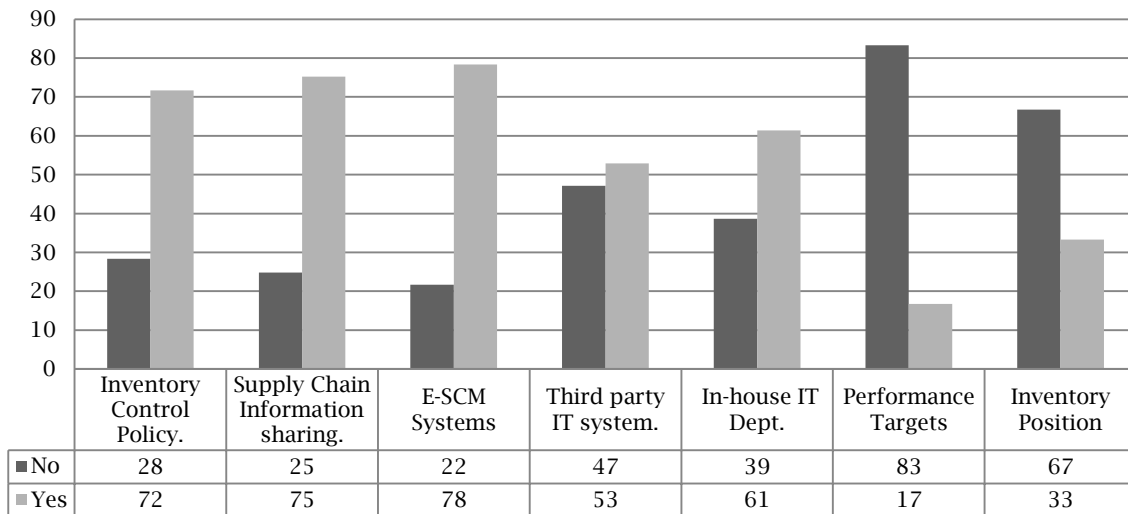


Figure 3 indicates general perceptions on inventory policy and effects of information technology where 72% of the respondents agree that inventory control policy at retail level, often propagate customer demand variability towards upstream site. Supply chain information sharing (75%) and electronic supply chain management systems (78%) are considered by the overwhelming majority of the respondents to promote and enhance communication performance to mitigate the bullwhip effect. It is puzzling to discover that the DoV does not influence the business performance targets and customer service levels. Surprisingly, 67% of the respondents indicate channel alignment in supply chain as a hindrance to coordinate

inventory positioning. A high percentage (61%) of the respondents indicated that their organisations currently have in-house information technology departments, and 53% of the respondents only gather and manage their inventory using a third party IT system.

**Descriptive Statistics**

Measures of dispersion and central tendency give a summary indication of the distribution of cases and an average value by describing a single variable within the exploratory study.

**Table 1.** Descriptive Statistics on information sharing and electronic supply chain management

| Items   | Mean   | SD/ $\sigma$ | S <sup>2</sup> | Skew   | Kurt  | Med  | Sigma BWE | Alpha |
|---|--|--------------|----------------|--------|-------|------|-----------|-------|
| Electronic S C M Systems.   | 4.4554   | .85020       | .723           | -2.164 | 2.487 | 4.57 | .000      | .842  |
| Updated Demand Forecast   | 4.0402   | .99583       | .992           | -1.050 | .627  | 4.20 | .000      | .833  |
| Information Sharing   | 3.9955   | .96237       | .926           | -.929  | .531  | 4.13 | .000      | .835  |
| Information Sharing (I&F)   | 3.9241   | 1.10056      | 1.211          | -1.002 | .295  | 4.13 | .623      | .833  |
| Strategic Communication   | 3.8772   | 1.08503      | 1.177          | -.842  | .040  | 4.05 | .031      | .834  |
| Integrated E-SCM systems  | 3.8013   | .98911       | .978           | -.471  | -.610 | 3.88 | .001      | .834  |
| Lead Times  | 3.7455   | 1.03300      | 1.067          | -.698  | -.021 | 3.85 | .160      | .833  |
| Economic Information  | 3.6585   | 1.14765      | 1.317          | -.651  | -.327 | 3.79 | .065      | .831  |
| Inventory Positioning   | 3.6540   | 1.09848      | 1.207          | -.645  | -.354 | 3.78 | .006      | .834  |
| Mutual dependency   | 3.6250   | 1.08580      | 1.179          | -.550  | -.413 | 3.72 | .068      | .832  |
| Profitability Level   | 3.6116   | 1.09751      | 1.205          | -.449  | -.717 | 3.71 | .084      | .833  |
| Flexible Response   | 3.6071   | 1.17473      | 1.380          | -.637  | -.485 | 3.76 | .006      | .830  |
| Confidential Information  | 3.6049   | 1.14406      | 1.309          | -.471  | -.707 | 3.71 | .318      | .832  |
| <b>Std error of Skew = 0.115</b><br><b>Std error of Kur = 0.230</b> | SD/ $\sigma$ = Std deviation, S <sup>2</sup> = variance, Skew=skewness, Kurt= Kurtosis, Med= Median. M=Mean Minimum=1.00, Maximum=5.00. Mode=4.00, Sample Size=448 |              |                |        |       |      |           |       |

Source: Authors of the paper

This section of the paper advocates that e-SCM systems (M = 4.56) are the most significant systems. These systems seem to create agility and high flexibility that rapidly respond to changing market requirements from diverse customers by quickly delivering the right products and services through effective integration. The respondents ranked the e-SCM system with a standard deviation of 0.850 as “a mechanism to integrate trading supply chain partners at technical, operational and business level with efficient real-time information sharing and active coordination” to mitigate bullwhip effect (Ke *et al.*, 2009:839). The semantic view of electronically-enabled supply chain management underpins the effective updated demand forecast (M = 4.04 with 0.996 std deviation) wherein the organisations jointly participate in updating the demand forecast across the stream sites of supply chain. Although the electronically-enabled supply chain management systems are preferably significant to improve flexibility, future strategic communication (M = 3.88) and informal and formal information sharing (M = 3.92) in the dynamic market, as well as information exchange (M = 4.00), are associated with a high order fulfilment rate and a shorter order cycle time to enhance supply chain performance targets in the FMCG industry

The integrated e-SCM systems (M = 3.80) provide flexibility to respond (M = 3.61) to emergency demand order changes, despite the frequent practice that the organisations constantly hold a large inventory to avert inventory stock outs (M = 3.68). The respondents agree that electronically-enabled supply chain systems have a significant role (highly ranked M = 4.46) to encourage willingness to share sensitive and confidential information (M = 3.60) based on trust, to offer greater control and access to advanced economic information (M = 3.66). Additionally, the system will enhance the profitability level (M = 3.70) and establish common goals and mutual dependency (M = 3.63) between collaborating supply chain partners to further optimise inventory positioning (M = 3.65) with

significant reduction in lead times (M = 3.75). Normally, the mean seems to encounter / cross words with outliers (force the value on the mean upward or downward), but the median seems to comprise acceptable values in relation to mean values.

Apparently, the median is the most appropriate locator of the centre for ordinal data and has resistance to extreme scores (Cooper and Schindler, 2008: 438). This study shows the frequency of the data for e-SCM systems are (-2.164) negatively skewed and a 4.57 median, and an updated demand forecast with (-1.050), a negatively skewed distribution and 4.20 median. Nevertheless, all the individual variables with alpha values between 0.830 to 0.842, are negatively skewed as scores stretching towards the left. The variables that indicate the mean around 3.80 or below have the platykurtic distribution although the scores cluster heavily in the centre. The assumption of normality should be met with skewness values equal or below the criterion of  $\pm 3.29$  (Garson, 2012; Tabachnick and Fidell, 2007). In rounding off the mean values of the individual variables, the symmetrical distribution is reflected in the same location between the mean, median and mode (4.00) with the exception of e-SCM system has slightly greater median (4.57 or 5.00) and highest alpha value (0.842).

Table 2 denotes supply chain trading partners that have introduced three or more B2B IT systems in the last five years with suppliers (6), manufacturing (48), wholesale (69), retailing (91) and other (18) constituting 51.8% of the sample respondents. It was puzzling to discover that only 48.2% of the sample respondents have been cautiously and conservatively investing less on IT systems. Retailers seem to adapt well on the supply chain technological clockspeed with the value of chi-square (22.511) and the degree of freedom (12),  $p < 0.05$  (0.032). There is a statistical relationship between frequent adoption of new B2B IT systems and the echelon category stream sites of supply chain trading partners.

**Table 2.** Cross tabulation and Chi-square on B2B IT systems for last five years and echelon categories

| How has frequent adoption of B2B IT systems influenced by echelon categories over the last five years? |              |                | Echelon Categories  |             |                       |        |        | Total |
|--|--------------|----------------|---------------------|-------------|-----------------------|--------|--------|-------|
|  |              |                | Tier /Supplier      | Manufacture | Wholesale             | Retail | Other  |       |
| B2B IT systems for last five years.  | Four or More | Count          | 1                   | 19          | 24                    | 36     | 9      | 89    |
|  |              | % of Total     | .2%                 | 4.2%        | 5.4%                  | 8.0%   | 2.0%   | 19.9% |
|  | Three        | Count          | 5                   | 29          | 45                    | 55     | 9      | 143   |
|  |              | % of Total     | 1.1%                | 6.5%        | 10.0%                 | 12.3%  | 2.0%   | 31.9% |
|  | Two          | Count          | 4                   | 19          | 25                    | 69     | 10     | 127   |
|  |              | % of Total     | .9%                 | 4.2%        | 5.6%                  | 15.4%  | 2.2%   | 28.3% |
|  | One          | Count          | 6                   | 13          | 14                    | 52     | 4      | 89    |
|  |              | % of Total     | 1.3%                | 2.9%        | 3.1%                  | 11.6%  | .9%    | 19.9% |
|  | Total        | Count          | 16                  | 80          | 108                   | 212    | 32     | 448   |
|  |              | Expected Count | 16.0                | 80.0        | 108.0                 | 212.0  | 32.0   | 448.0 |
| % of Total   |              | 3.6%           | 17.9%               | 24.1%       | 47.3%                 | 7.1%   | 100.0% |       |
| Chi-Square Tests   |              |                |                     |             |                       |        |        |       |
|  |              |                | Value               | Df          | Asymp. Sig. (2-sided) |        |        |       |
| Pearson Chi-Square   |              |                | 22.511 <sup>a</sup> | 12          | .032                  |        |        |       |
| Likelihood Ratio   |              |                | 22.694              | 12          | .030                  |        |        |       |
| Linear-by-Linear Association   |              |                | 21.954              | 1           | .344                  |        |        |       |
| N of Valid Cases   |              |                | 448                 |             |                       |        |        |       |

**Multiple Regression Analysis**

Cohen *et al.*, (2003) describe multiple regression as a flexible method of data analysis that may be appropriate whenever a quantitative criterion variable is to be examined in relationship to any other factors expressed as predictor variables. Darlington (2009) points out that the products and squares of raw / original predictors in a multiple regression analysis are often highly correlated with each other, with a propensity to exhibit multi-collinearity. Multi-collinearity is a statistical phenomenon in which two or more predictor variables in the multiple regression model are highly correlated and provide redundant information about the response, and as a result the standard errors of estimates of the β's increased and simultaneously indicates decreased reliability.

The correlation matrix presented all possible predictor variables and the eight interval level variables indicate the relationship between all possible pairs of variables using a significance level of alpha = 0.05. The criterion variable is negatively correlated to advanced economic information, flexible response and profitability level with a significance level greater than 0.05, while all possible predictor variables are positively correlated with  $p < 0.05$  except sensitive and confidential information and lead times. Only two predictor variables were entered into the prediction model 2 after the stepwise procedure with a multiple R of 0.279 and both future strategic communication and advanced economic information are significantly entered in the regression equation.

The validity of the final model is assessed by considering the correlation of coefficients and determination, and thoroughly examining the consistency between the model and response results through a *t*-test, *F*-test and Durbin-Watson test

without assuming the superiority of the model from a high value for the coefficient regression. The values of the multi-variable regression determination coefficient ( $R^2$ ) for models 1 -2 are showing improvement with a moderate values range ( $R^2 = 0.069$  and  $0.078$  respectively). The high values of  $R^2$  wouldn't necessarily have indicated the superiority of any model without establishing the validity of models through statistical tests. The study further indicates the final model with  $R$  square (0.078), adjusted  $R$  square (0.073), *F*-ratio = 18.718 degree of freedom (2; 445) at significance level,  $p = 0.000$  below confidence level (0.05). Gujarati (2006:229) recommends using adjusted  $R^2$  across the board because it explicitly takes into account the number of variables included in the model, computed as:  $R^2_{adj} = R^2 - (1-R^2)p/(n-p-1)$ ; or  $Adjusted\ R^2 = 1 - [(1-R^2_{adj})/(N-1/N-k-1)]$ . The Durbin-Watson test discloses the consistent value (1.800) with the range of 1.5 and 2.5 and these models are not affected by problems related to multi-collinearity. The *t*-test values are showing the importance of a variable in the model on the value greater than 1.96 at a significance level of less than 0.05. All *t*-test values are appropriate with *t*-significance values less than 0.05 to consider each variable significant to the valid model.

The adjusted  $R$  square value of 0.073 has accounted for 7.3% of the variance in the criterion variables to indicate the strength of the model while the *F*-ratio cites on the significance of the model with an associated significant *p*-value. The regression equation appears to be useful for making predictions although the values of  $R^2$  are not explicitly close to 1. In the model quality measure with 100 times adjusted  $R^2$  into whole percentage terms, the accuracy for continuous dependents should be interpreted as the percent of variability in the dependent explained by predictors in the model.

**Table 3.** Multiple regression statistics on e-SCM systems and predictor variables Model Summary

|  |                   |                |      |        | R Square Change | F Change | df1 | df2               | Sig. F Change |       |
|--|-------------------|----------------|------|--------|-----------------|----------|-----|-------------------|---------------|-------|
| 1  | .262 <sup>a</sup> | .069           | .067 | .82141 | .069            | 32.877   | 1   | 446               | .000          |       |
| 2  | .279 <sup>b</sup> | .078           | .073 | .81838 | .009            | 4.315    | 1   | 445               | .038          | 1.800 |
| a. Predictors: (Constant), Strategic Communication; b. Predictors: (Constant), Strategic Communication, Economic Information.; c. Dependent Variable: e-SC Systems |                   |                |      |        |                 |          |     |                   |               |       |
| ANOVA <sup>c</sup>   |                   |                |      |        |                 |          |     |                   |               |       |
| Model  |                   | Sum of Squares |      | df     | Mean Square     | F        |     | Sig.              |               |       |
| 2  | Regression        | 25.073         |      | 2      | 12.536          | 18.718   |     | .000 <sup>b</sup> |               |       |
|  | Residual          | 298.034        |      | 445    | .670            |          |     |                   |               |       |
|  | Total             | 323.107        |      | 447    |                 |          |     |                   |               |       |

| Coefficients <sup>a</sup>         |                         |                             |            |            |         |       |                                 |             |              |         |       |                         |       |
|-----------------------------------|-------------------------|-----------------------------|------------|------------|---------|-------|---------------------------------|-------------|--------------|---------|-------|-------------------------|-------|
| Model                             |                         | Unstandardized Coefficients |            | Std. Coeff | t       | Sig.  | 95.0% Confidence Interval for B |             | Correlations |         |       | Collinearity Statistics |       |
|                                   |                         | B                           | Std. Error | Beta       |         |       | Lower Bound                     | Upper Bound | Zero-order   | Partial | Part  | Tolerance               | VIF   |
|                                   |                         | 2                           | (Constant) | 3.846      |         |       | .169                            |             | 22.705       | .000    | 3.513 | 4.179                   |       |
|                                   | Strategic Communication | .226                        | .037       | .288       | 6.100   | .000  | .153                            | .299        | .262         | .278    | .278  | .929                    | 1.076 |
|                                   | Economic Information    | -.073                       | .035       | -.098      | -2.077  | .038  | -.141                           | -.004       | -.021        | -.098   | -.095 | .929                    | 1.076 |
| Residuals Statistics <sup>a</sup> |                         |                             |            | Minimum    | Maximum | Mean  | Std. Deviation                  |             |              | N       |       |                         |       |
| Mahal. Distance                   |                         |                             |            | .090       | 10.816  | 1.996 | 1.947                           |             |              | 448     |       |                         |       |
| Cook's Distance                   |                         |                             |            | .000       | .076    | .003  | .008                            |             |              | 448     |       |                         |       |
| Centered Leverage Value           |                         |                             |            | .000       | .024    | .004  | .004                            |             |              | 448     |       |                         |       |

Source: Research Results by Authors of the paper

a. Dependent Variable: e-SCM System Electronic Supply Chain Management Systems.

Among all eight dimensions, future strategic communication ( $\beta = 0.288, p < 0.05$ ) and advanced economic information ( $\beta = -0.098, p = 0.05$ ) were found to be considerably related to the e-SCM systems. Two predictor variables were entered into model 2 (table 1.3) after the stepwise procedure was executed. The variation in the e-SCM system (7.8% of coefficient of multiple determination) was explained by future strategic communication and advance economic information. Since the  $R^2$  was not close to 1, there is moderate prediction of  $F = 18.718$  and  $p = 0.000$ . The future strategic communication ( $\beta = 0.288, p < 0.05$ ) and advance economic information ( $\beta = -0.098, p < 0.038$ ) were found to be considerably related with e-SCM system diffusion with  $t$ -values indicating the importance of a variable in the model 2. Apart from that, since the tolerance value was more than 0.10 and the VIF was below 10, there was not a multi-collinearity problem between items of the independence variables. The maximum value of Cook's distance is 0.076 under residuals, suggesting no major problem  $D < 1$ . Regarding the normal probability plot, the points are lying in a reasonably straight diagonal line from bottom left to top right with no major deviation from normality.

### 5. DISCUSSION

This study found fascinating empirical research evidence on e-SCM systems that retail supply chain businesses have fastidiously adapted to technology clock-speed for the last five years. The increase in the diffusion of business-to-business information technology (B2BIT) systems for the last five years

has been moderate considering the underpinning technology adaptability using the third-party IT system from industry experts. Apparently, the organisations currently have an in-house information technology department either facilitating or carrying out the required supply chain technology solution. Surprisingly, both upstream and downstream echelon categories agreed that e-SCM systems have a significant role to play in mitigating the consumer DoV in the supply chain network.

This study further discovered that the migration from in-house IT systems to integrated e-SCM systems would entrench close integration of information exchange and processes across different parts of the organisation and inter-organisational linkage. The e-SCM systems diffusion was highly ranked among the meticulously considered variables to alleviate the challenges of the bullwhip effect. Distinctively, the mean vectors of e-SCM systems outwitted the mean vectors of information sharing capabilities by providing efficient real-time information exchange, and active communication and coordination to control the bullwhip effect.

The criterion variable (e-SCM systems) was negatively correlated to advance economic information, flexible response and profitability level with a significance level, while all possible predictor variables were positive to each other except confidential information and lead times. This infers that the e-SCM system diffusion will dampen the willingness to share sensitive and confidential information based on trust among supply chain members. The element of trust is an underlying threshold of integrity to disclose sensitive and

confidential information and avoid information reaching rival competitors. Along the same lines, e-SCM systems adoption does not contribute to a significant reduction of lead times and speeding-up the time-to-market process in comparison to VMI and SMI, which directly execute the order replenishment frequencies. The retail stores normally use company representatives for physical monitoring and replenishing the stock on shelves. This category management approach seems to outwit the supply chain electronic communication with respect to inventory management.

The e-SCM systems diffusion also depicted a positive linear relationship to the extent to which the organisations efficiently and timeously communicate the future strategic needs and demand order replenishments throughout the entire supply chain network. This study indicates the linear relationship between e-SCM system diffusion and the extent to which the organisation's future strategic requirements throughout the supply chain network. The access to advance economic information negatively related to e-SCM systems with the virtue of legal constraints and template-based information attachments. Legally constrained or template-based information prohibits the level of access to advance economic information, despite the extent to which e-SCM systems are linked. Ngai *et al.*, (2011:237) argue that integrated supply chain information systems enable different parties along the supply chain to access the operational information of other functions or departments. In a broader empirical perspective, e-SCM systems diffusion depicted key positive associations with the challenges of the bullwhip effect and the likelihood of persuading mutual supply chain business performance targets to deal with the pernicious effect of cascading DoV in the FMCG industry. Communicating future strategic requirements and accessing advance economic information across the supply chain network normally depends on integrating an IT system with timely, efficient and transparent supply chain business information.

## CONCLUSION

In a nutshell, the adoption of e-SCM systems has a positive influence and association with the bullwhip effect by effectively communicating and actively coordinating the real-time information exchange. Sometimes the elements of partnership trust, security of information flow and complexity of implementation can prohibit the accessibility to advance economic information. The in-house IT department might have a roguish effect on the compatibility of technology solutions and eventually contribute towards instituting information flow security constraints and debilitating the level of trust. Nevertheless, the ability of a company to communicate electronically should enable it to develop supply networks with traditional players, such as suppliers, manufacturers, distributors, and retailers. Electronically connected supply chains provide the ability to enhance and coordinate supply chain management processes across trading partners.

## RECOMMENDATIONS

The antithetical background scenario of the research statement positively envisaged as an ideal problem-free system with optimal functionality through the role of the e-SCM system, quasi-real-time information sharing and optimised inventory positioning to abate and subdue the malignant effect of the bullwhip effect. In this regard, the e-SCM systems are envisaged to underpin the integrated supply chain processes (electronic linkage for supply- and demand-side partners) and the improved profitability through positive supply chain business performance targets and outcomes across supply chain trading partners. In terms of upholding the virtual supply chain networks, the integrated e-SCM systems should provide strategic flexibility to respond to emergency demand order changes in the attempt to minimise inventory stock outs from cascading demand orders upstream. In terms of the supply chain competence and degree of trustworthiness on the underlying integrated e-SCM systems, the FMCG industry should galvanise the willingness to share sensitive and confidential information based on trust and to enhance accessibility on advance economic information. These findings reflect the electronic supply chain competencies that relate to prompt decision and commitment to strategic supply chain flexible responses.

## REFERENCES:

1. Anderson V 2009. *Research Methods in Human Resource Management*. 2<sup>nd</sup> Ed. London: Chartered Institute of Personnel Development.
2. Babbie E and Mouton J 2001. *The practice of social research*. Cape Town: Oxford.
3. Balan S, Vrat P and Kumar P 2009. 'Information distortion in a supply chain and its mitigation using soft computing approach'. *Omega*37:282-299.
4. Barratt M and Barratt R 2011. 'Exploring internal and external supply chain linkages: Evidence from the field'. *Journal of Operations Management*, 29:514-528.
5. Bartlett JE, II, Kotlik JW and Higgins C 2001. 'Organisational research: Determining appropriate sample size for survey research'. *Information Technology, Learning and Performance Journal*, 19(1):43-50.
6. Blumberg B, Cooper DR and Schindler PS 2008. *Business Research Methods*. New York: McGraw-Hill International.
7. Cachon G and Terwiesch C 2009. *Matching supply with Demand: An introduction to Operations Management*. Boston: McGraw-Hill Irwin.
8. Camarinha-Matos LM and Afsarmanesh H 2002. 'Design of a virtual community infrastructure for elderly care'. *Proceedings of PRO-VE 2002 - Collaborative Business Ecosystems and Virtual Enterprise*, Kluwer Academic Publishers, Sesimbra: Portugal, 439-450, 1-3 May 2002.
9. Cao M and Zhang Q 2011. 'Supply chain collaboration: Impact on collaborative advantage and firm performance'. *Journal of Operations Management*, 29:163-180.
10. Chae B, Yen HR and Sheu C 2005. 'Information technology and supply chain collaboration: Moderating effects of existing relationships

- between partners'. *IEEE Transactions on Engineering Management*, 52(4): 440-448.
11. Chopra S and Meindl P 2007. *Supply chain management: Strategy, planning and operations*. 3<sup>rd</sup> Ed. New Jersey: Pearson International edition.
  12. Christopher M 2011. *Logistics and Supply chain management*. 4<sup>th</sup> Ed. Boston: Pearson Publishing.
  13. Cohen J, Cohen P, West SG and Aiken LS 2003. *Applied multiple regression/correlation analysis for the behavioural sciences*. 3<sup>rd</sup> Ed. New York: Lawrence Erlbaum Associates.
  14. Collis J and Hussey R 2009. *Business Research: A practical guide for undergraduate students*. Basingstoke: Palgrave.
  15. Cooper BR and Schindler PS 2008. *Business Research Methods*. 10<sup>th</sup> Ed. New York: McGraw-Hill International.
  16. Council of Supply Chain Management Professionals (CSCMP) 2011. *Supply Chain Management definitions*, 2011. [Online] Available: <http://cscmp.org/aboutcscmp/definitions.asp>. [Accessed: 03/12/2009].
  17. Croson R, Donohue K, Katok E and Serman J 2005. 'Order Instability in Supply Chains: Coordination Risk and the Role of Coordination Stock'. PSU Working Paper.
  18. Daniel E, Wilson H and Myers A 2002. 'Adoption of e-commerce by SMEs in the UK, towards a stage model'. *International Small Business Journal*, 20(3):253-270.
  19. Darlington RB 2009. *Factor Analysis*. Pp. 1-23, [Online] Available: <http://www.psych.cornell.edu/Darlington/factor.htm>. [Accessed: 14/02/2012].
  20. Darwish MA and Odah OM 2010. 'Vendor managed inventory model for single vendor multi-retailer supply chains'. *European Journal of Operational Research*, 202:473-484.
  21. Davies MB 2007. *Doing a successful Research Project using Qualitative Methods*. Basingstoke: Palgrave MacMillan.
  22. Davis MD and Heineke J 2005. *Operations Management: Integrating manufacturing and services*. 5<sup>th</sup> Ed. Boston: McGraw-Hill.
  23. Flynn BB, Huo B and Zhao X 2010. 'The impact of Supply chain integration on performance: A contingency and configuration approach'. *Journal of Operations Management*, 28(1):58-71.
  24. Folinas D, Manthou V, Sigala M and Vlachopoulou M 2004. 'Modeling the e-evolution of a supply chain: Cases and best practices'. *Internet Research: Electronic Networking Applications and Policy*, 14 (4):274-283.
  25. Forrester JW 1961. *Industrial dynamics*. New York: MIT Press & John Wiley & Sons, Inc.
  26. Fu D, Ionesco CM, Aghezzaf E and De Keyser R 2014. *Decentralized and Centralized Model Predictive Control to Reduce the Bullwhip Effect in Supply Chain Management*. Elsevier: Belgium.
  27. Garson GD 2012. *Factor Analysis*. North Carolina: Statistical Associates Publishing.
  28. Gunasekaran A and Ngai EWT 2005. 'Build-to-order supply chain management: a literature review and framework for development'. *Journal of Operations Management*, 23(5):423-451.
  29. Hair Jr JF, Babin B, Money AH and Samuel P 2003. *Essentials of Business Research Methods*. New York: John Wiley & Sons, Inc.
  30. Heizer J and Render B 2008. *Principles of Operations Management*. 7<sup>th</sup> Ed. New Jersey: Pearson Education.
  31. Holweg M and Bicheno J 2002. 'Supply chain simulation - a tool for education, enhancement and endeavour'. *International Journal of Production Economics*, 78:163-175.
  32. Hugo WMJ, Badenhorst-Weiss JA and Van Biljon EHB 2008. *Supply chain Management: Logistics in perspective*. Pretoria: Van Schaik Publishers.
  33. Jacobs FR, and Chase RB 2008. *Operations and Supply management: The Core*. 2<sup>nd</sup> Ed. Boston: McGraw-Hill.
  34. Ke W, Liu H, Wei KK, Gu J and Chen H 2009. 'How do mediated and non-mediated power effect electronic supply chain management system adoption? The mediating effects of trust and institutional pressures'. *Decision Support Systems*, 46:839-851.
  35. Kerlinger FN 1986. *Foundations of Behavioural Research*. 3<sup>rd</sup> Ed. New York: Holt, Rinehart and Winston.
  36. Kim KC and Im I 2002. 'The Effects of Electronic Supply Chain Design (e-SCD) on Coordination and Knowledge Sharing: An Empirical Investigation'. In *Hawaii International Conference on System Sciences*, Big Island, Hawaii, IEEE Computer.
  37. Krejcie RV and Morgan DW 1970. 'Determining sample size for research activities.' *Educational and Psychological Measurement*, 30:607-610.
  38. Lam W 2005. 'Exploring Success Factors in Enterprise Application Integration: A Case-Driven Analysis'. *European Journal of Information Systems*, 14(2):175-187.
  39. Lee LH, Padmanabhan V and Whang S 2004. 'Comments on information distortion in a supply chain: the bullwhip effect'. *Management Science*, 15:1887-1893.
  40. Li G, Yang H, Sun L and Sohal AS 2009. 'The impact of IT implementation on supply chain integration and performance'. *International Journal of Production Economics*, 120(1):125-138.
  41. Lin FR and Lin YY 2006. 'Integrating multi-agent negotiation to resolve constraints in fulfilling supply chain orders'. *Electronic Commerce Research and Applications*, 5(4):313-322.
  42. Lin H 2013. *Understanding the determinants of electronic supply chain management system adoption: Using the technology-organization-environment framework*. Taiwan: Elsevier.
  43. Makui A and Madadi A 2007. 'The bullwhip effect and Lyapunov exponent'. *Applied Mathematics and Computation*, 189:53-70.
  44. Miao L and Chen J 2005. 'Information sharing with scarce goods in cournot retailers', *International Conference on Services Systems and Services Management*, Proceedings of ICSSSM '05, Chongqing.
  45. Ngai EWT, Chau DCK and Chan TLA 2011. 'Information technology, operational and management competencies for supply chain agility: Findings from case studies'. *Journal of Strategic Information Systems*, 20:232-249.
  46. Patnayakuni N and Rai A 2002. 'Towards a theoretical framework of digital supply chain integration', *European Conference on Information systems (ECIS)*, Gdansk, [Online] Available: <http://is2Ise.ac.uk/asp/aspecis/20020127.pdf>, [Accessed: 05/10/2011].
  47. Poirier C and McCollum D 2006. *RFID strategic implementation and ROI: A practical roadmap to success*. New York: J. Ross Publishing.
  48. Seidmann A and Sundarajan A 1997. 'Sharing logistics information across organizations: Technology, competition and contracting'. *Working Papers from Rochester, Business - Operations Management*, [Online] Available: <http://oz.stern.nyu.edu/papers/slog.html>. [Accessed: 19/08/2009].

49. Sekaran U 2003. *Research Methods for business: A Skill Building Approach*. 4<sup>th</sup> Ed. New York: John Wiley & Sons Inc.
50. Sekaran U and Bougie R 2009. *Research Methods for Business: A Skill Building Approach*, 5<sup>th</sup> Ed. New York: Wiley & Sons.
51. Simchi-Levi D, Kaminsky P and Simchi-Levi E 2008. *Designing and Managing in supply chain: Concepts, Strategies & Case Studies*. 3<sup>rd</sup> Ed. New York: McGraw-Hill/Irwin.
52. Smith GE, Watson KJ, Baker WH and Pokorski II JA 2007. 'A critical balance: Collaboration and security in the IT-enabled supply chain'. *International Journal of Production Research*, 45:2595-2613.
53. Snyder LV and Shen ZM 2011. *Fundamentals of Supply Chain Theory*. New Jersey: John Wiley & Sons, Inc.
54. Sorescu A, Frambach RT, Singh J, Rangaswamy A and Bridges C 2011. 'Innovations in Retail Business Models'. *Journal of Retailing*, 87S (1):S3-S16.
55. Subramani M 2004. 'How do suppliers benefit from information technology use in supply chain relationship?' *MIS Quarterly*, 28(1):45-74.
56. Sucky E 2009. 'The bullwhip effect in supply chains - An overestimated problem?' *International Journal of Production Economics*, 118:311-322.
57. Tabachnick BG and Fidell LS 2007. *Using Multivariate Statistics*. 5<sup>th</sup> Ed. Boston: Pearson International Edition.
58. Temjanovski R 2014. *Challenges of Information Technology and Supply Chain Management in Logistic Sector: With an Overview of Quehenberger Logistics in Macedonia*. Macedonia: SINTEZA.
59. Verma R and Boyer KK 2010. *Operations and Supply Chain Management*. International Ed., US: Cengage Learning.
60. Welman JC, Kruger SJ and Mitchell BC 2005. *Research Methodology*. 3rd Ed. Cape Town: Oxford University Press Southern Africa.
61. Wisner JD, Leong GK, and Tan K, 2009. *Principles of Supply Chain Management: A Balanced Approach*. 2<sup>nd</sup> Ed. Australia: Thomson South-Western, CENGAGE Learning.
62. Wu IL and Chuang CH 2012. 'Using the balanced scorecard in assessing the performance of e-SCM diffusion: A multi-stage perspective'. *Decision Support Systems*, 52: 474-485
63. Wu IL and Chuang CH 2012. 'Examining the diffusion of electronic supply chain management with external antecedents and firm performance: A multi-stage analysis'. *Decision Support Systems*, 50(1):103-115.
64. Yao Y, Palmer J and Dresner M 2007. 'An interorganisational perspective on the use of electronically-enabled supply chains'. *Decision Support Systems*, 43(3):884-896.
65. Yu M, Ting S and Chen M 2010. 'Evaluating the cross-efficiency of information sharing in supply chains'. *Expert Systems with Applications*, 37:2891-2897.
66. Yu Z, Yan H and Cheng TCE 2001. 'Benefits of information sharing with supply chain partnerships'. *Industrial Management and Data Systems*, 101(3):114-119



# MARKETING POTENTIALS OF THE SOCIAL MEDIA TOOLS IN THE BANKING MARKET OF AN EMERGING COUNTRY

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## Abstract

There are many facts that attest to the pervasiveness of social media applications in the current world of business. This communication medium is replacing the well-known emails and complementing the likes of short message service (SMS) and instant messaging and chatting. As part of technology, which is revolutionising the way we do business and live, organizations worldwide are gearing up efforts to take advantage of this phenomenon. In South Africa, the story is the same. However, the Banks in South Africa seems to have problems selling this form of communication to their clientele to augment their service delivery. In view of this, the current study aimed to research into social media concept in South Africa, to highlight its trajectory pros and cons, and investigate why it is not being adopted by these clients, in addition to measuring the continuance intention of those who have accepted banking through social media. It was discovered that, social norm ( $\beta=0.579$ ), perceived trust ( $\beta=0.510$ ) and user satisfaction ( $\beta=0.332$ ), in that order, stood out as the most influencing factors impacting on user acceptance and continuance intention ( $\beta=0.384$ ) of social media usage for banking. Perceived behavioural control made no significant impact on users to adopt social media for financial services. As the banking industry keeps investing in the marketing potentials of social media tools for banking, in order to gain competitive advantage in customer service delivery, this social media usage could make a lot of difference when well researched into and managed. In some countries, banking customers are able to do their banking through social media sites, but little is known in South Africa (according to research), regarding the usage of this tool for banking purposes.

**Keywords:** Marketing, Banking, Social Media

## 1. INTRODUCTION

According to a report by Facebook, as at 2014, there are over 1 billion Facebook users worldwide. In the USA alone, there are over 150 million Facebook users, followed closely by Brazil with 70 million users and India with about 65 million users (Facebook, 2015). This certainly presents a great opportunity for any banking sector looking for uptake in operations. In recent years, Social networking sites such as Facebook, Twitter, and MySpace have been offering business organizations unique means of advertising, promoting, marketing and selling their products and services. This has ultimately helped organizations to increase productivity and profit (Richardson & Gosnay, 2010). Social networking and media technologies that are geared toward business activities are believed to have the potential of offering organizations a very unique mode of communication and business processes which ultimately can lead to performance (Castellas, 2011). Well-known business and technology journals encourage research on this novel phenomenon. Academics (Assensoh-Kodua, 2014; Chesbrough, 2010; Cohen, 2009; Pallis, 2010) and corporations (McKinsey Global Institute, 2012) have geared up research in this direction in order to capture the potential benefits social networking can

bring to the business world. For there to be adoption and probably continuance usage, factors such as trust, social norm, satisfaction, and perceived behavioural control on one hand as (independent variables) can impact continuance intentions (dependent variable) on the other. These are the variables that this study intend to propose for assessment to unravel how Banks in South Africa can take advantage of this novel phenomenon to augment their service delivery. Though the problem of using such platforms can range from uncontrolled bad opinions created by few disgruntled users, the advantages of using social media in today's` world of business are enormous. As this technology has become the order of today`s mode of communication, organizations are likely to lose clients to competitors who are using this phenomenon, when they fail to adopt it themselves. Hence, the need for studies to find out how Banks can take advantage of such models to increase their operations.

### 1.1. Pros and Cons of Using Social Media For Business

Giacomucci (2014) states the following as some of the advantages and disadvantages for using social media for business:

### 1.1.1. Advantages

**1.1.1.1 Public exposure:** The cost of broad public exposure through social media can be much lower than the cost of a traditional marketing approach.

**1.1.1.2 Customer service:** By establishing and developing relationships, social media improve the insight of businesses into customers' needs and preferences.

**1.1.1.3 Referrals:** Word-of-mouth referrals, such as "like" on Facebook and "favorite" on Twitter, do not require additional company resources.

**1.1.1.4 Expanded reach:** Social media provide a direct channel to communicate corporate social responsibility and values to consumers.

### 1.1.2. Disadvantages

**1.1.2.1 Negative publicity:** While companies hope for positive online customer feedback, customers also post negative feedback or comments, and any negative publicity can spread or "go viral" quickly, forcing a quick, constructive response to mitigate damage.

**Hackers:** Without proper controls and security, hackers can quickly take over a company's page and post false information (Wiegand, 2014).

**1.1.2.2 Brand maintenance:** The complexity and immediacy of the social media environment often requires a specialized staff experienced with creating and maintaining an online brand presence. With their corporate reputation at stake, businesses need the right person or team managing social media content, to ensure that company tone and brand voice are consistently retained (Norton, 2011).

## 1.2. The Research Problem

The main problem motivating this paper is on the level of adoption of social networking platforms as a tool for marketing, advertising and selling banking products in South Africa. The potential benefits that these online social networking service (SNS) brings to the banking industry have not yet been fully explored due to the lack of empirical research on the use of the concepts in South Africa. Although social media has been adopted by some South African Banks, there is yet the need to upstage it usage as it offers huge market potential. FNB has recently been named the best online banking in South Africa (Staffwriter, 2015). But the factors leading to this success are not known in any academic journal in this country. This poses a danger of tried and error approach by admiring Banks that would like to follow FNB's steps. It is, therefore, empirical that research is carried out to make known the factors that influence banking through social media in South Africa and to measure the continuance intention of users of this phenomenon.

## 1.3. Aim of the Study

This paper aims to assess customer acceptance and continuance intention of the usage of social media as a medium for banking in South Africa. To this end, a research model is proposed based on the TAM (Davis, 1989) to assess the acceptance levels of banking customers who use social media to carry out banking transaction. Through the technology acceptance model (TAM), (Davis, 1989) the following independent variables are assessed: perceived trust,

social norm, satisfaction, perceived behavioural control to measure the dependent variable: acceptance and continuance usage. A combination of literature review from both published journals, books and the internet helps to formulate hypotheses that will unravel the perceptions about social media usage for Banks. The outcome of this, it is believed will inform the banking community in South Africa to see how to, or not to adopt this platform for operations.

## 2. LITERATURE REVIEW

Social technologies (popularly known as social networking) have provided a new productivity boost among workers in many organisations thereby improving the overall performance of organizations, industries, and even national economies. MacAfee, (2009) has it that, organisations around the globe are discovering how social media technologies hasten knowledge dissemination, innovation, and collaboration in order to improve productivity, and many firms around the world have benefitted tremendously from using social networking sites for advertising and promoting their products and services (Evatt, 2011; Kesevan, 2013). Nevertheless, the above story is not the same in the banking sector, especially in South Africa.

According to a study by the McKinsey Global Institute in 2012, it was discovered that most Banks have only just begun to discover the benefits of social media technologies such as increasing productivity, connecting with consumers, driving deeper insights into product development and marketing, reading and answering e-mail of both current and would-be customers, searching and gathering information on consumers and competitors, and for communicating and collaborating internally. The study further revealed that social technologies, when accompanied by significant management processes and cultural transformations, could improve the productivity of Bank workers by 20 to 25 %. Thus, there are benefits for using social media by the Banks.

### 2.1. Benefits of Using Social Media Technologies to the Banks

Social media has a greater impact on the performance of organizations in terms of enhancement in customer relations and customer service activities, improvement in information accessibility, and cost reduction in terms of marketing and customer service (Parveen, Jaafar, & Ainin, 2014: 67-78). The main benefits, however, are:

#### 2.1.1. Community building

Recently, most Banks have started focusing on customer service and personality studies, leading to a close and cordial relationship with their customers (Cohen, 2009). Such "Community building is important because, right from attending college to buying our first cars and building a home, starting a business and pension savings all involve an association with a Bank. This was not the case in the past. When we think of Banks, we often think of serious looking men in suits denying customers their request for a car loan or a mortgage. The world

is changing, and Banks are trying to foster community relationships around their products and services. For example, in the United States, Missouri Bank, popularly known as MoBank, utilizes social media as a way to build community relationships with their customers (Cohen, 2009) and portrays an image on the Facebook page that acts as an online neighbourhood for their customers to interact with each other (Cohen, 2009).

### **2.1.2. Products research**

Many businesses around the world use social media as a tool for finding out what clients think of their products and services. Its main aim is to get to know customers' perceptions about their products and services in order to fine-tune or develop new products and services (Cohen, 2009). For example, according to a study by the First Mariner Bank in the USA, it was found that the company's marketing department use social media tools to study their customer's needs and use that knowledge to build new products and services. The study further revealed that the Bank was also able to use social media communications tools and online surveys to develop a financial lifecycle for their customers, and to identify many potential customers when they were in their late teens. With more research using social tools, Banks have been able to identify features that are important in marketing their products and services to customers (Cohen, 2009).

### **2.1.3. Customer service**

The social media has become a great customer service tool in the banking sector all over the world. A study done by the American Bankers Association found that most Banks in America are already engaging with their customers over social media channels to address their problems. For Instance, the Bank of America (BOA) sees many of the same questions on Twitter that they get on typical communication channels like telephone or in person. However, due to the sensitive nature of banking vis a vis the openness of social media, customers need to be careful when sharing information with Banks on social channels. The study also revealed that using social media helped the Bank of America to build its credibility and legitimacy with customers. Another study by Wells Fargo Bank, in the USA, revealed that the Bank uses social media not only to service their customers but to answer questions about the status of the merger between the two Banks, and has also opened a Twitter account, which they use to answer customers questions relating to products and online banking. Wachovia Bank has now fully embraced social media as a way to communicate with their customers and have even created a special set of hash tags (#) for the Bank on Twitter (Cohen, 2009).

### **2.1.4. Building Customer Base**

Social media technologies such as social networking sites have the distinct advantages to both the Bank and the customers. As relationships are deepened through social interaction on this platform the Banks are able to retain their customers which translate into multiple effect, such as retaining a profitable customer base, lowering transaction costs,

supporting customer relations, extending the market area, banking with round-the-clock convenience, decreasing the dependence on a branch network, and saving time and money (Çelik, 2008 :353-70). The adoption of online technologies has offered priceless advantages for banking services (Mitic & Kapoulas, 2012: 668-686). Therefore, Banks have started to use social media tools such as social networking sites for closer interactions with customers as a way of staying ahead of rival Banks. For example, the DenizBank in Turkey recently announced that they would have a branch via Facebook. In this way, customers who have a Facebook account can transfer money anytime and manage their daily agenda by monitoring their deposit and credit accounts, as well as monitoring their credit cards. Contacting customers by creating a page is a vital media tool today's world, because each person can connect to anything, to any place, to any good or bad comments about products and services any time by using their mobile phone applications or by just entering to the pages of Twitter and Facebook (Yaşa & Mucan, 2013, pp. 17-19).

## **2.2. Adoption and Use of Social Networking Sites by Banks in South Africa**

In recent years, there has been a widespread adoption of information and communication technologies such as electronic banking, internet banking and, mobile or cellphone banking in the Banking industry in South Africa. However, the use of Social networking sites in the South African banking industry is still in its infancy: The analysis of the results of a study by the social media audit industry report conducted by ZASocial Media- a social media agency in South Africa in 2013 reveals that South African Banks are failing to engage with their customers on social networking sites. The study reported that ABSA has over 145,000 fans on Facebook, with more than 4,000 fans engaging on its page. The report also noted that ABSA only manages to engage with 2.8% of its Facebook fans, adding that ABSA only uses Facebook "as a promotional tool for their campaigns and events", and out of the 9.2 million South African Facebook users, only about 1.3% like the ABSA Facebook Page.

Similarly, CAPITEC Bank has over 92,000 fans on Facebook and over of 1,000 fans engaging on its page. The CAPITEC Bank only manages to engage with 1.1% of their fans, they have also used Facebook as a promotional tool and have not used it to maintain their relationships with their existing customers. Out of the 9.2 million South African Facebook users, only 0.8% likes the CAPITEC Bank's Facebook Page (Staffwriter, 2013). The report also stated that the First National Bank (FNB) of South Africa has over 420,000 fans on Facebook and has over 5,000 fans engaging on its page but only manages to engage with 1.2% of its fans. However, the study noted that FNB has different approaches when it comes to using its page. "They use it as a promotional tool and to collaborate with users for brand awareness." Out of the 9.2 million South African users, about 3.8% like the FNB Facebook Page. South African FNB has given its customers the ability to Bank on the Facebook social networking site by linking their mobile banking profile to their

Facebook profile. The FNB Bank service can be used for purchasing prepaid airtime, text messages, and smartphone data bundles, and for viewing balances and lottery results. FNB customers can also buy vouchers that can be sent as gifts to their friends on Facebook and later redeem for prepaid airtime or convert to cash (Moneyweb, 2014).

FNB customers can access a number of banking services on the giant social networking site Facebook. The customers have first to link their Facebook profiles to their Cellphone banking profile in order to access FNB banking services via Facebook. Once the two profiles are linked, customers can access the "FNB banking on Facebook" which will allow them to check their balances, purchase prepaid products including airtime, SMS, and BlackBerry bundles, as well as the option to view the South Africa National LOTTO and South Africa PowerBall results.

NEDBANK has over 44,000 fans on Facebook and 1,000 of those fans engage with the Bank. The Bank uses Facebook as a promotional tool to promote its latest campaigns, engaging with 1.6% of its Facebook Fans. From the 9.2 million South African users, only 0.4% likes the NEDBANK Facebook Page. In Contrast to ABSA and FNB, which has about 145,000 and 420,000 fans on Facebook respectively, Standard Bank has only about 67,000 fans on Facebook and the Bank only manages to engage with 1.9% of their Fans. From the 9.2 million South African users, only 0.6% likes the Standard Bank Page (ZASocial Media, 2013).

In conclusion, the report state that, "Banks in South Africa are great at generating fans, but not great at engaging with their fans. The average percentage of the five Banks selected is around 1.72%". Factors that causes such disenchantments especially among the studied Bank customers centred on satisfaction, perceived trust, social norm and perceived behavioural control (Assensoh-Kodua, 2014). These factors which are commonly used to assess acceptance and continuance usage were used to formulate and test the hypotheses for this study.

### 2.3. Hypotheses Formulation

The hypotheses in this study are formulated with user satisfaction and continuance intention from the expectation-confirmation theory (ECT) because of their robust association. Social norm and perceived behavioural controls, from the theory of planned behavior (TPB) because of their influence on behavioral intention, and finally, perceived trust from the theory of socio-cognitive trust (TST) since trust plays important roles in business transactions. It should also be pointed out here that, the word online social networks (OSN) and social networking services (SNS) have been used interchangeably in this section since they refer to the same basic phenomenon of web 2.0 computing.

#### 2.3.1. User satisfaction

Many studies, particularly, electronic commerce have examined the intention of shopping online adopting features such as user persistence, acceptance decisions and purchase behaviour (Gefen, Karahanna, & Straub, 2003; Hsu, Yu, & Wu, 2014). They described user satisfaction as a linear function

to define the inconsistency that exist between a user foremost-adoption anticipation and perceived act (Oliver, 1980). It should be noted here that, the relationship between user satisfaction and continuance intention is well reinforced by many other study results as documented by these researchers (Bhattacharjee, 2001; Liao, Palvia, & Chen, 2009; Shiau & Luo, 2013). It is therefore hypothesised that:

**H1:** *Users' satisfaction with SNSs will positively influence their continuance intention to use SNSs for banking transactions.*

It could be inferred that a dissatisfied user will, therefore, discontinue the use of SNS, and possibly influence other users that are deemed important to him/her. This idea of being able to influence others is often described as social norm, subjective norm, peer influence (Ifinedo, 2011). The term bandwagon effect is also used to describe the same concept. Social norm has been described as the perceived peer pressure to perform or not to perform a behaviour that friends and important people would approve/disapprove (Ajzen, 2008). Though customer satisfaction scarcely addresses the impact of satisfaction on social norm, creating a reason for investigation in this study (Hsu & Chiu, 2004), it is hypothesized that:

**H2:** *Users' satisfaction with SNSs will positively influence their ability to yield to pressure or to put pressure on others to use SNSs for banking transactions.*

On the other hand, customer satisfaction can also lead to trust increase to use SNS for banking.

In this manner, trust would develop when customers have confidence in the integrity of service providers (Wu, Chen, & Chung, 2010) and would decide to do banking with SNS of their choice. Consequently, the following hypothesis is stated:

**H3:** *Users' satisfaction with SNSs will positively influence their trust in SNSs for banking transactions.*

#### 2.3.2. Perceived trust

Trust is defined by the TST as a notion that is appraised by agents, in terms of cognitive ingredients (Castelfranchi & Falcone, 2010). TST treats the cognitive trust as a relational factor between a trustor (trust giver) and a trustee (trust receivers). When one trust a particular SNS as being safe and reliable that one will use it to do banking and vice versa. Therefore, the following hypothesis is stated:

**H4:** *Perceived trust in SNSs will positively influence continuance intention of clients to use SNSs for banking transactions.*

As these clients are happy because of the trust they get from the SNS usage; they can tell their friends and relatives also to use it. Consequently, clients can influence or be influenced by others who are happy because of this trust, thus:

**H5:** *Perceived trust in SNSs will positively influence the ability of clients to yield to pressure or put pressure on others to use SNSs for banking transactions.*

**2.3.3. Social norm**

Technology acceptance studies prove that there is a relationship between social norm (SN) and adoption intention (Venkatesh & Davis, 2000; Anderson & Agarwal 2010). As evinced by some researchers (Kwong & Park, 2008; Lee, 2010; Anderson & Agarwal, 2010), the association between social norm and continuance intention is as solid as before. This study, therefore, proposes that:

**H6:** *The ability of clients to yield to pressure or to put pressure on others to use SNSs will positively influence their continuance intention to use SNSs for banking transactions.*

**2.3.4. Perceived behavioural control**

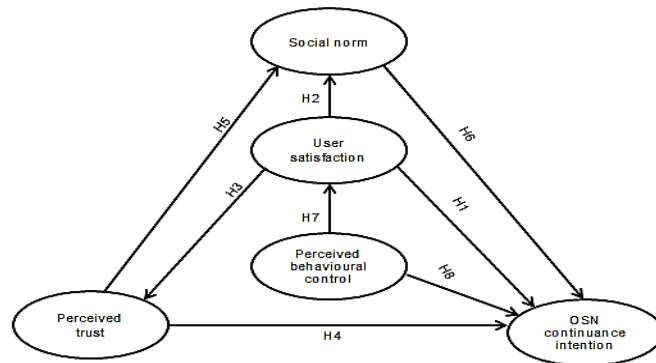
PBC could be seen to be the extent to which one believes to have adequate control over his or her behavior (Ajzen, 2008), that is SNS for banking. The inclusion of PBC into this SNS model allows this study to generalize the model. If one has access to SNS, all things being equal, that one will be expected to use it to do banking when persuaded. The below hypotheses are therefore stated:

**H7:** *PBC over SNSs will positively influence users' satisfaction with SNSs for business transactions.*

**H8:** *PBC over SNSs will positively influence continuance intention of users to use SNSs for business transactions.*

Based on the combinations of H1 to H8, Figure 1 is derived as the conceptual model.

**Figure 1.** Proposed SNS continuance intention model



Source: (Assensoh-Kodua, 2014)

**3. RESEARCH DESIGN AND METHODOLOGY**

**3.1. Research Methodology**

The approach to this study was that of positivism, i.e. quantitative. In this regard, the data collection methods were much more structured in the form of online surveys. These were carefully formulated to address the hypotheses above. The Partial Least Square-Structural Equation Modelling (PLS-SEM) scientific data analyses was used to predict adoption of Social networks for banking in South Africa.

PLS was used to analyse the data. The strength of PLS lies in the following factors: Prediction oriented, Variance-based, Predictor specification, (nonparametric), Robust to deviations from a multivariate distribution, Consistent as indicators and sample size increase, Explicitly estimated, Can be modelled in a formative or reflective mode, Best for prediction accuracy, A power analysis based on the portion of the largest number of predictors. Minimal recommendations range from 30 to 100 cases, supports exploratory and confirmatory research, (Chin & Newsted, 1999; Geffen et al. 2003) just to list a few.

**3.1.1. Sampling Strategy**

Convenience sampling was used to collect information from a Bank's customers who undertake banking through SNS because, a list of such group of respondents were made available for

this study conveniently, on condition that the outcome will be made known to the providing Bank and their identity not disclosed. Out of a total population size of 200 lists released for this study, 120 responses were generated (Bearden, Sharma, & Teel, 1980; Bhattacharjee & Premkumar, 2004) for data analysis, representing 60% response rate.

**3.1.2. Data Collection Instruments**

The questionnaire used in the study was designed to collect data from participants in and around the central business district of Durban in South Africa. The instrument had a five-point Likert scale, ranging from (1) strongly disagree to (5) strongly agree. A pre-validated measures were adopted from similar studies as these have already been proven to be consistent items. A brief letter of introduction was attached to the questionnaire in the first part explaining the purpose of the study and how confidentiality and anonymity is guaranteed in the responses. The respondents were also briefed in the letter on their right to either choose to participate or not.

**4. DATA ANALYSIS**

**4.1. Descriptive Statistics**

Table 1 summarises the descriptive statistics of the 120 respondents who participated in this study. 55 percent were females, probably a reflection of the

South African demographic distribution. The information provided by the respondents on their SNS usage behavior revealed that they were

experienced SNS consumers. Twenty-eight percent (28%) of the respondents indicated that they have used SNSs between 21 and 50 times.

**Table 1.** Descriptive statistics of respondent characteristics

| Variable                         | Characteristics                       | Response (%) | Variable                              | Characteristics    | Response (%) |
|----------------------------------|---------------------------------------|--------------|---------------------------------------|--------------------|--------------|
| Gender                           | Male                                  | 54 (45)      | My SNS for banking transaction        | LinkedIn only      | 20 (17)      |
|                                  | Female                                | 66 (55)      |                                       | Twitter only       | 50 (42)      |
| Age                              | Between 18 and 25                     | 30 (25)      |                                       | Other              | 50 (42)      |
|                                  | Between 26 and 35                     | 48 (40)      | SNS banking experience                | Just once          | 12 (10)      |
|                                  | Between 36 and 45                     | 22 (18)      |                                       | 2-5 times          | 15 (13)      |
|                                  | Between 46 and 55                     | 11 (9)       |                                       | 6-20 times         | 30 (25)      |
|                                  | Between 56 and 65                     | 5 (4)        |                                       | 21-50 times        | 34 (28)      |
|                                  | Above 65                              | 4 (4)        |                                       | More than 50 times | 29 (24)      |
| Location                         | Urban                                 | 71 (59)      |                                       | 0-15 minutes       | 11 (9)       |
|                                  | Rural                                 | 22 (18)      | 16-59 minutes                         | 35 (29)            |              |
|                                  | Semi-Rural                            | 27 (23)      | 1-3 hours                             | 42 (35)            |              |
| Reasons for doing banking on SNS | Convenience                           | 18 (15)      | Time spent on online banking per week | More than 3 hours  | 32 (27)      |
|                                  | Service/Product not available offline | 18 (15)      |                                       |                    |              |
|                                  | Better prices                         | 18 (15)      |                                       |                    |              |
|                                  | Time-saving                           | 18 (15)      |                                       |                    |              |
|                                  | All the above                         | 37 (31)      |                                       |                    |              |
|                                  | None of the above                     | 31 (9)       |                                       |                    |              |

**4.2. Measurement Model**

Reliability and validity check of the measurement model was done, with the aid of PLS 5.0 software. The confirmatory factor analysis (CFA) of PLS was used to establish the reliability and validity of the model. Reliability, being the extent to which factors, measured with a multiple item scales reflect the exact scores on the factors relative to the error (Hulland, 1999; Aibinu & Al-Lawati, 2010), was evaluated of internal consistency and composite reliability with the help of the PLS software.

In order to estimate how consistent various response to items within a scale is, composite

reliability (CR) is used (Shin, 2009). This CR offers a more reviewing approach of overall reliability measure of factors in the measurement model and estimates consistency of the factor itself, plus stability and equivalence of the factor (Roca, Garcia, & De La Vega, 2009; Suki, 2011). CR is estimated to represent correlations between item and factor following suggestions by Henseler, Ringle, & Sinkovics, 2009)

As shown at the bottom two rows of Table 2, values of composite reliability and Cronbach’s alpha were above 0.7, which indicates that all factors have good reliability (Fornell & Larcker 1981, Henseler et al. 2009).

**Table 2.** Item loadings, cross-loadings and reliability estimations

| Items                 | Mean | STD  | PBC     | SN      | US      | PT      | SNS-CI  |
|-----------------------|------|------|---------|---------|---------|---------|---------|
| PBC1                  | 4.09 | 0.89 | (0.852) | -0.087  | 0.031   | 0.064   | -0.066  |
| PBC2                  | 4.10 | 0.91 | (0.895) | -0.026  | -0.052  | 0.006   | 0.015   |
| PBC3                  | 4.06 | 0.90 | (0.899) | 0.029   | -0.021  | -0.041  | 0.000   |
| PBC4                  | 4.00 | 0.90 | (0.753) | 0.087   | 0.051   | -0.028  | 0.053   |
| SN1                   | 4.00 | 0.95 | 0.205   | (0.874) | 0.010   | -0.010  | 0.009   |
| SN2                   | 3.94 | 0.96 | 0.045   | (0.908) | -0.024  | -0.047  | 0.023   |
| SN3                   | 3.92 | 0.96 | -0.067  | (0.882) | -0.029  | 0.055   | -0.006  |
| SN4                   | 3.90 | 0.97 | -0.090  | (0.811) | -0.102  | 0.057   | 0.035   |
| SN5                   | 3.89 | 0.94 | -0.097  | (0.728) | 0.154   | -0.057  | -0.065  |
| US1                   | 4.05 | 0.92 | -0.027  | 0.051   | (0.878) | 0.018   | -0.017  |
| US2                   | 3.97 | 0.92 | -0.075  | -0.004  | (0.877) | 0.002   | -0.021  |
| US3                   | 4.00 | 0.90 | 0.040   | -0.090  | (0.825) | -0.019  | 0.010   |
| US4                   | 3.98 | 0.87 | 0.066   | 0.048   | (0.735) | 0.000   | 0.030   |
| PT1                   | 4.02 | 0.91 | 0.043   | 0.008   | 0.042   | (0.823) | 0.052   |
| PT2                   | 3.99 | 0.93 | 0.048   | 0.026   | -0.052  | (0.885) | -0.009  |
| PT3                   | 3.99 | 0.94 | -0.042  | -0.009  | -0.043  | (0.872) | -0.018  |
| PT4                   | 3.99 | 0.93 | -0.064  | 0.045   | -0.035  | (0.810) | -0.043  |
| PT5                   | 4.02 | 0.91 | 0.021   | -0.077  | 0.100   | (0.793) | 0.024   |
| CI1                   | 3.97 | 0.88 | -0.014  | 0.032   | -0.080  | 0.090   | (0.846) |
| CI2                   | 3.99 | 0.89 | -0.059  | -0.065  | -0.011  | -0.008  | (0.859) |
| CI3                   | 3.95 | 0.91 | -0.139  | 0.107   | -0.025  | -0.048  | (0.903) |
| CI4                   | 3.99 | 0.97 | 0.000   | -0.094  | 0.148   | -0.073  | (0.901) |
| CI5                   | 3.98 | 0.95 | 0.105   | 0.021   | -0.027  | 0.002   | (0.758) |
| Composite reliability |      |      | 0.913   | 0.925   | 0.919   | 0.921   | 0.931   |
| Cronbach’s alpha      |      |      | 0.872   | 0.892   | 0.890   | 0.893   | 0.907   |

SNS-CI (online social network's continuance intention), PBC (perceived behavioural control), US (user satisfaction), SN (social norm), PT (perceived trust), STD (standard deviation) and P-values <0.01

The model validity tells whether a measuring instrument measures what it was supposed to measure (Raykov, 2011). The validity was measured by the estimate of convergent validity and discriminate validity. Convergent validity shows the extent to which manifest variable of a specific factor represent the same factor and is measured using a standardized factor loading, which should be above 0.5 (Fornell & Larcker, 1981).

As observed from Table 2, all items exhibited loadings (values in brackets) higher than 0.5 on their respective factors, providing evidence of acceptable convergence validity. Discriminate validity indicates the degree at which a given factor is truly distinct from other factors (Suki, 2011). A commonly used

statistical measure of discriminant validity is a comparison of the Average Variance Extracted (AVE), with the associated square root (Fornell & Larcker 1981). In order to pass the test of discriminant validity, the AVE of the factor must be greater than the square root of the inter-factor associations (Fornell & Larcker, 1981).

The AVE determines the amount of variance that a factor captures from its measurement items (Henseler et al., 2009). Table 3 shows the AVE values and the correlations among factors, with the square root of the AVE on the diagonal (in bracket). The diagonal values exceed the inter-factor correlations, it can, therefore, be inferred that discriminate validity was acceptable. This study, therefore, concludes that measurement scales have sufficient validity and demonstrate high reliability after calculating AVE.

**Table 3.** Factor AVE and correlation measures

| Factor | AVE   | PBC            | SN             | US             | PT             | SNS-CI         |
|--------|-------|----------------|----------------|----------------|----------------|----------------|
| PBC    | 0.726 | <b>(1.000)</b> |                |                |                |                |
| SN     | 0.756 | 0.680          | <b>(1.000)</b> |                |                |                |
| US     | 0.697 | 0.577          | 0.742          | <b>(1.000)</b> |                |                |
| PT     | 0.701 | 0.621          | 0.648          | 0.604          | <b>(1.000)</b> |                |
| SNS-CI | 0.731 | 0.469          | 0.502          | 0.542          | 0.585          | <b>(1.000)</b> |

Note: the value in a bracket along the diagonal is the square root of AVE for each factor.

**4.3. Structural model**

The structural model was assessed using PLS 2.0 software, after confirming reliability and validity of measurements. In order to test the structural relationship, the hypothesized causal paths were assessed. The variance (R<sup>2</sup>) of each dependent factor is an indication of how well the model fits the data. R<sup>2</sup> shows the amount of variance in a dependent factor that is explained by the research model.

Alternatively, Tenenhaus, Vinzi, Chatelin and Lauro (2005), suggest a global goodness-of-fit (GoF) criterion for PLS path modelling, to account for the PLS model performance for both measurement and structural terms. It aims to find the overall predictive power of model and shows the arithmetical mean of average Communality Index (CI) and average R<sup>2</sup>, computed as follows (Tenenhaus et al. 2005):

$$GoF = \sqrt{CI * R^2} \tag{1}$$

The assessment of the structural model allows the model's fitness to be determined, which is a measure of the model validity. Each of the hypotheses (H1 to H8) corresponds to a pathway in the structural model for the dataset. Both R<sup>2</sup> and path coefficients indicate model fit (effectiveness), depicting how well the model is performing (Hulland, 1999). The overall fit and explanatory power of the structural model were examined, in addition with the relative strengths of the individual causal path. Figure 2 shows the result of the structural model's assessment, with the calculated

R<sup>2</sup> values (explanatory power) and significance of individual paths summarised.

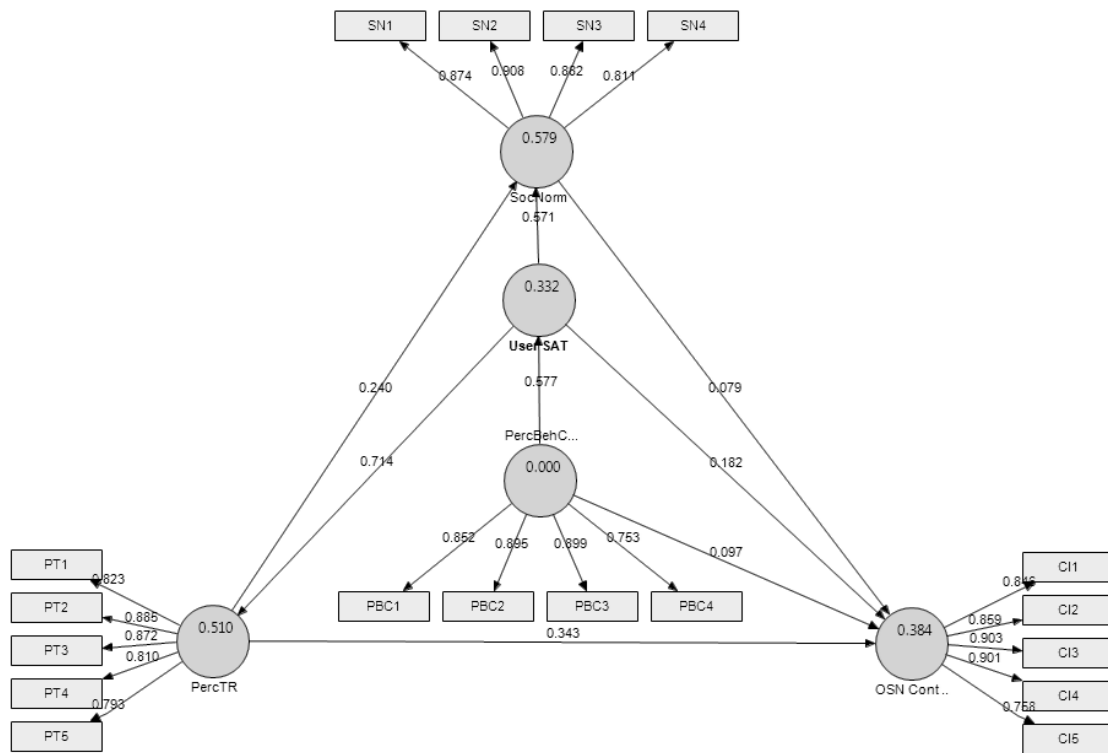
**4.4. Hypotheses Testing**

The support for each hypothesis is determined, by examining the statistical significance of the t-value for each corresponding path. PLS 2.0 uses a techniques called bootstrapping to perform the statistical testing (t-test) of path coefficients, to explain the research hypothesis. Table 4 shows the result of hypotheses testing, where seven hypotheses were supported and one rejected. User satisfaction shows a positive influence on SNS continuance intention (β=0.182, p=0.002), supporting hypotheses H1. The study also shows user satisfaction to influence perceived trust (β=0.714, p=0.001) to support hypothesis H2.

The importance of satisfaction in the life of people using SNS was again highlighted when user satisfaction showed a positive influence on social norm (β=0.571, p=0.001), to support the third hypothesis (H3). Perceived trust proved to be a crucial factor in banking transactions on SNS stage by showing a strong persuading association with continuance intention (β=0.343, p=0.001), to support hypothesis H4. The factor of perceived trust is also found to influence social norm (β=0.240, p=0.001) to support hypothesis H5 of this study.

The path coefficient between social norm and SNSs continuance intention for banking is interestingly noteworthy. This shows (β=0.079), at a significance level of p=0.052, supporting hypothesis H6 and perceived behavioural control showed a significant influence on user satisfaction (β=0.577, p=0.001) to support hypothesis H7.

Figure 2. The experimental snapshot of testing the SNS-CII



-----> Unsupported path (H8)

Finally, the study has found PBC to have a non-significant influence on SNS continuance intention ( $\beta=0.097$ ) at the non-significant level ( $p=0.428$ ). This result proves that PBC does not actually influence the decision to do banking on SNS, which means that hypothesis H8 is not supported. This could be because of the fact that, today, several devices abound in a lot of varieties with which to access

online banking, hence, therefore, with or without having control over these devices one can still have access to Bank online with the help of friends or families.

As expected, all hypothesised paths in the SNS model were significant at various levels, except for H8, which is rejected as the null hypothesis.

Table 4. Summary of the result of hypotheses testing

| Effect                    | Cause                         | Estimate ( $\beta$ ) | T-value | SE    | P-value             | Result         |
|---------------------------|-------------------------------|----------------------|---------|-------|---------------------|----------------|
| SNS continuance intention | User satisfaction             | 0.182                | 2.309   | 0.187 | 0.002***            | H1 supported   |
| Perceived trust           | User satisfaction             | 0.714                | 12.260  | 0.058 | 0.001***            | H2 supported   |
| SNS continuance intention | Perceived trust               | 0.343                | 3.825   | 0.090 | 0.001**             | H4 supported   |
| Social norm               | Perceived trust               | 0.240                | 3.081   | 0.078 | 0.001***            | H5 supported   |
| SNS continuance intention | Social norm                   | 0.079                | 0.935   | 0.079 | 0.052*              | H6 supported   |
| User satisfaction         | Perceived behavioural control | 0.577                | 7.159   | 0.081 | 0.001***            | H7 supported   |
| SNS continuance intention | Perceived behavioural control | 0.097                | 1.212   | 0.097 | 0.428 <sup>ns</sup> | H8 unsupported |

Note: SE (standard error), ns (not significant), \* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$  (two-tailed t-tests)

The study used a bootstrapping technique to obtain the corresponding T-values. Each hypothesis (H1 to H8) corresponded to a path in the structural model as hinted before (see Figure 2) and the  $\beta$  values and statistical significance of the T-value of these paths (Table 4) shows whether a hypothesised

path is supported or not. When the significance level is 0.01, the acceptable T-value should be greater than 2.0 (Keil, Tan, Wei, Saarinen, Tuunainen, Wassenaar, 2000). The loadings suggest the convergent validity of the instrument is unquestionable (Hair, Anderson, & Tatham, 1998).



**4.5. Model fit**

The strength of the measurement model can be demonstrated through measures of convergent and discriminant validity (Hair et al. 1998). Convergent validity is normally assessed using three tests: reliability of questions, the composite reliability of constructs, and variance extracted by constructs (Fornell & Larcker, 1981). Discriminant validity can be assessed by looking at correlations among the questions (Fornell & Larcker, 1981), as well as variances of and covariances among constructs (Igbaria, Parasuraman, & Badawy, 1994).

The overall model fit was assessed using six measures of the average path coefficient (APC), the average R-squared (ARS), the average block inflation factor (AVIF), the goodness of fits (GoF), the average adjusted R-square (AARS) and the R-square contribution ratio (RSCR). Each of the model fit metrics is discussed according to Kock (2010). Based on the results depicted in Table 5, the SNS model has a good fit. The values of APC and ARS are significant at a five percent level while AVIF is still lower than five. This concludes that a good fit exists between model and data (Rosenow & Rosenthal, 1991; Kock, 2010).

**Table 5.** Model fit and quality indices

| Fit index                           | Model | Recommendation                              |
|-------------------------------------|-------|---|
| Average path coefficient (APC)      | 0.356 | Good if P<0.001                             |
| Average R-squared (ARS)             | 0.475 | Good if P<0.001                             |
| Average block VIF (AVIF)            | 3.573 | Acceptable if <= 5, Ideally <= 3.3          |
| Goodness of Fit (GoF)               | 0.585 | Small >= 0.1, Medium >= 0.25, Large >= 0.36 |
| Average adjusted R-squared (AARS)   | 0.470 | Good if P<0.001                             |
| R-squared contribution ratio (RSCR) | 0.997 | Acceptable if >= 0.7, Ideally = 1           |

**5. LIMITATIONS**

Though research on SNS has gained prominence in recent years, this study did not find similar studies like the current one nor find any such comparable model, specifically for South Africa, to embark on a rigorous expository analysis. This denies the current study the opportunity to draw synergy between the past and the present. This study, therefore, recommends further studies in this light as many more banks and businesses are complementing their bricks and mortar business structures with that of social media.

In drawing conclusion on prediction variables in structural equation model such as those in this study, benefit variable is very meaningful to measure motivational effects. As this was not captured in the current study, future ones should do well to include this factor for a more comprehensive results.

**6. IMPLICATIONS AND CONCLUSION**

The study have not used Facebook in its descriptive section of the research instrument because LinkedIn

is often considered the business world’s version of Facebook (Murphy et al. 2014, Wu et al. 2014).

This study which aims at assessing customer acceptance and continuance intention of the usage of social media as a medium for banking in South Africa has found social norm, perceived trust and user satisfaction as the most influencing factor to predict social media continuance intention. The social norm factor is found to be the most determinant factor. Consequently, this study is of the view that financial institutions like the ones listed above, which intend to win more customers and have the magic of making them to like their social media sites and keep coming back, should adopt the strategy of peer pressure to motivate users to use their websites. In particular, the popularity of social media can be explored to create interpersonal interactions on blogs and in networking communities. After they come to the banking social networking sites, the banks should be honest, assuring privacy and security of the users, as well as provide them with improved services and products. The banks should also adopt group banking for discounted services and special packages. This is an indirect pressure to create a group norm among young customers. The majority of users who uses social media are young people according to this study between the ages of 18 and 35. Before making any decision to use social media for financial business, young people are far more likely to consult their social networks for advice. For these young people, social media mirrors the social groups established by the older generations. We all sometimes rely on advice from people that we trust, to support our decision-making process.

Perceived trust was the next important, direct determinant of social media continuance intention. On one hand, users might fear supplying their credit card information to any commercial banking provider, because of online security threats, which is a common phenomenon nowadays. On the other hand, a commercial financial service provider may fear the effort of network hackers, who may intend to steal credit card numbers. This cycle of suspicion obviously borders on trust, which is an important issue to be considered when talking about online banking. This finding is therefore not surprising, when perceived trust emerged the second most influencing factor that will compel users to indulge in social medial for banking. Given the percentage of users who stick with South Africa banks from the above reports, it can be deduced that users will only deal with OSNs that they perceive to be trustworthy in providing them with services or products. If they do not find a particular bank to be trustworthy enough, they switch to another or at worst, become multiple users of different banks social medial. Trust does not happen overnight, but through a process and continuous interactions between a particular bank and customers. This study, therefore makes a contribution, by suggesting that social media bankers should search for holistic strategies to build the trust that users look for in order to keep them coming back for continuous banking. This will certainly improve the number of customers engaging with their banking providers as against the statistics shown above.

The third most important direct determinant according to the results of this study, is user

satisfaction. These findings add confirmation to the several discussions and extensive studies that user satisfaction has received as a topic of interest throughout the psychology, marketing and management literature as confirmed by Bhattacharjee and Lin. Support is lent by this study, to the popular theory that customer satisfaction is a post-purchase attitude, formed through a mental comparison of service and product quality that a customer expects to receive from an exchange, as well as the level of service and product quality the customer perceives from the exchange. From section 2.2 review, it was discovered that, most social media fans are not happy about their banks websites and as a results, the retention rate drops drastically. This study, therefore contributes to the body of user satisfaction knowledge that social media banking institutions should strive to make customers happy by being honest, and providing quality services and products, in as much as they want them to like their sites and use them for banking.

**REFERENCES:**

1. Aibinu, A. A., & Al-Lawati, A. M. (2010). Using PLS-SEM technique to model construction organizations' willingness to participate in e-bidding. *Automation in Construction*, 19(6), 714 - 724.
2. Ajzen, I., (2008). Consumer attitudes and behavior. *Handbook of Consumer Psychology*, 525-548.
3. Anderson, C.L., & Agarwal, R., (2010). Practicing safe computing: a multimedia empirical examination of home computer user security behavioral intentions. *MIS Quarterly*, 34(3), 613-643.
4. Assensoh-Kodua, A. (2014). Factors that determine the continuance intention of people to use online social networks for business transactions. Master's thesis, Durban University of Technology, South Africa. Retrieve March, 19, 2016, from <http://ir.dut.ac.za/handle/10321/1184>.
5. Bearden, W.O, Sharma, S & Teel, J.E. (1980). Sample size effect on chi-square and other statistics used in evaluating causal models. *Journal of marketing research*, 19(4), 425-430.
6. Bhattacharjee, A. (2001). Understanding information systems continuance: an expectation-confirmation model. *MIS Quarterly*, 25(3), 351-370.
7. Bhattacharjee, A., & Lin, C-P. (2015). A Unified Model of it Continuance: Three Complementary Perspectives and Crossover Effects. *European Journal of Information Systems*, 24(4), 364-373.
8. Bhattacharjee, A., & Premkumar, G. (2004). Understanding changes in belief and attitude toward information technology usage: a theoretical model and longitudinal test. *MIS quarterly*, 28(2), 229-254.
9. Castelfranchi, C., & Falcone, R. (2010). Trust theory: a socio-cognitive and computational
10. Castella, T. D. (2011). England riots: Are brooms the symbol of resistance? Retrieved from [www.bbc.co.uk/news/magazine-1445741](http://www.bbc.co.uk/news/magazine-1445741).
11. Çelik, H. (2008). What determines Turkish customers' acceptance of internet Banking? *International Journal of Bank Marketing*, 26(5), 353-370.
12. Chesbrough, H. W. (2010). "Open innovation and strategy." *California management review* 50 (1): 57-76.
13. Chin, W.W & Newsted P.R. (1999). Structural equation modelling analysis with small samples using partial least squares. In Hoyle, R. (Ed.), *Statistical strategies for small sample research*, Sage Publications, California (1999), pp. 307-341
14. Cohen, L. S. (2009). Is There A Difference Between Social Media And Social Networking? Retrieved December 4, 2010, from <http://lonscohen.com/blog/2009/04/difference-between-social-media-and-social-networking/>
15. Evatt, R. (2011). "Businesses Using Social Media to Advantage." Tulsa, OK: Tulsa World, Retrieve August 5, 2014 from, [http://www.tulsaworld.com/business/technology/businesses-using-social-media-to-advantage/article\\_e88019da-46eb-5498-8c58-cc06560c25a4.html](http://www.tulsaworld.com/business/technology/businesses-using-social-media-to-advantage/article_e88019da-46eb-5498-8c58-cc06560c25a4.html)
16. Facebook.com (2015). Facebook Marketing Statistics, Demographics, Reports, and News. Available at: [http://darmano.typepad.com/logic\\_emotion/2007/09/influencerippl.html](http://darmano.typepad.com/logic_emotion/2007/09/influencerippl.html). Retrieved January 26, 2016, from
17. Fornell, C., & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* 18(1), 39-50.
18. Gefen, D., Karahanna, E., & Straub, D.W. (2003). Trust and TAM in online shopping: an integrated model. *MIS Quarterly* 27(1), 51-90.
19. Giacomucci, M. (2014). "Advantages and Disadvantages of Social Media in Business." *Technology and Communication*. Spring 2014, 9(1), 7-9.
20. Hair, J., Anderson, R.E. & Tatham, R.L. (1998), *Black WC Multivariate Data Analysis*, 5th ed., Prentice-Hall, Englewood Cliffs, NJ.
21. Henseler, J., Ringle, C., & Sinkovics, R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, 8(20), 277-319.
22. Hsu, C-L, Yu, C-C, & Wu, C-C. (2014). Exploring the continuance intention of social networking websites: an empirical research. *Information Systems and e-Business Management*, 12(2), 139-163.
23. Hsu, M-H., & Chiu, C-M. (2004). Predicting electronic service continuance with a decomposed theory of planned behavior. *Behavior and Information Technology*, 23(5), 359-373.
24. Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: a review of four recent studies. *Strategic Management Journal*, 20(2), 195-204
25. Ifinedo, P. (2011). An empirical analysis of factors influencing Internet/e-business technologies adoption by SMES in Canada. *International Journal of Information Technology Decision Making*, 10 (4), 731-766.
26. Igbaria, M., Parasuraman, S., & Badawy, M.K. (1994). Work experiences, job involvement, and quality of work life among information systems personnel. *MIS quarterly* 18, 175-201.
27. Interactive advertising Bureau (2008). IAB Internet Advertising Revenue Report conducted by Price water house Coopers (PWC). Retrieved from: [www.iab.net/research/industry\\_data\\_and\\_landscape/adrevenue-report#sthash.LIONmBA5.dpuf](http://www.iab.net/research/industry_data_and_landscape/adrevenue-report#sthash.LIONmBA5.dpuf)
28. Keil, M., Tan, B.C.Y., Wei, K-K., Saarinen, T., Tuunainen, V., Wassenaar, A. (2000). A cross-cultural study on escalation of commitment behavior in software projects. *MIS Quarterly*, 24(2) 299-325.
30. Kock, N. (2010). Using WarpPLS in e-collaboration studies: an overview of five main analysis steps. *International Journal of e-Collaboration*, 6(4), 1-11.

31. Kwong, S.W., & Park, J. (2008). Digital music services: consumer intention and adoption. *The Service Industries Journal*, 28(10), 1463-1481.
32. Lee, M-C. (2010). Explaining and predicting users' continuance intention toward e-learning: An extension of the expectation-confirmation model. *Computers and Education*, 54(2), 506-516.
33. Liao, C, Palvia, P., & Chen, J-L. (2009). Information technology adoption behavior life cycle: toward a technology continuance theory (TCT). *International Journal of Information Management*, 29(4), 309-320.
34. Mitic, M. & Kapoulas, A. (2012). Understanding the role of social media in Bank marketing. *Marketing Intelligence & Planning*, 30(7), 668-686.
35. Moneyweb (2014). FNB launches Facebook Banking in South Africa. Retrieved April 26, 2014, from <http://www.moneyweb.co.za/archive/FnB-launches-facebook-in-south-Africa>
36. Murphy, J, Hill, C. A. & Dean, E. (2014). Social Media, Sociality, and Survey Research. *Social Media, Sociality, and Survey Research*, 1-33.
37. Norton, C. (2011). "The Seven Deadly Disadvantages of Social Media." Norton's Notes. Accessed April 5, 2014 at <http://chrisonorton.biz/social-media/the-seven-deadly-disadvantages-of-social-media/>
38. Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 17, 460-469.
39. Parveen, F., Jaafar, N. I. & Ainin, S. (2014). Social media usage and organizational performance: Reflections of Malaysian social media managers. *Telematics and Informatics*, 32(3), 67-78.
40. Raykov, T. (2011). Evaluation of convergent and discriminant validity with multitrait-multimethod correlations. *British Journal of Mathematical and Statistical Psychology*, 64 (1), 38-52.
41. Richardson, N., Gosnay, R.M. & Carroll, A. (2010), *A Quick Start Guide to Social Media Marketing: High Impact Low Cost Marketing that Works*, Kogan Page Limited, London.
42. Rosnow, R. L., & Rosenthal, R. (1991). *Essentials of behavioral research: Methods and data analysis* (2nd ed.). New York: McGraw-Hill.
43. Shiau, W-L, & Luo, M. M. (2013). Continuance intention of blog users: the impact of perceived enjoyment, habit, user involvement and blogging time. *Behaviour & Information Technology*, 32(6), 570-583.
44. Shin, D. H. (2009). An empirical investigation of a modified technology acceptance model of IPTV. *Behavior and Information Technology*, 28 (4), 361-372.
45. Staffwriter (2013). SA Banks failing customers on social media. Retrieved June 16, 2015, from <http://businesstech.co.za/news/Banking/47656/sa-Banks-failing-customers-on-social-media>.
46. Staffwriter, (2015). FNB online Banking, best in SA as voted by consumers. Retrieved June 16, 2015, from <http://businesstech.co.za/news/Banking/47656/sa-Banks-failing-customers-on-social-media>.
47. Suki, N. M. (2011). A structural model of customer satisfaction and trust in vendors involved in mobile commerce. *International Journal of Business Science and Applied Management*, 6(2), 18-29.
48. Tarabasz, A. (2013). The Use of Social Media in the Polish Retail Banking in the era of Marketing 3.0. *Studia Ekonomiczne/Uniwersytet Ekonomiczny w Katowicach*, 159-168.
49. Tenenhaus, M., Vinzi, V. E., Chatelin, Y. M. & Lauro, C. (2005). PLS path modeling. *Computational Statistics and Data Analysis*, 48(1), 159-205.
50. Thorbjørnsen, H., Pedersen, P.E., & Nysveen, H., (2007). This is who I am: identity expressiveness and the theory of planned behavior. *Psychology and Marketing*, 24(9), 763-785.
51. Venkatesh, V., & Davis, F.D. (2000). A theoretical extension of the technology acceptance model: A longitudinal field studies. *Management Science*, 46 (2), 186-204.
52. Wang, J., & Xiao, J.J., (2009). Buying behavior, social support and credit card indebtedness of college students. *International Journal of Consumer Studies*, 33(1), 2-10.
53. Wiegand, N. (2014). "Social Media Advantages and Disadvantages in Business." Boston, MA: GlobalPost. Accessed April 5, 2014 at <http://everydaylife.globalpost.com/social-media-advantages-disadvantages-business-21665.html>
54. Wu, J-J., Chen, Y-H., & Chung, Y-S. (2010). Trust factors influencing virtual community members: a study of transaction communities. *Journal of Business Research*, 63(9), 1025-1032.
55. Wu, Y-L, Tao, Y-H, Li, C-P, Wang, S-Y, and Chiu, C-Y. (2014). User-switching behavior in social network sites: A model perspective with drill-down analyses. *Computers in Human Behavior*, 33, 92-103.
56. Yasa, E. & Mucan, B. (2013). Turkish companies' value creation through social media tools: Analyzing of fortune 100 Turkey. 12th International Marketing Trends Conference, 2013: 17-19
57. ZASocial Media. (2013). SA Banks failing customers on social media. Retrieved June 16, 2015, from <http://businesstech.co.za/news/Banking/47656/sa-Banks-failing-customers-on-social-media/>.

# STOCHASTIC MODEL OF MICROCREDIT INTEREST RATE IN MOROCCO

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## Abstract

Access to microcredit can have a beneficial effect on the well-being of low-income households excluded from the traditional banking system. It allows this population to receive affordable financial services to help them to meet their needs and to improve their living conditions. However to provide access to credit, microfinance institutions should ensure not only their social mission but also commercial and financial mission to enable the institution to perpetuate and become self-sufficient. To this end, MFIs (microfinance institutions) must apply an interest rate that covers their costs and risk, while generating profits, Also microentrepreneurs need, to this end, to ensure the profitability of their activities.

This paper presents the microfinance sector in Morocco. It focuses then on the interest rate applied by the Moroccan microfinance institutions; it provides also a comparative study between Morocco and other comparable countries in terms of interest rates charged to borrowers. Finally, this article presents a stochastic model of the interest rate in microcredit built in random loan repayment periods and on a real example of the program of loans of microfinance institution in Morocco.

**Keywords:** Microcredit, Micro-Finance Institution, Interest Rate, Morocco, Poor Population

## 1. INTRODUCTION

Microfinance has emerged to provide a social main mission realized through the eradication of poverty and by insuring a social and economic inclusion of the poor, excluded from the traditional banking system and with a large financing needs to improve their living conditions. This is realized through the offer of financial and non-financial products and services enabling the poor population to increase its assets; improve their level of consumption, manage risk effectively and to improve their health and education.

In Morocco, Microfinance institutions financed the micro-entrepreneur which is considered as an active customer, a plaintiff against repayment of financial services that it needs for developing his activity.

It should be noted that in Morocco, the definition of the poor is not necessarily recognized by the international standards that determine the poverty threshold as a reference. It consists indeed in analyzing the wealth and housing indicators to identify customers. The analysis of wealth involves working with the community to rank the members from the richest to the poorest and housing indicators measure the level of poverty of individuals based on building materials used in the external part of their homes. Moreover, if it remains that the overarching priority of microfinance is the poor customer, the focus is strongly put on the female poor customer, because they represent a large mass marginalized in developing countries and have great difficulties to access to resources (Zahraoui, 2007).

Furthermore, the microfinance mission is not only social but also financial, all MFIs must ensure its sustainability and its growth, this by applying interest rates allowing them to offer permanent and large scale financial services (Churchill & All, 2001).

The interest rates must both absorb and cover all costs while generating profit what makes them often higher than those charged by conventional banks, because it is obviously more expensive to lend and collect a given amount distributed in several thousands of tiny loans rather than lend and collect that amount divided into some major loans. Higher costs must be covered by higher interest rates. But how could this rate be high? Many people fear that these high interest rates cause an over indebtedness of poor people without other funding resources (Hajdenberg, 2007).

This paper present an overview of the microfinance sector in Morocco and focuses on the interest rates applied by these institutions to ensure their financial sustainability. It is organized as follows:

Section 2 provides an overview of the mission and the achievements of microfinance sector in Morocco and presents costs supported by microfinance institutions. Part 3 presents the interest rate applied by the Moroccan microfinance institutions and provides also a comparison between Morocco and other comparable countries in terms of interest rates charged to the micro-entrepreneurs. Finally, we conclude this summary paper with a stochastic model of the interest rate in microcredit built in random loan repayment periods and on a real example of the program of loans of microfinance institution in Morocco.

## 2. MICROFINANCE SECTOR IN MOROCCO

### 2.1. Mission and goals

The microfinance sector in Morocco is one of the player in the fight against poverty through financial inclusion and job creation. The Moroccan outstanding microcredits represent 0.6 % of the gross national product in 2014.

The microfinance activity in Morocco is governed by the Law 18-97 of February 1999) as well as the laws that complete and modify the previous text (Law 58-03 of April 2004, law 04-07 of 30 November 2007 and law 41-12).

This sector is an industry relatively diversified with 13 Associations of Microcredit (AMC) grouped in a representative federation FNAM (National Federation of Microcredit Associations) under the supervision of the Central Bank of Morocco (Bennouna, 2016)

### 2.2. Products and Services

Increasingly the AMCs offer diversified financial products to meet the needs of their customers, but because of their institutional status, they do not have the right to collect savings. These products include:

#### 2.2.1. Microentrepreneurs loans

Microentrepreneurs loans are granted to individuals or groups of 2 to 5 persons wishing to develop their own income-generating activity.

#### 2.2.2. Housing loans

Housing loans are granted to persons wishing to acquire, build or improve their homes, or to be equipped with electric installations or to provide the drinking water requirements.

#### 2.2.3. Microinsurance

Microinsurance is a mechanism of protection of the micro-entrepreneurs against risks (hospitalization, death, flood, fire ...) in exchange for the payment of premiums adapted to their needs, their income and their level of risk. It allows to all micro-entrepreneurs to benefit from an insurance coverage even those working in the informal sector who are often poorly served by commercial insurers and traditional social insurance systems.

#### 2.2.4. Money Transfer

Given that microfinance institutions (MFIs) usually target low-income customers and customers located in underserved geographical areas, money transfers allow MFIs to reach their social goals by offering an additional service asked by poor customers - at a cost often lower than those proposed by the "traditional" providers (Isern, Deshpande, and Doorn 2005). AMCs offer in this sense to their customer domestic and international money transfer services.

## 2.3. Achievements of the Sector

According to the Mohammed VI foundation for solidarity, the sector offer 6,400 permanent direct jobs and thousands of indirect jobs to 30/09/2015. There were more than 1 300 points of sale on the whole territory. The coverage rate of the population is estimated at 60% in urban areas and almost 40% in rural areas; more than 52.7% of points of sale are located in urban areas and 47.3% in rural areas. AMCs are located practically in all regions of the country and especially in areas with a high rate of poverty.

The served population represents more than 900.000 customers at 30/09/2015 and an outstanding loan which exceeds 6 billion (C.M.S-September 2015).

### 2.4. Costs

Furthermore, AMCs are required to cover certain fixed and variable costs namely:

#### 2.4.1. The Operating costs

The operating costs include offices and supplies, training and employee compensation, also transport and communications, and depreciation of buildings and equipment. Those operating costs constitute the main component of the rate charged to borrowers by MFIs and are situated most of the time in the range of 10 to 25% of the average outstanding loans. In Morocco, The operating costs represent 13.5% over the past years. It includes salary expenses which are estimated at 434 Mdhs (9%) and operating expenses estimated at 4.5% (White paper of microcredit in Morocco).

#### 2.4.2. Costs related to credit losses or costs of risk

Costs related to credit losses or costs of risk represent the provisions for bad debts net of recoveries. On average in Morocco, it represents 3.5% of the outstanding loan or the share of non-performing loans.

#### 2.4.3. Financial costs and funding sources

Most associations are private and autonomous, for many years. But, they have to be financed continually to ensure their sustainability; this funding is usually done at an average rate of 5.5%, essentially by medium and long-term loans. However, it should be noted that the sector has benefited from significant support at the start of its activity both in terms of technical assistance and at strengthening of credit funds. Table 1, below, summarizes the importance and the allocation of this assistance provided both from institutional and private sector at the national and international level:

**Table 1.** Synthesis of grants received by the sector over the past years

| Synthesis of grants received by the sector |             |
|--|-------------|
| Donations for loan fund                    | 188 150 899 |
| Operating grants                           | 206 906 745 |
| All  | 395 057 644 |

### 3. MICROCREDIT INTEREST RATE IN MOROCCO

As explained in the previous section, MFIs must be able to carry out, in order to succeed, a number of fixed or variable costs, while generating profits. The costs include operating costs, the cost of funds and the expected credit losses (CGAP 2007 & 2004).

These MFIs receive reproaches regarding to the applied interest rate considered too high. This is mainly due to the high costs leaned by these institutions: operating costs (which represent more than 10 % of the interest rates charged by the MFIs by using the yield on gross portfolio as an approximation of the interest rates (Rosenberg, 2013)), and also loan loss expense that are important (delays in payment of the terms by borrowers or outright non-payment). It should be

noted that microfinance institutions grant a free deadline for delays given that its target consist mainly of poor, which results a smaller interest rate (Yunus, 1997). The following part of this paper illustrates the behavior of interest rate in microcredit in Morocco.

In Morocco, the interest rate varies between 18% and 37% depending on the nature of the loan, the type of financed activity and on the size of the microfinance institution. A comparative study of the applied interest rates by region and Country for the Middle East & North Africa region (MENA) (table2) allows to position Morocco compared with other countries on one side and to highlight conclusions based on the financial profitability of MFIs on the other hand (Fernando, 2006).

Table 2. MFI Interest yield distribution, 2014

| Region                              | MFI Count | Yield on gross portfolio (real) | Yield on gross portfolio (nominal) |
|-------------------------------------|-----------|---------------------------------|------------------------------------|
| Africa                              | 145       | 24.84 %                         | 31.37 %                            |
| East Asia and the Pacific           | 112       | 24.65 %                         | 31.10 %                            |
| Eastern Europe and Central Asia     | 104       | 23.79 %                         | 30.19 %                            |
| Latin America and the Caribbean     | 304       | 25.34 %                         | 30.07 %                            |
| South Asia                          | 146       | 14.09 %                         | 23.71 %                            |
| <b>Middle East and North Africa</b> | 26        | <b>24.36 %</b>                  | <b>32.42 %</b>                     |
| Morocco                             | 6         | 37.66 %                         | 40.24 %                            |
| Egypt                               | 4         | 27.95 %                         | 36.80 %                            |
| Iraq                                | 1         | 2.17 %                          | 4.09 %                             |
| Jordan                              | 4         | 26.88 %                         | 33.99 %                            |
| Lebanon                             | 2         | 28.74 %                         | 32.85 %                            |
| Palestine                           | 4         | 16.04 %                         | 18.01 %                            |
| Sudan                               | 1         | 3.66 %                          | 41.52 %                            |
| Syria                               | 2         | -12.69 %                        | 38.91 %                            |
| Tunisia                             | 1         | 19.20 %                         | 26.48 %                            |
| Yemen                               | 1         | 16.72 %                         | 29.52 %                            |

Source: Yield on gross portfolio, 837 MFIs reporting to MIX.

According to this comparative study, it appears that the interest rates charged in Morocco are high. This is mainly due to the actions implemented after the period of the crisis experienced by microfinance sector in Morocco (Bennouna, 2016), and which are translated by the exchange of historical data by all MFIs on their customers in an informal way to identify multiple borrowers. In addition, the MFIs have also reviewed and tightened their lending policies to new customers. Inevitably, this led to a reduction in borrower's number and an increase of operating expenses. Indeed, the staff spent more time and efforts to cover bad debts. This had a negative impact on efficiency, as shown by the increase of operating costs.

However, efficiency gains accumulated over several years enabled the Moroccan microfinance sector to be among the most efficient in the region.

Moreover, a broader analysis of the interest rates applied in Morocco will be the subject of the next part; it deals with the realization of a stochastic model of the interest rate based on the behavior of borrowers and the practices of microfinance institution in Morocco.

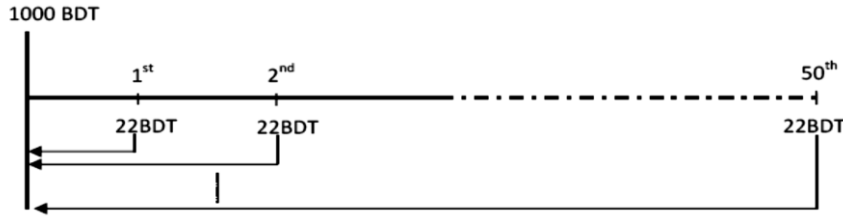
### 4. STOCHASTIC MODEL OF MICROCREDIT INTEREST RATE

Given that the estimation of the interest rate is linked to the cost of risks, this section allows to measure the impact of delays or default on the increase or the reduction in interest rates based on a model realized by Mohamed Yunus.

We consider the model created by Mohamed Yunus as our base model (Yunus, 2007). The effective annual interest rate of the credit is computed from this model represented by an equation. This equation is illustrate through the following example: if a borrower takes an income-generating loan of 1000 BDT (which is equivalent to 123DHs) split in 50 installments of 22 BDT paied in week , he will pay a total amount of 1100 BDT. Within this amount, 1000 BDT is the principal and 100 BDT represents the interest for the year, which corresponding to 10% flat rate according to Yunus Model (Mauk, 2014).

The figure 1 bellow illustrate the repayment scheme of weekly installments.

Figure1. Weekly installments



If we denote by  $r^y$  the annual implicit interest rate. The Yunus equation which defined the interest rate is:

$$1000 = \sum_{k=1}^{50} 22 e^{-t_k \frac{r^y}{52}}$$

Equation 1: the non-stochastic Yunus equation

The solution of this equation leads to an implicit yearly interest rate approaching 20% which is given by Yunus.

The problem is that the effective rate calculated according to this equation does not take into account certain random aspect of repayment deadlines. A customer can shift or postpone the payment for one or more weeks which causes a delay in all the subsequent settlements.

To take this into account, we introduce a stochastic process for installments dates  $T_k$  which integrates the delays in repayment (Diener, 2015).

In this case the generalized Yunus equation is as follow:

$$N = (1 + r_f) \sum_{k=1}^N Q^{T_k} \quad \text{with } Q = e^{-\frac{R_N}{N}}$$

Equation 2 : the generalized Yunus equation

In the first example given by Yunus,  $N=50$ ;  $r_f$  which is the flat rate corresponds to 10% and the implicit interest rate is  $r^y = \frac{N+2}{N} R_N$  which becomes random given that  $T_k$  are random.

#### 4.1. Stochastic Model for Installments Dates $T_k$

In this part, The main purpose is to find the law of the implicit interest rate taking into account the case of delays in installments and to identify the distribution of random repayment time and inter-repayment time.

Furthermore, a probability is assigned to the act of repayment p.

Let  $B=(B_m)_{m \geq 1}$  be a Bernoulli process ,  $(B_m) \rightarrow B(1,p)$ .

$$B_m = \begin{cases} 1 & \text{If borrower succeeds to pay the installment at time } m \\ 0 & \text{Otherwise} \end{cases}$$

Given a repayment process, we are interested in a sequence of random variables,  $T_k$  corresponding to the time when the k-th repayment occurred possibly after having accidents of no repayment. The k-th installment takes place at (The  $F^B$  stopping -time):

$$T_k = \min\{m / B_1 + \dots + B_m = k\}, k = 1 \dots N.$$

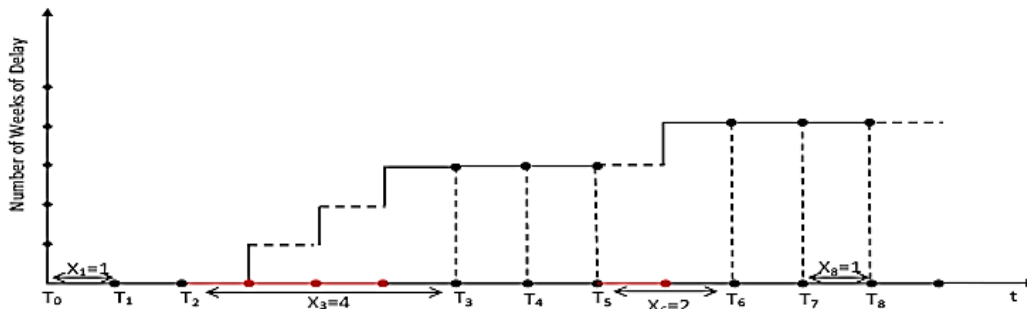
$X_k = T_k - T_{k-1}$  is the time to k-th installment, with  $T_0 = 0$ .

Then we find that  $P(X=x) = p(1-p)^{x-1}$  so  $X_k \rightarrow G(p)$ , the geometric distribution.

This allows choosing a reasonably realistic value of p. Indeed, if we take the often-cited 3% of default-rate and if we consider that default means that some  $X_m > 4$ , we get  $p = 0,84$ , value that we will use in our examples.

The figure2 bellow presents an example of weekly repayment process with some accidents of delay.

Figure 2. Delay in repayment



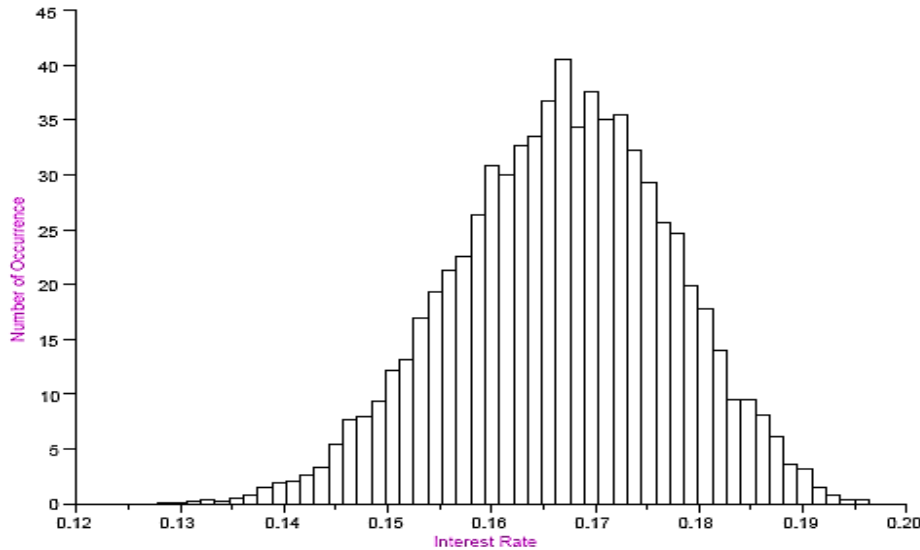
Using Scilab we built a sample of size 10 000 of random installments of lending.

The figure3 illustrates the distribution of the actuarial interest rate  $R_N$  computed from the

generalized Yunus equation for  $N = 50$  and  $r_f = 10\%$  on a Monte-Carlo sample of 10 000 borrowers.



Figure3. Interest rate distribution, p=0.84, sample size=10 000



So the effective interest rate in this case is not 20% but actually 16.59%.

The implicit interest rate computed for the case of Morocco according to the generalized Yunus equation is the subject of the next part.

**4.2. Implicit Interest Rate in Morocco**

As stated previously, the interest rate in Morocco varies from 18% and 37%. In this section, we will consider an interest rate around 36%, which is applied for microentrepreneur loans who represents over than 95% of the Moroccan microfinance portfolio (CMS Dec 2015).

It should be noted that in Morocco, installments are paid monthly and not weekly. So considering a flat interest rate of 18% and a loan amount of 1800Dhs with monthly payments: 18 months; we get the following interest rate:

$$1800 = 118 \sum_{k=1}^{18} (e^{\frac{-r}{20}})^k ; r \text{ is the annual interest rate}$$

$$\Rightarrow 118 q^{19} - 1918 q + 1800 = 0 \text{ With } q = e^{\frac{-r}{20}}$$

$\Rightarrow r = 0,35749613 \sim 36\%$  which corresponds to the applied rate

Let  $N = (1 + r_f) \sum_{k=1}^N Q^{T_k}$  [3] with  $Q = e^{-\frac{R_N}{N}}$  the generalized Yunus equation

$r_f = 18\%$ ; The default-rate is around 3% and if we consider that default means that some  $X_m > 4$  weeks/ one month, we get  $p = 0.84$  value that we will use in this illustration.

Using Matlab we built a sample of size 10 000 of random installments of lending.

Then from the distribution of actuarial interest rates  $R_N$  computed from equation [3] for  $N=18$  months, and  $r_f = 18\%$ , we find an implicit interest rate of around 30%.

For more precision, If we denote by  $\bar{r}$  the amount which satisfies the equation:

$$1800 = E(\sum_{k=1}^{18} 118 e^{\frac{-\bar{r}}{20} (X_1 + X_2 + \dots + X_k)})$$

Then  $\bar{r} = 20 \ln(1 + p(\frac{1}{q} - 1))$  with  $q$ : the solution of the non-stochastic Yunus equation  
 As previously, we have  $q = 0.982284$  &  $p = 0.84$   
 $\rightarrow$  then  $\bar{r} = 30\%$  which is the solution found.

**CONCLUSION**

Microcredit's main objective is to maximize the benefit of the poor. From this perspective, the level of interest rates charged by microfinance institutions is not interested, as far as this excluded population from the traditional banking systems is served and benefits not only from the basic necessities but also from a planning of their future and from an improvement of their living conditions.

It is worth noting that in most countries including Morocco, funding from donors are of a limited quantity which forced microfinance institutions to apply relatively high interest rates to ensure the financing of a large poor population while preserving their financial stability.

In this article, the comparative study of interest rates by country and the estimation of the implicit interest rate applied in Morocco brings out a broad vision on the practices of microfinance institutions in Morocco in terms of supported costs and in return interest rates charged. This study place Morocco among the countries with high interest rates, but this is mainly explained by the crisis that crossed this sector which was caused by the over-indebtedness of the customers and the increase of the default risk and which required heavy financial interventions by MFIs to ensure their survival and financial viability and then overcome the crisis. On this matter, MFIs in Morocco adopted a preventative approach through the application of a diverse target pricing according to the microentrepreneurs risk scoring.

**REFERENCES:**

1. Bennouna, G & Tkiouat, M (2016). Studies and research on microfinance sector in Morocco:



- Overview. June 2016 , Vol4 N° 3 of Asian Journal of Applied Sciences.
2. Churchill, C & Coster, D (2001). "Manual of risk management in microfinance". Care.
  3. Diener, M, Diener, F & Santos, J (2015). « Distribution of implicit interest rate for microcredit." Laboratoire J.A. Dieudonné Porto, 11 June 2015.
  4. Diener, M & Diener, F(2015). « Randomness of interest rates in microcredit". Submitted to 14th International Conference on Credit Risk Evaluation Designed for Institutional Targeting in finance. 1-2 October, 2015, Venice.
  5. Fernando, Nimal A. (2006). "Understanding and dealing with high interest rates on microcredit: a note to policy makers in the Asia and pacific region." East Asia department, Asian development bank, manila.
  6. GCAP- Sheldon ,T & Waterfield ,C (1998). "Business Planning and Financial Modeling for Microfinance Institutions". A Handbook Technical Tool Series No. 2. November 1998.
  7. GCAP (2008). "Behind the headlines: Are microcredit interest rates exploitative? An interview with microfinance expert Rich Rosenberg", Washington DC, 15 February 2008. <http://dev.cgap.org/p/site/template.rc/1.26.4516/>
  8. GCAP (2007). "GCAP Reflection on the compartamos initial public offering: A case study on microfinance interest rates and profits." Focus Note 42, Washington DC.
  9. GCAP (2004). "Interest rate ceilings and microfinance: the story so far". Occasional paper no. 9. September 2004.
  10. Hajdenberg, J (2007). "Microcredit: how to lower excessively high interest rates?", January 2007.
  11. Kneiding, Christoph, & Rosenberg, R (2008). "Variations in microcredit interest rates." Presentation, GCAP, Washington DC.
  12. Mauk, P (2014). Mathematical modeling of microcredit. HAL. 6 Feb 2014.
  13. MIX (Microfinance Information Exchange). 2007. "Annual MFI Benchmarks" <http://www.themix.org/publications/2007-annual-mfi-benchmarks>.
  14. Rosenberg, R, Gonzalez, A & Narain, S (2009). "GCAP Brief - Are microcredit interest rates excessive?". February 2009.
  15. Rosenberg, R, Gaul, S, Ford, W & Tomilov, O (2013). Microcredit interest rates and their determinants, 2004-2011, Access to Finance Forum Reports by CGAP and Its Partners, no. 7, June 2013.

# AN EMPIRICAL STUDY OF THE RELATIONSHIP BETWEEN EARNINGS FORECASTS AND RISK PROFILE

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## Abstract

A new approach to examine the relationship between the excess of forecast based on characteristics toward management forecast and business risk is provided in this research at companies listed on the stock exchange in Tehran. The customary (traditional) approach is based on the regression of management forecast errors of past years. Therefore, the observable and unobservable inputs, such as managements, incentive misalignment, are used to predict management forecast errors. In this study, the future earnings is at first estimated by using characteristics including earnings per share, loss indicator, Neg. accruals per share, Pos. accruals per share, asset growth, dividend indicator (non-payment of the dividend), Book-to-market value, share price and dividend per share for companies. Based on that, a criterion (CO) for estimating the earnings forecast error was developed, which is the alternative forecasted errors. One should notice that, business risk is considered as a measure of company performance. In this study, measures of business risk are volatility of earnings and dividend ratio. Research findings show that, there is a significant relationship between the CO and volatility of earnings, on the contrary there is no significant relationship between this criteria and dividend ratio.

**Keywords:** Earning Forecast, Business Risk, Management Forecast Error

**JEL Classification:** G17, M40

## 1. INTRODUCTION

Management earnings forecasts provides information about expected earnings for a particular firm. Such forecasts represent the mechanisms by which managers establish or alter market earnings expectations, preempt litigation concerns and influence their reputation for transparent and accurate reporting.

Forecasts provided by managers about the future profit are valuable for investors because it helps them in decision making. Managers are often motivated to issue earnings forecasts to reduce the information asymmetry that exists between earning forecast itself, analysts and investors. In other words, there is a relationship between information asymmetry and issuing management earnings forecasts. Higher information asymmetry measured by bid-ask spreads prior to the forecast compared with firms that do not issue such forecasts (Coller & Yohn, 1997).

Quality of management forecasts may be influenced by environmental conditions imposed ambiguities about the future, the expertise and self-interest or incentives. Furthermore, in the environment that there is little prosecutions risk for providing misleading information, it is more possible that manager provides forecasts based on personal motives (Gholam Ali pour & Saghafi, 2013).

Managers can strive to achieve accurate forecasts or they can strategically forecast to achieve

a desired result. Research shows substantial variation in manager's forecast accuracy. For example it is found by Kato et al. (2009) that primary management forecasts of earnings for a fiscal year are upward-biased systematically however they revise their forecasts downward. Their opinion is that optimism of management's initial forecast is inversely correlated with firm performance and this correlation is highlighted for companies with higher levels of insider ownership and firms in small size and that firms have forecast optimism historically. This subject arises from the manager's tendency to the optimistic forecasts consistently and reputation factor is not sufficient to effect on forecast accuracy. They also show that credibility of the information content for market participants is very important for managers.

The risk of any company is the inability to achieve the benefits. On the other hand business risk as measures of a company performance shows probabilities of losses from operational tasks such as production costs, operating expenses and operating revenues. So management forecasts related to business risk. Researcher studied on earnings forecast error and its relationship with the company's performance which has been made erenow. For example Izadinia and Alinaghian (2009) studied the relationship between earnings forecast with financial and business risk and found a relationship between them. They concluded that companies with higher financial risk are more likely

to face difficulty in estimating earnings forecasts. Their results have showed that companies with higher business risks may not be able to cover earnings forecast fully.

The common approach (traditional) to identify the earnings forecast error based on regression of past forecast errors. But this method has some problems.

For example, Hughes, Liu, and Su (2008) infer that investors do not emphasize to the forecasts more than expected. So the earnings forecast bias does not lead to abnormal returns and assign this result to the efficiency of market. They believe that investors can predict component of biases. But Eric (2013) question their findings and guess the result of Hughes, Liu, and Su research affected by their methodology, not market efficiency.

In this paper, we develop and implement new approach to estimate management forecast biases that evade many of the problems preventing the traditional approach as Eric (2013) did for predicting analyst forecast.

## 2. LITERATURE REVIEW

Estimating a firm's future profitability is an essential part of valuation analysis and very important for investors. Earnings forecasts published voluntarily, convey information to investors about the firms which publish them and investors receive forecast information potentially available from all firms (Penman, 1980).

Therefore, there have hitherto been a lot of research about the accuracy of earning forecast, effective factors and alternatives for it. For example, Morton (1998) found that if the market is able to understand the characteristics of earnings time series, based on prediction models of each company, the relationship between historical and future earnings can be explained and it is possible to achieve more accurate forecasts. Mashayekh and Shahrokhi (2007) studied earnings forecast errors by managers and related factors based on random walk theory. They found that optimistic deviation in manager's forecasts and revealed that forecast accuracy varies with firm size, type of industry, and profitability or non-profitability of the company. Clement et al. (2003) showed that strengthening of management forecasts are a result of reduction in analyst dispersal. Ota (2006) demonstrated financial distress, growth, size and previous forecast biases are correlated with bias in management forecast error. He found that analysts are very conscious to the systematic bias in management forecasts so they are more accurate than management forecasts.

But the point which is less noted, managers have mixture of public and private information into forecasts of future earnings, so the reliance on management forecasts can produce biased estimation. The traditional approach to predicting forecast bias, involves regressing realized forecast errors on lagged and publicly observable firm characteristics. The past errors resulted from observable firm characteristics may be correlated with unobservable inputs such as incentives misalignment or private information.

Research suggests that these incentives influence managers' forecasting behaviors. Nagar et al. (2003) argue that managers with greater levels of

equity-based compensation issue more frequent forecasts to avoid equity mispricing that could adversely affect their wealth. They also argue that equity-based incentives encourage not just good-news, but bad-news disclosures, because silence i.e., no forecasts is likely to be interpreted negatively. Consistent with their hypothesis, they find that the frequency of management earnings forecasts is positively related to the proportion of chief executive officer compensation which is affected by stock price, as well as the absolute value of shares held by that individual.

Although one might conclude that managers with equity-based compensation will always issue forecasts in an attempt to boost their firm's stock price, Aboody and Kasznik (2000) have identified situations where incentives may lead to forecasts that depress the firm's stock price. Specifically, they report that managers issue bad-news earnings forecasts around stock option award periods to temporarily depress stock prices and take advantage of a lower strike price on managers' option grants. Similarly, Cheng and Lo (2006) and Stocken (2005) find that insider trading is related to unfavorable management forecasts. Both studies suggest that managers have incentives to time their bad-news forecasts to take advantage of a lower stock price. Xu (2009) demonstrated that management underestimate the future implications of past earnings information when forecasting earnings and when they have a long horizon for forecasting, underestimation previous forecasting biases is very probable.

In sum, these studies show that firm-specific managerial incentives play an important role in the decision to issue earnings forecasts. So forecast biases can be above or below the actual error. It depend on the sign and magnitude of correlations between observable firm characteristics and unobservable inputs. Furthermore, such deviations can be different from one company to other companies. So it can be concluded that the methodology of research exposes the results on distorted interpretation (Eric, 2013).

It may be at first trying to control the managements' motivations and private information. But it is generally infeasible for the researcher to realize all inputs affecting forecasts. Furthermore, even if researchers are able to identify and collect all of them as proxies for unobservable inputs, these proxies would almost certainly measure the underlying inputs with error. As a result, when controlling for these proxies, the coefficients would be subject to the concern that the sign and magnitude of coefficient biases are generally unknown, when there is more than one variable in a multivariate regression subject to measurement error. Thus, attempting to control for unobservable inputs could have the unintended effect of exacerbating bias (Eric, 2013).

In this investigation, a new approach is offered as an alternative to earning forecast error. We use firm characteristics to predict management forecasts. Based on this, historically estimated relations are used but switch the pivot for estimation of future earnings. This approach is far from many problems of the traditional approach and is less reactive to prediction errors and suggests

considerable predictive accuracy for identified forecast biases.

**2.1. Risk and Earnings Forecasts**

In general, the risk can be divided in 3 categories: financial risk, business risk and systematic risk.

Financial risk: the possibility of losses which caused by financial structure and it is measured using financial leverage, company size and current ratio generally.

Business risk: it reflects the risk of losses resulting from operational task such as operating expenses, operating income and production cost. Its measurement includes earnings volatility, revenue growth and dividend.

Systematic Risk: The risk resulting from factors such as economic conditions, currency, laws and regulations etc. (Izadinia & Alinaghian, 2009).

Earnings volatility has a negative relation with earnings predictability. It is affected by economic and accounting factors and these factors reduce earnings predictability. Attention to earnings volatility cause significant developments in the estimation of short-term and long-term earnings. Superiorly, monitoring the volatility information allows analyst to identify systematic biases, which do not entirely perceive the notions of earnings volatility for earnings predictability (Dichev and Tang, 2009).

Based on the framework of Dichev and Tang (2009), Mashayekhi and Mennati (2014) investigated the relationship between earnings volatility and earnings predictability (short and long-term). In addition, they investigated information content of earnings volatility. They demonstrated higher earnings volatility indicating lower earnings predictability. Moreover, the strength of long-term predictability was reduced. Additionally the loss of company (based on the theoretical framework that losses causes earnings volatility) excluded and the tests were repeated but similar results were obtained. In other research, Mehrani and Hesarzadeh (2011) examined the relationship between earnings volatility and forecast probability of earnings in the short-term and long-term time horizon. They also confirmed a significant inverse relationship between earnings volatility and forecast probability. Moreover historic earnings are important in predicting future earnings and earnings stability is a key factor for analysis the relationship between earnings volatility and their forecast probability. Also Haghghat and Motamed (2012) investigated the relationship between earnings volatility and earnings predictability. The result of their study similar to the Mehrani and Hesarzadeh (2011) and Mashayekhi and Mennati (2014). In addition, Motamed (2012) has found a positive relationship between seasonal earnings volatility variable and earnings predictability variable. Relationship between the earnings volatility and earnings predictability is weaker than relationship between seasonal earnings volatility and earnings predictability variable.

Revenue or sale can be useful in assessing the performance of any company. Also revenue growth is one of the measure for business risk. Higgins (2008) studied earnings forecast errors and corporate performance, having sales as the measure of performance. Results of his study showed that

earnings forecast errors in companies experiencing reduction in sales is higher, compared to those with higher rate of sales.

Identifying and understanding the determinants of dividend policy is of high concern among the stakeholders. It will help them not only to examine the ability of companies to pay dividends but also to predict its future behavior and trend. Dividend is the other measure of business risk. Izadinia and Alinaghian (2009) used two factors including earnings volatility and dividend as business risk. They investigated the relationship between these variables and management forecast bias. Their results showed that companies with higher business risks may not be able to cover earnings forecast fully. They found a reverse and significant relationship between management forecasts bias and dividend.

These researches include Mashayekhi and Mennati (2014), Mehrani and Hesarzadeh (2011), Haghghat and Motamed (2012), Higgins (2008) and Izadinia and Alinaghian (2009) used the traditional approach to identify earnings forecast error. On the other hand, based on the characteristic approach (new approach), we can estimate errors, whereas there are not the problems for the traditional approach as Eric (2013) encountered with these problems and found a solution for them. On the new approach ,characteristic forecasts in excess of management forecasts, known as alternative for management forecast error. Here the question comes up, is there any relationship between estimated forecast error by new approach and the risk such as earnings volatility and dividend? To answer this question, we develop two hypotheses as follow:

*H1: There is a positive and significant relationship between characteristic forecasts in excess of management forecasts and earnings volatility.*

*H2: There is a reverse and significant relationship between characteristic forecasts in excess of management forecasts and dividend.*

**3. METHODOLOGY**

Based on the traditional approach, we can suppose that the firm j realized earnings in year t,  $E_{jt}$ , so it can be written as a function of observable firm characteristics:

$$E_{j,t} = \sum_{i=1}^M \beta_i \cdot X_{ij,t-1} + \varepsilon_{j,t} \tag{1}$$

Where  $X_{1j,t-1} \dots X_{Mj,t-1}$  imply an extensive collection of m firm characteristics correlated with the firm`s earnings that are overtly observable in t-1 and  $E_{jt}$  indicating the constituent of realized earnings not estimated by  $X_{1j,t-1} \dots X_{Mj,t-1}$ . In a similar manner, management forecasts of year t earnings are given in year t-1 as:

$$MF_{j,t-1} = \sum_{i=1}^M \gamma_i \cdot X_{ij,t-1} + \sum_{i=1}^K \delta_i \cdot Z_{ij,t-1} + \eta_{j,t-1} \tag{2}$$

Where public information  $X_{1,j,t-1} \dots X_{M,j,t-1}$ , are available for manager also motivations to bias forecasts and private information  $Z_{1,j,t-1} \dots Z_{K,j,t-1}$  are apparent.

Incorporating Eq. (1) and (2), lead to Eq. (3) that is realized forecast errors:

$$FE_{j,t} \equiv E_{j,t} - MF_{j,t-1} = \sum_{i=1}^M (\beta_i - \gamma_i) \cdot X_{ij,t-1} + \varepsilon_{j,t} - \sum_{i=1}^K \delta_i \cdot Z_{ij,t-1} - \eta_{j,t-1} \quad (3)$$

On the traditional approach Eq. (3) represents that the bias from this regression as Eq. (4):

$$\Omega_{j,t} \equiv \varepsilon_{j,t} - \sum_{i=1}^K \delta_i \cdot Z_{ij,t-1} - \eta_{j,t-1} \quad (4)$$

The reality is that the regression bias is a reason of managements' private information or motivations,  $Z_{1,j,t-1}$ , so that estimated values of  $(\beta_i - \gamma_i)$  in Eq. (3) exposure to bias. For example in the extant studies usually contain long-term growth forecasts as a control variable. Whenever managements' motivations influence their long-term growth forecasts, the regression error,  $\Omega_{j,t}$ , becomes correlated with the other variables,  $X_{i,j,t-1}$ . Simultaneously,  $\Omega_{j,t}$  is also correlated with forecast errors,  $FE_{j,t}$ . Thus,  $\Omega_{j,t}$  could be correlated with  $FE_{j,t}$ . on the other hand  $\Omega_{j,t}$  is correlated with  $FE_{j,t}$  and  $X_{i,j,t-1}$  demonstrate the existence of correlated omitted variable bias. Although the direction of this bias is unknown and can be different among companies and time.

Based on this approach we use historically estimate the values of  $(\beta_i - \gamma_i)$  so extend it to the current company characteristics,  $X_{i,j,t}$ . The resulting fitted value can be:

$$\widehat{FE}_{j,t+1}^T = \sum_{i=1}^M (\widehat{\beta}_i - \widehat{\gamma}_i) \cdot X_{ij,t-1} \quad (5)$$

In addition by using of biased regression coefficients, the management forecast error does not equal the expected value of the realized forecast error as Eq. (6).

$$(\widehat{\beta}_i - \widehat{\gamma}_i) \neq E_t[(\beta_i - \gamma_i)] \Rightarrow \widehat{FE}_{j,t+1}^T \neq E_t[FE_{j,t+1}] \quad (6)$$

On the other hand, by the new approach we can predict management forecast errors by using characteristic of companies. The process of calculating characteristic forecasts conforms the construction of Eq. (7) and follows closely from the procedures developed in Fama and French (2006) and Eric (2013).

$$\widehat{E}_{j,t+1} = \sum_{i=1}^M \widehat{\beta}_i \cdot X_{ij,t} \quad (7)$$

An advantage of this approach is that the resulting earnings forecast is an unbiased estimate of future earnings, such that  $\widehat{E}_{j,t+1} = E_t[E_{j,t+1}]$ .

Next, forecast errors is predicted by contrasting  $\widehat{E}_{j,t+1}$  with the publicly observable management forecast of t+1 earnings:

$$\widehat{FE}_{j,t+1}^c = \widehat{E}_{j,t+1} - MF_{j,t} = E_t[E_{j,t+1} - MF_{j,t}] = E_t[FE_{j,t+1}] \quad (8)$$

Where the c-superscript indicates the estimated forecast bias calculated using the characteristic approach. The characteristic approach leads to unbiased estimates of the identified management forecast bias, in contrast to traditional approaches. Ultimately, the following cross-sectional regression is estimated for all firms reporting earnings in calendar year t:

$$E_{j,t} = \beta_0 + \beta_1 E_{j,t-1}^+ + \beta_2 NEGE_{j,t-1} + \beta_3 ACC_{j,t-1}^- + \beta_4 ACC_{j,t-1}^+ + \beta_5 AG_{j,t-1} + \beta_6 DD_{j,t-1} + \beta_7 DIV_{j,t-1} + \beta_8 BTM_{j,t-1} + \beta_9 PRICE_{j,t-1} + \varepsilon_{j,t-1} \quad (9)$$

$E^+$  : Earnings per share

NEGE: Loss indicator

$ACC^-$  : Neg. accruals per share

$ACC^+$  : Pos. accruals per share

AG: Asset growth

DD: Dividend indicator (non-payment of the dividend)

BTM: Book-to-market

PRICE: Share price

DIV: Dividend per share

Eq. (9) is estimated for each firm-year that contains non-missing values of the 9 characteristics. Then

$$CF_{j,t} \equiv \widehat{\beta}_0 + \widehat{\beta}_1 E_{j,t}^+ + \widehat{\beta}_2 NEGE_{j,t} + \widehat{\beta}_3 ACC_{j,t}^- + \widehat{\beta}_4 ACC_{j,t}^+ + \widehat{\beta}_5 AG_{j,t} + \widehat{\beta}_6 DD_{j,t} + \widehat{\beta}_7 DIV_{j,t} + \widehat{\beta}_8 BTM_{j,t} + \widehat{\beta}_9 PRICE_{j,t} \quad (10)$$

Where  $\widehat{\beta}$  indicates the coefficients got from estimating Eq. (9) in year t-1 and  $CF_{j,t}$  measures the characteristic forecast of year t+1 earnings. After computing characteristic forecasts, a set of CF and management forecasts (MF) is created.

Predicted forecast errors equal earnings predicted by past firm characteristics minus the management forecast. Also, the characteristic forecast described by Eq. (10) reflects the structure of  $E_{j,t+1}^+$ . Particularly, a new variable is created, characteristic forecast ( $CO_{j,t}$ ).

$CO_{j,t}$  is defined as the characteristic forecast of earnings per share minus the management forecast and scaled by total assets per share:

$$CO_{j,t} = \frac{CF_{j,t} - MF_{j,t}}{TA_{j,t}} \quad (11)$$

$TA_{j,t}$ : Indicates firm j's total assets per share in year t.

The difference between characteristic and management forecasts is scaled by total assets per share because prices reflect earnings expectations created by management forecasts (Eric, 2013).

So the following model was applied to the first hypothesis.

$$AVE_{jt} = \alpha_0 + \alpha_1 CO_{jt} + \alpha_2 SIZE_{jt} + \alpha_3 BTM_{jt} + \alpha_4 ACC_{jt} + \alpha_5 LTG_{jt} + \varepsilon \quad (12)$$

Dependent variable: Average of volatility earning in the last two years, AVE

$$AVE_{jt} = \frac{VE_{j,t+1} + VE_{j,t}}{2} \quad (13)$$

Where:  $VE_{j,t}$  is the volatility of earnings before interest and tax (EBIT) that is calculated by the following equation

$$VE_{jt} = \frac{EBIT_{j,t+1} - EBIT_{j,t}}{EBIT_{j,t}} \quad (14)$$

And for the second hypothesis the model (15) was developed:

$$DTE_{jt} = \alpha_0 + \alpha_1 CO_{jt} + \alpha_2 SIZE_{jt} + \alpha_3 BTM_{jt} + \alpha_4 ACC_{jt} + \alpha_5 LTG_{jt} + \varepsilon \quad (15)$$

Dependent variable: The ratio of dividends to earnings per share (EPS), DTE

Where:  $DTE_{jt}$  is calculated by the following equation

$$DTE_{jt} = \frac{DIV_{j,t}}{EPS_{j,t}} \quad (16)$$

Independent variable is CO and

Control variables are:

SIZE: Log of market capitalization

BTM: Equals the book-to-market ratio

ACC: Equals total accruals that is a change in current assets minus change in cash and short-term investments minus the change in current liabilities.

LTG: Long-term growth on rate of earnings forecasts that is calculated by the following equation:

$$LTG_{jt} = \frac{G_{j,t-2} + G_{j,t-1} + G_{j,t} + G_{j,t+1} + G_{j,t+2}}{5} \quad (17)$$

Where: G is annual growth rate of Earning

### 3.1. Sampling

This is an applied study and employs descriptive and correlative methodologies. Data are collected using a post-event (historical information) method. A correlative study is conducted to test the existence of correlation.

Population of the study constitutes companies listed at Tehran stock exchange from 2003 to 2014 and includes 644 company-year satisfying the following qualities:

1. Their financial period is fixed to esfand 29.
2. Their activities are not of financing and investing nature.
3. Their stock remains active in the stock exchange during the period under study.
4. Their information is readily available.

## 4. RESULT

### 4.1. Earnings Forecast

The first step for testing the hypotheses is to estimate the company's earnings based on Eric model.

Table 1. Earning forecast

| Variable         | Coefficient | Std. Error | t-Statistic | Prob.  |
|------------------|-------------|------------|-------------|--------|
| C                | 632.2361    | 51.20074   | 12.34818    | 0.0000 |
| E <sup>+</sup>   | 0.111179    | 0.053363   | 2.083468    | 0.0377 |
| NEGE             | -60.97737   | 44.44654   | -1.371926   | 0.1707 |
| ACC              | 8.75E-05    | 3.54E-05   | 2.471961    | 0.0137 |
| ACC <sup>+</sup> | -7.38E-05   | 5.82E-05   | -1.266771   | 0.2058 |
| AG               | 2.375151    | 25.15619   | 0.094416    | 0.9248 |
| DD               | 25.80626    | 40.17319   | 0.642375    | 0.5209 |
| DIV              | 0.172538    | 0.086431   | 1.996256    | 0.0464 |
| BTM              | -69.93874   | 21.57829   | -3.241162   | 0.0013 |
| PRICE            | 0.006246    | 0.002754   | 2.268346    | 0.0237 |

Table 2. Effects Specification

|                    |          |                     |          |
|--------------------|----------|---------------------|----------|
| R-squared          | 0.822024 | Mean dependent var  | 1455.507 |
| Adjusted R-squared | 0.789247 | S.D. dependent var. | 1301.028 |
| S.E. of regression | 667.2804 | Sum squared resid   | 2.42E+08 |
| F-statistic        | 25.07968 | Durbin-Watson stat  | 1.983159 |
| Prob(F-statistic)  | 0.000000 |                     |          |

Coefficients in table (1) are based on Eric model (equation 10). So, on the next step forecasting criteria (CO) can be estimated based on equation (11).

As shown in table (1), variables such as earnings per share (E+), negative accruals, dividend per share (NEGE), book value to market (BTM) and

stock price have a significant relationship with the company's future earnings. On the other hand, variables such as loss per share (NEGE), asset growth (AG), non-payment of the dividend (DD) do not have a significant relationship with the company's earnings on the next year.

As can be seen in table 2, the value of Durbin-Watson test is 1.983, indicates no relationship between errors. Adjusted r-squared is 0.789, indicates that 79 per cent of EPS for next year (dependent variable) can be explained by changes in independent variables and the rest can be explained by other factors.

Considering other factors like probability=0.0000 that is smaller than 5 percent, and f-statistic= 25.07968, it can be said that the model is significant.

**4.2. Tests of Stationarity**

Stationarity will occur when its variance, average and autocorrelation coefficients of a time series variables are constant over time. This test is very important when we use mixed data in time series. If the variables in the regression model do not have this attribute, then the standard assumptions for asymptotic analysis will not be valid. In other words, the common t-ratios will not follow a t-distribution, so validity of hypothesis tests about the regression parameters will stay uncertain.

In this research, stationary test is done using Levin, Lin and Choi test model (2002). For this test the null hypothesis is the unit root.

**Table 3.** Levin, Lin and Choi test

| <i>Variables</i> | <i>Prob.</i> | <i>Statistic</i> | <i>Result</i>   |
|------------------|--------------|------------------|---|
| AVE (H1)         | 0.0000       | -21.9479         | The null hypothesis of a unit root is rejected, so the data are stationary. |
| DTE (H2)         | 0.0000       | -20.1843         | The null hypothesis of a unit root is rejected, so the data are stationary  |
| CO               | 0.0000       | -51.8112         | The null hypothesis of a unit root is rejected, so the data are stationary  |
| SIZE             | 0.0000       | -11.6899         | The null hypothesis of a unit root is rejected, so the data are stationary  |
| BTM              | 0.0000       | -19.5606         | The null hypothesis of a unit root is rejected, so the data are stationary  |
| ACC              | 0.0000       | -21.0896         | The null hypothesis of a unit root is rejected, so the data are stationary  |
| LTG              | 0.0000       | -216.092         | The null hypothesis of a unit root is rejected, so the data are stationary  |

**4.3. Cointegration Test**

Economic theory recommend that economic or financial variables have a long-run economical relationship. Testing for cointegration is necessary to check whether an empirical model has meaningful relationships. Whenever variables trend on different

procedures, they have not fixed long-run relationship together, and usually there is not a reliable basis for deduction based on standard distributions. In this study, kao test is used for the presence or absence of cointegration between variables. In this test the null hypothesis is that there are no cointegration between variables.

**Table 4.** Kao Residual Cointegration Test

| <i>Hypothesis</i> | <i>Prob.</i> | <i>t-Statistic</i> | <i>Result</i>   |
|-------------------|--------------|--------------------|---|
| Hypothesis1 (AVE) | 0.0000       | -14.48129          | The null hypothesis of no cointegration is rejected, so there is long-run relationship between variables. |
| Hypothesis2 (DTE) | 0.0000       | 4.605575           | The null hypothesis of no cointegration is rejected, so there is long-run relationship between variables  |

**4.4. Leamer and Hausman Tests**

Combining time dimension and cross-section dimension leads to more reliable results, that are the usefulness of utilizing panel data and is a

verification on the view of Breitung and Pesaran (2008). Therefore, it is intended to determine the data type before model estimation. For this purpose, Leamer test should be employed in order to see whether the data are pool or panel.

**Table 5.** Results for Leamer Test

| <i>Hypothesis</i> | <i>Prob.</i> | <i>f-Statistic</i> | <i>Result</i>                            |
|-------------------|--------------|--------------------|--|
| Hypothesis1 (AVE) | 0.0000       | 2.124032           | null hypothesis of pool data is rejected |
| Hypothesis2 (DTE) | 0.0000       | 2.517077           | null hypothesis of pool data is rejected |

Table (5) shows the results for Leamer test at 5 percent significant level. Since the probability of the test statistic is less than 5 percent the null hypothesis of this test is rejected and panel data method is appropriate.

In the next stage, it is necessary to decide on fixed effects or random effects model. Baltagi (2001)

has emphasized this merely based on theoretical consideration. In this paper, in order to accredit the choice of fixed effects, the Hausman test is executed which has an asymptotic chi square distribution. The statements of hypothesis are:

**H0:** Existence of random effect model

**H1:** Existence of fix effect model

**Table 6.** Results for Hausman Test

| <i>Hypothesis</i> | <i>Prob.</i> | <i>Chi2-Statistic</i> | <i>Result</i>  |
|-------------------|--------------|-----------------------|--|
| Hypothesis1 (AVE) | 0.0013       | 19.893952             | null hypothesis of random effect model is rejected     |
| Hypothesis2 (DTE) | 0.2476       | 6.654830              | null hypothesis of random effect model is not rejected |

Regarding to the table (6), for hypothesis1(Eq. 12), since the value calculated according to the

Hausman test statistics is higher than the critical value, the Hausman specification test suggests, we

should choose the fixed effect model instead of the random effect model.

For hypothesis 2 (Eq. 15), since the probability of Hausman test is (0.2476) higher than 0.05, the

null hypothesis is not rejected. So the random effects method is accepted.

**4.5. Estimation Results**

**Table 7**

$$AVE_{jt} = \alpha_0 + \alpha_1 CO_{jt} + \alpha_2 SIZE_{jt} + \alpha_3 BTM_{jt} + \alpha_4 ACC_{jt} + \alpha_5 LTG_{jt} + \varepsilon$$

| Variable | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------|-------------|------------|-------------|--------|
| C        | -2.497180   | 0.847333   | -2.947107   | 0.0034 |
| CO       | 0.069237    | 0.033644   | 2.057931    | 0.0402 |
| SIZE     | 0.329916    | 0.151526   | 2.177291    | 0.0300 |
| BTM      | 0.133929    | 0.053005   | 2.526732    | 0.0119 |
| ACC      | -1.26E-06   | 4.35E-07   | -2.903700   | 0.0039 |
| LTG      | 1.522734    | 0.038424   | 39.62955    | 0.0000 |

The results of data analysis related to the test of first hypothesis presented in table 7 are interpreted as follows:

Since the probability of test for all variable is smaller than 0.05 so they have a significant relationship with the depended variable. Variables

such as CO, size, book value to market (BTM) and long-term asset growth (LTG) have a direct and significant relationship with the depended variable (average of volatility earning). On the other hand, ACC has a reverse and significant relationship with the AVE.

**Table 8. Effects Specification**

|                    |          |                    |          |
|--------------------|----------|--------------------|----------|
| R-squared          | 0.846870 | Mean dependent var | 0.832332 |
| Adjusted R-squared | 0.814152 | S.D. dependent var | 17.26512 |
| S.E. of regression | 7.378255 | Sum squared resid  | 24715.15 |
| F-statistic        | 25.88448 | Durbin-Watson stat | 1.635447 |
| Prob(F-statistic)  | 0.000000 |                    |          |

As can be seen in table 8, the value of Durbin-Watson test is 1.635, indicating no relationship between errors. Adjusted r-squared is 0.81, indicating that 81 per cent of average of volatility earning (dependent variable) can be explained by changes in independent variables and the rest can be explained by other factors.

Considering other factors like probability that is 0.0000, smaller than 5 percent, and f-statistic= 25.88448, it can be said that the model is significant.

So the first hypothesis of this study, which says there is a positive and significant relationship between characteristic forecasts in excess of management forecasts and earning volatility, is accepted. The results of data analysis related to test of second hypothesis presented in table 9 are interpreted as follows:

**Table 9**

$$DTE_{jt} = \alpha_0 + \alpha_1 CO_{jt} + \alpha_2 SIZE_{jt} + \alpha_3 BTM_{jt} + \alpha_4 ACC_{jt} + \alpha_5 LTG_{jt} + \varepsilon$$

| Variable | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------|-------------|------------|-------------|--------|
| C        | -0.448444   | 0.246425   | -1.819795   | 0.0693 |
| CO       | -0.005602   | 0.007389   | -0.758134   | 0.4487 |
| SIZE     | 0.188341    | 0.037788   | 4.984188    | 0.0000 |
| BTM      | 0.044687    | 0.021519   | 2.076661    | 0.0382 |
| ACC      | 2.91E-08    | 6.25E-08   | 0.466353    | 0.6411 |
| LTG      | -0.004578   | 0.006240   | -0.733689   | 0.4634 |

Since the probability of test for variables include size and BTM is smaller than 0.05 so they have a direct and significant relationship with the depended variable (DTE). On the other hand,

variables such as CO, ACC and LTG have not a significant relationship with the ratio of dividends to earnings per share.

**Table 10. Effects Specification**

|                     |          |                     |          |
|---------------------|----------|---------------------|----------|
| R-squared           | 0.032579 | Mean dependent var. | 0.392305 |
| Adjusted R-squared  | 0.024997 | S.D. dependent var. | 0.492335 |
| S.E. of regression  | 0.486143 | Sum squared resid.  | 150.7816 |
| F-statistic         | 4.297065 | Durbin-Watson stat  | 1.594732 |
| Prob. (F-statistic) | 0.000749 |                     |          |

As shown in table 10, the value of Durbin-Watson test is 1.59, indicating no relationship between errors. Adjusted r-squared is 0.024, indicating that 2.5 percent of the ratio of dividends to earnings per share (dependent variable) can be

explained by changes in independent variables and the rest can be explained by other factors.

Considering other factors like probability is 0.0000 that smaller than 5 percent, and f-statistic= 4.29, it can be said that the model is significant.



So the second hypothesis of this study, which says there is a reverse and significant relationship between characteristic forecasts in excess of management forecasts and dividend, is rejected.

## 5. CONCLUSION

As demonstrated by findings there is a positive and significant relationship between earnings volatility and CO. In other words, by use of CO, earnings volatility of next year can be estimated. This result is consistent with the traditional approach that is based on the regression of management forecast errors of past years. The results of Mehrani and Hesarzadeh (2011) represents the inverse relationship between earnings volatility and predictability of earnings. As well as the findings of the Haghghat and Motamed (2012) reflect the predictability of earning that will be reduced due to extreme volatility. But this approach is distinct from previous (traditional) approaches in several aspects:

- First, except earnings forecast error in previous years, another tool (CO) is used to estimate the volatility of earnings in the next year.

- CO, given the nature and the operational definition, is a forward-looking approach. Because it predicts earnings of future based on the characteristics of company and earnings forecasted is an important variable in determining CO.

- Traditional approach identify the earnings forecast error based on regression of past forecast errors. In other words, coefficients were estimated based on regression of past forecast errors then generalized to current characteristics and finally, a forecast is obtained for future trend.

- In the traditional approach, the omitted variable bias can be expected because of the observable characteristics of firm used to estimate forecast errors which are correlated with unobservable inputs to forecasts such as private information or motivation misalignments.

On the other hand, there is no a significant relationship between characteristic forecasts in excess of management forecasts and dividend. This is justifiable by general policy of the company listed on the stock exchange of Tehran. In other words, these companies usually dividend significant aspect of the net profit and by changing the net profit, dividend will change. Also this result is like the similar results of studies by Jahankhani and Ghorbani (2005) and Pour Heidari et al. (2009).

## REFERENCES:

1. Aboody, D., & R. Kasznik. 2000. CEO stock option awards and the timing of voluntary corporate disclosures. *Journal of Accounting and Economics*, 29: 73-100
2. Baltagi, B.H.2001.Econometric Analysis of Panel Data. Second edition. John Wiley and Sons Publication
3. Breitung, J. & Pesaran, M. H. 2008. Unit roots and cointegration in panels. *Advanced Studies in Theoretical and Applied Econometrics*, 46: 279-322.
4. Cheng, Q. & K. Lo. 2006. Insider trading and voluntary disclosures. *Journal of Accounting Research*, 44(5): 815-848.
5. Clement, M.R., Frankel and Miller, J.2003. Confirming management earnings forecasts, earnings uncertainty, and stock returns. *Journal of Accounting Research*, 41 (4): 653-679.
6. Coller, M. & Yohn, T.L.1997. Management forecasts and information asymmetry: An examination of

- bid-ask spreads. *Journal of Accounting Research*, 35: 181-191.
7. Dichev, D. & Tang, W. 2009. Earnings volatility and earnings predictability. *Journal of Accounting and Economics*, 47: 160-181.
8. Eric, C. So.2013.A new approach to predicting analyst forecast errors: Do investors overweight analyst forecasts? *Journal of Financial Economics*, 108:615-640.
9. Fama, E., French, K.2006. Profitability, investment and average returns. *Journal of Financial Economics*, 82 (3): 491-518.
10. Gholamali Pour, R. & Saghafi, A. 2013. Information Content of Management Earnings Forecasts: Repeat of Bias in Forecasts and Factors Affecting Management Earnings Forecasts Error. *Quarterly Journal of Securities Exchange*, 18:173-203.
11. Haghghat, H. & Motamed, M. 2012. Investigate the relationship between volatility and predictability of earnings. *Journal of developments in Accounting*, 2:65-87.
12. Higgins, H. N.2008. Earnings Forecasts of Firms Experiencing Sales Decline: Why So Inaccurate? *The Journal of Investing*, 12(1):45-72.
13. Hou, K., van Dijk, M. & Zhang, Y. 2012. The implied cost of capital: a new approach. *Journal of Accounting and Economics*, 53 (3): 504-526.
14. Hughes, J., Liu, J. & Su, W. 2008. On the relation between predictable market returns and predictable analyst forecast errors. *Review of Accounting Studies*, 13 (2): 266-291.
15. Kato, K, Skinner, .D.J & Kunimura, M. 2009. Management Forecasts in Japan: An Empirical Study of Forecasts that Are Effectively Mandated, *The Accounting Review*, 84(5):1575-1606.
16. Izadiniya, N. & Alinaghian, N. 2009. Evaluating the Relationship between Earnings Forecast Errors with Business and Financial Risks in Companies Listed at Tehran Stock Exchange. *Journal of Accounting and Auditing Research*, 7: 72-87.
17. Jahankhani, A. & Ghorbani A. 2005. The identification and description of determining factors of dividend policy in the listed companies on Tehran Stock Exchange. *Journal of Financial Investigations*, 6(20): 27-48.
18. Mashayekh, Sh. & Shahrokhi, S. 2007. Evaluating the Relationship between Management Earnings Forecast Accuracy and Related Factors. *Accounting and Auditing Reviews*, 50: 65-82.
19. Mashayekhi & Mennati. 2014. Explanation the Relationship between Accounting Earnings Volatility and Predictability. *Empirical Studies in Financial Accounting Quarterly*, 40:101-124.
20. Mehrani, S. & Hesarzadeh, R. 2011. The information content of corporates' earnings forecasts. *Accounting Studies*, 6: 27-42.
21. Morton, R. M. 1998. Predicting stock returns using alternative time series models of earnings. *Journal of Financial Statement Analysis*, 3(4): 16- 26.
22. Nagar, V., D. Nanda, & P. Wysocki. 2003. Discretionary disclosure and stock-based incentives. *Journal of Accounting and Economics* .34: 283-309.
23. Ota, k. 2006. Analysts' awareness of systematic bias in management earnings forecasts: Empirical evidence from Japan, Working Paper, Musashi University.
24. Penman, S. H. 1980. An empirical investigation of the voluntary disclosure of corporate earnings forecasts. *Journal of Accounting Research*, 18 (1): 132-160.
25. Pourheidari, Omid. Mohammadi, Amir. & Rahimi, Ali. 2009. The study of policy stability of dividend in the companies listed on TSE. *Accounting research*, 1: 96-111.
26. Stocken, P. C. 2000. Credibility of voluntary disclosure. *The Rand Journal of Economics*, 31(2): 359-374.

# ESTABLISHMENT OF AUDIT COMMITTEES IN GOVERNMENT MINISTRIES OF A DEVELOPING COUNTRY

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## Abstract

The underlying study to this paper attempts to establish to what extent audit committees in government ministries in Namibia have been established as a requirement for enhanced quality of service delivery and accountability to taxpayers. A qualitative approach was followed, where questionnaires or an interviews were conducted with accounting officers in government ministries. Content and thematic analyses were used to formulate narratives based on the understanding of similarities and differences in respondents' experiences, views and perceptions. The study shows that from the 17 ministries that responded, only 2 ministries have established audit committees. Confirmatory, there is currently no legislature that makes it mandatory for government ministries in Namibia to establish audit committees within their respective constituencies. There are no formal audit committee terms and references or an audit committee charters are in place. Government ministries in Namibia seem to not have adopted best national and international governance practices with respect to the establishment of audit committees within their ministries. There is a need for a clear guidance as to how audit committees must be established; the composition of the committee members, the terms of office of committee members and remuneration, to mention a few.

**Keywords:** Audit Committee, Corporate Governance, Public Accounts Committee, Ministry, Accounting Officer

## 1. INTRODUCTION

Corporate governance and the establishment of audit committees is a global issue. The audit committee concept in the European context has been accepted in many European member states. In the UK the concept of audit committees has existed since the 19<sup>th</sup> century, while in the US the concept of audit committees dates back to the late 1930s (Institute of Chartered Accountants in England and Wales, 2008). After some well-publicised international auditing failures during 2001 and 2002 about the Enron Corporation scandal in the United States that was defined as being one of the biggest audit failures, there has been an increasing focus on the role of audit committees in the public and private sectors (Controller and Auditor-General, New Zealand, 2008). The Sarbanes-Oxley Act 2002 in the United States and the strengthening of corporate governance requirements and expectations in the public and private sectors in many overseas jurisdictions highlighted the need for more audit committees and for those audit committees to be more effective (Institute of Chartered Accountants in England and Wales, 2008).

In New Zealand, there are no specific regulatory or legislature requirements for setting up audit committees in the public sector. However, there are a number of explicit and implicit expectations of good governance that require or strongly suggest that public entities should set up and operate an

effective audit committee. Significant pieces of public sector legislations in New Zealand refer to a "system of internal control designed to provide reasonable assurance as to the integrity and reliability of financial reporting" (for example, section 155 of the Crown Entities Act 2004). The legislature does not define "internal control" but there are several international best practice models that include audit committees as a crucial component of the internal control environment (Controller and Auditor-General, New Zealand, 2008).

According to the regulations on internal audit for the State public administration (including the public agencies) in France, the internal audit function is set up at ministerial level. It has an audit committee and an internal audit service. In each ministry, the audit committee is the oversight body for internal audit. The committee's responsibilities cover the full scope of public policies and the entity's activities performed under the authority of the minister and include all associated risks. The audit committee is in charge of defining internal audit policy on the entire scope of a minister's responsibilities. It also oversees the quality of the risk management system. As a key governance body for internal audit, the audit committee guarantees the independence of the internal audit and the effectiveness of internal audit operations. Its role in the oversight of internal audit is focused on risk-based audit analysis, strategic and annual audit

plans, audit results and performance, and follow-up of recommendations (European Union, 2014).

The Minister of Finance in the Netherlands published a new by-law on audit committees within central government in 2012. In each ministry, an audit committee advises top management (Secretary General, Director General's) on operational management, risk management and the internal audit function, which is executed by the Central Government Audit Service (CGAS) (European Union, 2014). Audit committees advise on matters including the annual audit plan and management responses to audit findings and recommendations. Audit committees are functional bodies, composed of representatives of the top management and at least two independent external members. The chair of an audit committee, who may be an external or an internal member, is appointed by the minister. Ministries may opt for an audit committee consisting of independent external members only (European Union, 2014).

The regulatory requirements for audit committees in the public sector of Tanzania is provided in the Public Finance Act (PFA) No.6 of (2001) as amended in 2004 and 2010 and is applicable to Ministries, Departments, Agencies and Local Government Agencies (Functioning of Audit Committees: Participants' Handbook, April 2014). In Kenya, Treasury Circular no. 16/2005 requires the establishment of Ministerial Audit Committees with terms of reference consistent with generally accepted corporate governance practices. It also requires Audit Committees in all public institutions (FM Solutions, 2008). In South Africa the establishment of audit committees within the public sector is made mandatory in the Public Finance Management Act no 1 of 1999 (PFMA) section 38 (1) (a) (ii), which states that "the accounting officer for a department, trading entity or constitutional institution must ensure that there is maintenance of a system of internal audit under the control and direction of an audit committee complying with and operating in accordance with regulations and instructions prescribed in terms of section 76 and 77 of the PFMA". The PFMA Act further states that "The Audit Committee has oversight responsibilities over the effective functioning of internal audit within a department (national and provincial), public entity, municipality and municipal entity (South African Public Finance Management Act of 1999).

There are no specific or regulatory requirements in Namibia for the establishment of audit committees in government ministries. The Namibian State Finance Act of 1991, Section 14 and 15 only provides for the appointment of Internal Auditors and authorises their access to accounts, documents and records to perform their audit duties (Namibia State Finance Act of 1991). The Namibian State Finance Act of 1991 does not however make it mandatory for the establishment of audit committees within government ministers of Namibia. The Namibian Parliamentary Standing Committee on Public Accounts (PAC) in November 2012 subpoenaed Government's Permanent Secretaries to a consultative meeting where the committee recommended that accounting officers establish audit committees and train internal auditors to improve internal controls (Namibian Sun, 2012). The fact that countries like South Africa,

Tanzania, Rwanda, amongst others have embraced good corporate governance practices with respect to the establishment of audit committees within their respective government ministries is very commendable and should set the tone for other countries to follow suit as far as the establishment of audit committees in government ministries is concerned.

It is against this background and problem that this paper presents the following objectives: 1.) to understand how accounting officers of government ministries in Namibia perceive the importance of audit committees within their ministries; 2.) to determine the extent to which the recommendation by the National Assembly's Public Accounts Committee on the establishment of audit committees in government ministries of Namibia have been implemented by the accounting officers; 3.) to determine which party provides assurance for the adequate and effective functioning of internal audit controls in government ministries (in Namibia) without an established audit committee; and 4.) to establish the challenges faced by government ministries in establishing audit committees.

The remaining part of this paper is divided into sections on literature review, research methodology, presentation of result and discussion thereof, conclusion and recommendations.

## 2. LITERATURE REVIEW

### 2.1. Theoretical Framework

Limited extant literature was found on the topic in Namibia. Hence, the authors had to rely on literature from Southern African Development Community (SADC) countries mainly South Africa and universal theories.

The fundamental theories in corporate governance began with the agency theory, expanded into stewardship theory and stakeholder theory and evolved to resource dependency theory, transaction cost theory, political theory and ethics related theories such as business ethics theory, virtue ethics theory, feminists ethics theory, discourse theory and postmodernism ethics theory (Abdullah & Valentine, 2009). The public sector represents a principal-agent relationship. The officials acting as the principal's (the public) agent must periodically account to the principal for their use and stewardship of resources and the extent to which the public's objectives have been accomplished. An effective audit activity reduces the risks inherent in a principal-agent relationship (Abdullah & Valentine ((2009). The principal relies on the auditor to provide an independent, objective evaluation of the accuracy of the agent's accounting and to report on whether the agent uses the resources in accordance with the principal's wishes (The Institute of Internal Auditors, 2012).

Namazi (2013) states that in the agency theory, shareholders who are the owners or principals of the company, hires the agents to perform work. Principals delegate the running of business to the directors or managers, who are the shareholder's agents, In its primitive form, agency theory relates to situations in which one individual (called the agent) is engaged by another individual (called the

principal) to act on his/her behalf based upon a designated fee schedule.

Since both individuals are assumed to be utility maximizers, and motivated by pecuniary and non-pecuniary items, incentive problems may arise, particularly under the condition of uncertainty and informational asymmetry. Daily, Dalton and Cannella (2003) argue that two factors can influence the prominence of agency theory. First, the theory is conceptually and simple theory that reduces the corporation to two participants of managers and shareholders. Second, agency theory suggests that employees or managers in organizations can be self-interested. In agency theory shareholders expect the agents to act and make decisions in the principal's interest. On the contrary, the agent may not necessarily make decisions in the best interests of the principals; leading to agency problems.

Agency problems between shareholders and management usually arise from a combination of asymmetric information and differences in sensitivity to firm-specific risk. Here the term "sensitivity to firm-specific risk" is used to refer how a decision maker ranks alternative choices differing in their riskiness. Agency theory can be employed to investigate the relationship between the ownership and management structure. On the other hand, where there is a division, the agency model can be applied to align the goals of the management with that of the owners. The agency theory prescribes that people or employees are held accountable in their tasks and responsibilities (Abdullah & Valentine, 2009). Employees must constitute a good governance structure rather than just providing the need of shareholders, which maybe challenging the governance structure (Abdullah & Valentine ((2009). Corporate governance, in general, encompasses the above-mentioned.

## 2.2. Corporate Governance

Demidenko and McNutt (2010) argue that the concept of governance has been applied in both economics and law for centuries and it has been understood to mean enforcement of contracts, protection of property rights and collective action. In fact, governance is associated with people operating within organizations. Nevertheless, organizations must be governed properly in order for them to achieve their objectives (Naidoo, 2009). The collapse of the Maxwell publishing empire in the late 1980's was a direct catalyst for the publication of the Cadbury Report on corporate governance in the UK in 1992. The collapse of Enron and WorldCom in 2002 precipitated the enactment of the Sarbanes-Oxley Act (SOX) in the US later that year. Corporate governance in South Africa was first institutionalized with the publication of the first King Report on Corporate Governance in 1994 (Naidoo, 2009).

This was followed in 2002 by the second King Report on Corporate Governance for South Africa (King II), placing South Africa at the forefront of countries regulating in favor of superior governance standards. The third King Report on Corporate Governance for South Africa, King III, was released on 1 September 2009 and became effective from March 2010. From a legislative and regulatory perspective, South Africa is well composed as a

country to tackle the governance challenges of the 21st century (Naidoo, 2009).

Namibia saw the launch of "The Corporate Governance Code for Namibia (NamCode)" in 2014. Deloitte and Touche, (2014) states that the NamCode provides a list of best practice principles to assist and guide directors to make the right choice for their entities. There is no statutory obligation on companies to comply with the NamCode. The underlying intention of the NamCode is not to force companies to comply with recommended practice, but rather for companies to 'apply or explain (Deloitte, (2014). Directors are accountable to shareholders and other stakeholders, and where directors opt not to implement the recommended practices as set out in the NamCode, they should be able to explain their reasoning and motivation to the shareholders. Having been drafted by the Namibian Stock Exchange, this code is of particular relevance to listed entities. The NamCode is based on King III and provides guidance to all Namibian corporate entities on various governance related aspects, including: ethical leadership and corporate citizenship; boards and directors; audit committees; governance of risk; governance of information technology; compliance with laws, codes, rules and standards; internal audit; governing stakeholder relationships; and integrated reporting and disclosure (Deloitte, (2014).

### *Corporate governance in the public sector*

Many Asian governments reformed their corporate governance by introducing a number of governance devices from developed economies (Choi, Han & Lee, 2014). The audit committee was one of those key governance devices. Because the audit committee monitors management on behalf of shareholders and ensures fair presentation of financial statements, it is an integral part of most corporate governance systems. A strong audit committee is expected to remedy poor governance systems (e.g., agency problems) that seem to prevail in emerging markets (Choi, Han & Lee, 2014).

An audit committee's mandate can be derived from many sources. In some jurisdictions, the responsibilities of an audit committee and its members are established in legislature and/ or regulation. In other jurisdictions, the mandate may be set out in government policy. Regardless of how the mandate is established, good governance dictates that public sector entities have an independent audit committee and leading practices suggest it formalize a high-level statement of the audit committee's responsibilities (The Institute of Internal Auditors, 2014). The South African National Treasury developed an Internal Audit (IA) Framework during the 2003/2004 financial year. The purpose of the IA Framework is to establish a minimum guideline for the development and operation of internal auditing in the Public Service. The IA framework prescribes that an Audit Committee (AC) is to be established to serve as an independent governance structure whose function is to provide an oversight role on the systems of internal control, risk management, and governance.

The Government of Namibia has taken a proactive step in promulgating the State Finance Act, 1991 (Act 31 of 1991) which provides for the

appointment of Internal Auditors in public sector institutions. The act is however silent on the establishment of audit committees within the respective government ministries. The NamCode provides a list of best practice principles to assist and guide directors to make the right choice for their entities. There is no statutory obligation on companies to comply with the NamCode. Directors are accountable to shareholders and other stakeholders, and where directors opt not to implement the recommended practices as set out in the NamCode, they should be able to explain their reasoning and motivation to the shareholders.

The President of Namibia in October 2014 during the official opening of the offices of the Auditor General in the capital, appalled to all Permanent Secretaries and heads of public institutions to ensure that sound financial management systems are put in place and to account for funds appropriated through the National Budget. The president further encouraged, all Government Offices, Ministries and Agencies to have operational Internal Audit Units which are staffed by competent and skilled personnel. He said these units should not only focus on prudent financial management of their respective Offices, Ministries and Agencies, but should also enforce measures to curb the misuse, abuse and misappropriation of Government assets. (NAMPA, 2014).

The office of the Auditor General Namibia (2010) reported that Ministries do not have oversight audit committees for their internal functions. Additionally, Namibia is a member state to the Southern Africa Development Community Organisation of Public Accounts Committees (SADCOPAC), other member states include, Angola, Botswana, DRC, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. Southern Africa Development Community Organisation of Public Accounts Committees (SADCOPAC) is an autonomous and independent association of Public Accounts Committees from SADC states established to promote mutual support; foster the exchange of ideas, knowledge, and experiences; act as a recognized voice of Public Accounts Committees with SADC community; and promote accountability, good governance and transparency in the SADC states. (SADCOPAC, 2015).

### 2.3. Importance of Audit Committees

Audit committees are a result of the failure of large corporations in Europe and America since 1986. The major causes for failure were: manipulation of accounting figures; fraudulent management, failure by external and internal audit; unethical management; incompetent senior management etc.

This led to formation of various committees/commission like Treadway Commission (1987), Blue Ribbon Committee (in USA); Cardbury Committee (1992); Macdonald Committee (1982) [in UK] and Bosch Committee (1991) in Australia. One of the key recommendation of these committees was the audit committee as a means by which to improve the reliability of financial reporting, auditing and to raise the standards of corporate accountability and governance. Ever since, audit committees have been increasingly adopted by organisations in both

private and public sectors worldwide. In Tanzania for instance, the audit committees were established effectively in the year 2003/4 (GIZ, 2014). The audit committee plays an important role in ensuring that adequate accounting records are maintained, that an effective system of internal controls exists, that reporting by the company is comprehensive and reliable and that the company generally complies with the principles of good governance (Naidoo, 2009).

According to Magrane and Malthus (2010), audit committees are intended to improve organizational governance, regardless of whether the organization is in the private or the public sector. They argue that the audit committee being a subcommittee of the governing body, should aim to provide assurance on financial and compliance issues through increased scrutiny, accountability, and the efficient use of resources. An audit committee may also serve an advisory function aimed at performance improvement within the organization.

### 2.4. Roles of an Audit Committee

The audit committee is an independent oversight committee reporting to the relevant governing body. An audit committee's responsibilities vary depending on the entity's complexity, size and requirements. Typically the responsibilities of a public sector audit committee include overseeing matters related to: financial management; performance management; external audit; internal audit; risk management; internal control; IT governance; combined assurance; appropriateness of the finance function and compliance with laws and other regulatory requirements. (South African Public Sector Audit Committee Forum, 2013).

Independent audit committees help public sector organizations meet taxpayers' increasing demands for transparency and accountability by providing oversight of management practices in key governance areas, including; values and ethics; governance structure; risk management; internal control framework, audit activity; external assurance providers; management action plans; and financial statements and public accountability reports. (The Institute of Internal Auditors, 2014).

An audit committee is an independent oversight body of an organization designed to improve the organization's overall governance framework. In the public sector, the audit committee plays an advisory role and generally helps in achieving the following; improve accountability; strengthening the control environment; and assisting the council and accounting officers to fulfil their stewardship, leadership and control responsibilities. (GIZ, 2014)

### 2.5. Benefits / Value Add of an Audit Committee

While there are many ways an audit committee can add value to an organization, following are amongst others examples of how an audit committee could help the CAE and/ or drive the vision of the organization to achieve the statutory objectives (The Institute of Internal Auditors, 2014):

- facilitate well-informed, efficient, and effective decision-making;

- promote and monitor an ethical culture;
- ensure compliance with a well-designed code of conduct;
- oversee an effective system of risk oversight and management;
- oversee an effective and efficient internal control system;
- oversee internal and external reporting of financial and nonfinancial information; and
- promote effective communication with audit activity and external assurance providers and respond appropriately to matters they raise.

According to South African Public Sector Audit Committee Forum (2013), audit committees make valuable contributions towards improving the governance, performance and accountability of public sector organizations. An effective audit committee has numerous benefits for public sector entities, including;

- giving guidance on sound corporate governance practices
- monitoring the adequate and effective functioning of the system of internal controls
- monitoring the implementation of recommendations made by internal audit and other review activities
- ensuring that fraud and corruption is dealt with effectively
- improving the quality of financial and performance reporting
- facilitating an efficient audit process and
- improving risk management.

## 2.6. Challenges Facing Public Sector Audit Committees

The following are some of the challenges facing audit committees in the public sector (South African Public Sector Audit Committee Forum, 2013):

- **Legislature and regulatory requirements:** public sector entities operate within a unique regulatory framework with a number of pieces of legislation and regulations that need to be complied with. The terms of reference of a public sector audit committee do not always clearly define the requirements of the audit committee in relation to the entity's environment.
- **Role clarity:** accountability, role clarity and reporting lines are not always clear in the public sector (with regard to the shareholders, the "directors" and management as applicable in the private sector. King III is clear on who is charged with specific governance responsibilities and its application is encouraged.
- **Independence:** the independence of the audit committee may be impaired due to previous/current relationships of audit committee members or the audit committee as a whole and political standing, among other factors.
- **Knowledge, skills and experience:** the difficulty in attracting a pool of suitable persons to serve on the public sector audit committees is another challenge in the public sector. Other matters that require attention are the remuneration of committee members and political influence in the appointment process.
- **Commitment:** adequate dedication and commitment on the part of members and proper preparation for meetings, reading documents prior

to meetings, follow-up procedures and attendance of and participation in meetings are not receiving sufficient attention.

- **Lack of support from management:** the audit committee is sometimes unable to evaluate situations due to the absence of quality information which should be made available by management. The audit committee therefore cannot fulfill all its responsibilities.

There may be several challenges when setting up an oversight audit committee for internal audit activity (European Union, 2014):

- **Clarifying the powers and responsibilities of audit committees:** in the absence of clear guidance on audit committees in the public sector and without specific legal anchorage, it may be difficult to define the scope, powers and responsibilities of the audit committee.
- **Integrating audit committees in public sector:** existing governance structures could be an alternative to audit committees as a functional reporting line for internal audit, depending on the administrative organization and the administrative culture of the country and of public entities (ministry, institutions, local community). If the governance structures cover the entire scope of responsibilities of the entity, such structures could actually take the role of oversight body. In such cases, it may be a challenge to integrate the specificities of overseeing internal audit activity into the governance structures, while fulfilling the preconditions assigned to audit committees. Moreover, it is important to ensure that the members of the governance body responsible for functional organizational independence have the required level of knowledge, skills and qualifications.

- **Composition of audit committees:** it can be difficult to find members with the right kind of experience, skills and independence for audit committees. The qualifications and independence of the members of an audit committee are crucial because the committee's collective composition will determine its credibility, and therefore its acceptance by top and operational management and external stakeholders. The same factors determine a committee's capacity to deliver added value. Yet another challenge is to avoid conflicts of interests between a member and the activities of the public entity.

- **Administrative burden and cost of audit committees:** the effectiveness and independence of internal audit may be jeopardized if a functional reporting line for internal audit is not clearly established or inadequate, or the composition/functioning of the audit committee is not credible. Such weaknesses would make it very unlikely that the committee could offer added value. Instead, audit committees might be perceived as an unwelcome added layer of bureaucracy and be rejected by managers and other stakeholders. Moreover, the time-consuming nature of such committees and the costs of operating them might be controversial, especially in times of public spending cuts.

- **Committing Officers and governance bodies on audit committees:** officers and governance bodies in public entities may see it as unnecessary or even undesirable to set up an audit committee. They may,

for instance, see the task of an audit committee as being part of their own oversight responsibilities, and perceive a newly-created audit committee as a blurring of responsibilities. In countries where audit committees are not mandatory, some might argue that they are not obliged to establish such committees.

Following a qualitative approach, the current study, as indicated in the objectives, attempts to understand the above-mentioned in the context of government ministries in Namibia.

### 3. RESEARCH METHODS

The data for the study was sourced 1 representative (this can be the accounting officer, chief internal auditor, finance and administration director, deputy director internal audit) from each ministry, who is in the position to provide necessary information for the purpose of the study. Semi structured interviews were conducted with the respondents where feasible to provide an understanding of their experiences, perceptions and perspective on the workings of audit committees. The interviews were conducted at the work places of the government officials. In some cases where the appropriate respondent was not available for an interview due to time constraints, questionnaires with same questions as the interview schedule were administered. In some instances the questionnaire was sent to the ministries, completed and sent back.

Two set of tools were compiled for this study: Group 1 - Government ministries with established audit committees and Group 2 - Government ministries without established audit committees. This became important so that all the research objectives are catered for. The data collection tool covered the following: the importance of audit committees, reporting lines of audit committee, challenges faced by audit committees, criteria used to evaluate and appoint the audit committee, and the composition of the audit committee.

No sampling method was applied as all 21 government ministries were selected for the research, and a response rate of 81% (17 ministries out of 21) was obtained. Interviews were recorded and transcribed.

### 4. FINDINGS AND DISCUSSION

The findings are analyzed based on the outcome of the interviews and information obtained. The findings and the discussions are organized based on the four objectives of this paper, as earlier stated. The discussion is based on content analysis of the transcription of the responses during the interviews. For content analysis the responses were analysed for similarities and differences.

#### Findings:

Finding based on objective 1: to understand how accounting officers of government ministries in Namibia perceive the importance of audit committees within their ministries. *For this objective the accounting officers in government ministries with and without established audit committees were asked how they perceive the importance of the Audit Committee in their ministry?*

A corporate governance practice common in the private sector is the use of audit committees to provide strengthened oversight of the financial and ethical integrity of publicly held companies. Because this oversight responsibility is essential to effective governance, public sector entities also may look to the audit committee to play a similar role (Institute of Internal Auditors ((Jan, 2012).

All (17/17) of the respondents from the government ministries indicated to the researcher, that they acknowledge the importance and contribution of an audit committee and the value the committee will add to the ministry. The respondent from the Ministry of Industrialization, Trade and SME Development stated that the audit committee is important as the committee will ensure that audit recommendations made are implemented by management.

The respondent from the Ministry of Home affairs indicated that the Audit Committee is very important to the Ministry, however, the State Finance Act and Treasury Instructions does not make provision for the establishment of Audit Committees in government ministries of Namibia.

Ministry of Veteran Affairs stated that, the audit committee is very important in the organization since they oversee the performance of the auditors and in monitoring the accounting policies and principles.

Ministry of Information and Communication informed the researcher that the audit committee is importance as the committee plays a role to ensure the independence of the internal auditors within the ministry.

The official within the Ministry of Defence stated that it is important to have an established audit committee, because the audit committee is like a mother body of the internal audit division in the Ministry. The internal auditors within the ministry of defence have to report complains to the audit committee which will thereafter take it up with the relevant authorities. The audit committee also serves to protect the internal auditors.

Finding based on objective 2: to determine the extent to which the recommendation by the National Assembly's Public Accounts Committee on the establishment of audit committees in government ministries of Namibia have been implemented by the accounting officers.

In a discussion session held on 15 April 2015 with the *Deputy Director Committee Services of the National Assembly's Public Accounts Committee in Namibia*. The Public Accounts Committee's main mandate is to examine financial reports from the Auditor-General and to check if budget allocations to various government ministries and agencies are spent as intended. The Public Accounts Committee of Namibia is a member state of the Southern Africa Development Community Organisation of Public Accounts Committees (SADCOPAC) which recommended that member states government ministries establish and strengthen their audit committees. In November 2012, the Parliamentary Standing Committee on Public Accounts (PAC) reminded permanent secretaries of all government ministries (in their capacity as accounting officers) to minimize wasteful spending and improve operational efficiency to guard against fraud and corruption. PAC then made a recommendation that

permanent secretaries of government ministries establish an audit committee in their respective ministries (Namibian Sun, 2012).

Preliminary contacts served to determine which government ministries have established audit committees in their respective ministries as per the recommendations made by PAC. The study shows that only 12% (2 out of 17) ministries that responded have established an audit committee as per the recommendation made by PAC in 2012. The remaining 88% (15 out of 17) ministries did not establish an audit committee within their respective government ministries.

The study shows that majority of government ministries did not establish audit committees within their respective government ministers and enquired with the officials as to why the case:

The official within the Ministry of Industrialization, Trade and SME Development stated that the Ministry had difficulty in establishing an audit committee because there were no terms of reference in place. Once they had been drafted, the problem shifted to the appointment of the members.

Ministry of Home Affairs stated that, the State Finance Act and Treasury Instructions does not make provision for the establishment of Audit Committees within government ministries of Namibia.

Lack of expertise on how to go about establishing an audit committee was the reason provided to the researcher as to why the Ministry of Veteran Affairs did not establish an audit committee.

The Ministry of Defence stated that the organizational structure of the internal audit division is structured in such a way that the internal auditor department have to report to the Brigadier General and Chief of Defence Force. This reporting line is making it difficult for the Ministry to establish the Audit Committee. The current reporting line is also jeopardizing the independence of the internal auditors. The internal audit department is supposed to report straight to the Permanent Secretary (Accounting Officer).

Finding based on objective 3: to determine which party provides assurance for the adequate and effective functioning of internal audit controls in government ministries of Namibia without an establish audit committee. *For this objective the researcher asked the accounting officers in government ministries without established audit committees, which body monitors the adequate and effective functioning of the system of internal controls in your in the absence of the audit committee in your ministry?*

Ministry of Defence stated that, in the absence of an audit committee, the internal audit division is monitoring the adequacy and effectiveness of the internal controls of the Ministry.

Ministry of Trade and Industry stated that there is currently no body that monitors the adequate and effective functioning of the system of internal controls in the absence of the audit committee.

Ministry of Home Affairs informed the researcher that, the internal controls of the Ministry are currently monitored by the Financial Advisor who oversees the correctness of filling of advances,

requisitions for expenditure, invoices; approvals by the Accounting Officer and checking by Internal Auditors.

Ministry of Veteran Affairs indicated that, the ministry only depends on the findings of the internal Auditor since there is no other body in place to monitor the adequate and effective functioning of the system of internal controls of the ministry.

Finding based on objective 4: to establish the challenges faced by government ministries in establishing audit committees.

The study shows that government ministries are faced with various challenges when having to establish audit committees and even after having established audit committees. The following below are amongst others, some of the major cause for the challenges faced by the government ministries in establishing audit committees:

### ***Lack of legislature***

The current State Finance Act does not make it mandatory for the establishment of audit committees within government ministries of Namibia. Accounting Officers of the respective government ministries have acknowledged the importance of audit committees and the value that the audit committee will add to the ministries. However, the non-existence of a legislature/ law making it mandatory for government ministries to establish audit committees currently makes it difficult for accounting officers to establish the committee.

Additionally there is also no guideline in the form of an audit committee charter that outlines amongst others the composition of the committee. A formal audit committee charter has also not been developed to guide the Accounting Officers on how to establish an audit committee within their respective government ministries.

### ***Responsible party to establish legislature/ laws***

From the interviews conducted with the Office of the Auditor General, the National Assembly's Standing Committee on Public Accounts, and the 17 Government Ministries, the study shows that there seem to be some misalignment as to who the responsible person is to drive the entire process of ensuring the establishment of audit committees within the respective government ministries. The government ministries were of the opinion that the Ministry of Finance was in the process of drafting a document to outline the process to be taken when establishing an audit committee in the form of a legislature. This was then to be passed on to all the other government ministries upon completion of the said document by the Ministry of Finance. When the researcher confirmed this with the Ministry of Finance, she was informed that this however is not the case. The representative within the Ministry of Finance stated that it is the responsibility of each and every ministry to establish an audit committee and that no guidance document is the process of being developed for any ministry on how to go about establishing an audit committee by the Ministry of Finance.

The Ministry of Environment and Tourism stated that the office of the auditor general has



established an audit committee that will cater for all other ministries. Upon confirmation of the statement made by the Ministry of Environment and Tourism with the office of the auditor general, the researcher was informed by an official within the office of the auditor general that an audit committee was indeed in place but only for the office of the auditor general and not to serve all other government ministries.

The National Assembly's Standing Committee on Public Accounts are also of the opinion that the Ministry of Finance should be the responsible office to develop some kind of guideline with reference to the establishment of the audit committees with in government ministries. The representative further stated that the Ministry of Finance have decided and in the process of redrafting the Public Finance Management Bill. The researcher concluded that since the Ministry has already commenced with this process, that a clause be inserted that makes it mandatory for government ministries to establish audit committees. This same argument made by PAC was also seconded by the office of the auditor general.

All the respondents indicated to the researcher that there is currently no policy regulating audit committees in government ministries in Namibia.

#### Discussions:

The Audit Committee is set up with the major objective of ensuring confidence in the integrity of an organisation's internal processes and procedures and its financial reporting. In this way, the Audit Committee provides an 'independent' reassurance to the Board and all stakeholders through their oversight and monitoring role (Mauritius Audit Committee Forum, 2014). The Audit Committee should support the Board and Accounting Officer by reviewing the comprehensiveness of assurances in meeting the Board and Accounting Officer's assurance needs, and reviewing the reliability and integrity of these assurances (Selim, 2008).

Government ministries in Namibia that have not establish audit committees may face the challenge of which party to provide assurance for the adequate and effective functioning of internal audit controls of the government ministry. Assurance on the adequate and effective functioning of internal controls is currently non-existent in some of these government ministries, while the internal audit department of some government ministries are currently providing assurance on the adequate and effective functioning of internal controls of the government ministries. The study shows that government ministries in Namibia are currently experiencing numerous challenges in establishing audit committees in their respective government ministries. 88% of government ministries from a total response rate of 17 government ministries did not establish audit committees due to amongst others, the non - existence of a legal framework that makes it mandatory for the establishment of audit committees; lack of knowledge on how to establish an audit committee; responsible and accountable party/ person at the forefront of ensuring the implementation of audit committees in all government ministries of Namibia is non- existent.

## CONCLUSION AND RECOMMENDATIONS

Majority of the respondents acknowledged the importance of audit committees in their respective government ministries. The respondents however stated that they have various issued that are currently hindering the ministries to establish audit committees. The major issue that was raised was the fact that there are currently no legal frameworks that govern the establishment of audit committees in government ministries of Namibia.

Out of a total of 17 government ministries that responded only two government ministries have established an audit committee. The remaining 88% of government ministries did not establish an audit committee as there is no legal framework that makes it mandatory for the establishment of audit committees in government ministries of Namibia. The 88% represents a very alarming figure in spite of the fact that PAC recommended that accounting officers establish audit committees. The office of the Auditor General also recommended that government ministries should establish audit committees.

There are areas that warrant improvement regarding the establishment of audit committees that could be addressed. Government should develop and implement a law that makes it mandatory for the establishment of audit committees in government ministries of Namibia. The legislature should detail the audit committee terms of reference; purpose of the Audit Committee; scope of duties of the Audit Committee; composition of the Audit Committee; meetings; responsibilities of the Audit Committee; interaction with the Assurance Providers; and reporting responsibilities of the audit committee.

The recommendations derived in this paper are based on the conclusion that were found and are stipulated below:

- PAC to establish which party will be responsible to drive the entire process for the establishment of audit committees in government ministries.
- The Ministry of Finance to amend the current State Finance Act, 1991 (Act 31 of 1991), to include a clause that makes it mandatory for all government ministries to establish audit committees.
- That a formal audit committee charter be developed that will be used by all government ministries with established audit committees. The audit committee charter should document information about the audit committee's mandate, composition and membership, authority, responsibilities, etc.
- Parliamentary oversight: parliament should recognise the importance of audit committees as an accountability instrument in government ministries and focus on their effectiveness as this could provide them with an independent opinion regarding the risk management, financial reporting and control environment in the respective government ministries of Namibia.
- The Parliamentary Accounts Committee to consider establishing a Public Sector Audit Committee Forum (PSACF) in Namibia, similar to the one that was launched in South Africa in November 2011.

Due to the time constraints and limited data, further work in this same area should also be considered in establishing whether there is a link between audit committee effectiveness and the audit reports compiled on government ministries by the Auditor General. Also, newly established ministries in Namibia should be included in further studies, as new ministries were established in the country towards the conclusion (after the empirical phase was finalized) of this study.

## REFERENCES:

1. Abdullah, H., & Valentine B. (2009). Fundamental and Ethics Theories of Corporate Governance. *Journal of Middle Eastern Finance and Economics*, (4). Retrieved from: <http://citeseerx.ist.psu.edu/viewdoc/>
2. Auditor General Namibia. (2010). Summary Report of the Auditor General on the Accounts of the Government of Namibia for the Financial Year Ended 31 March 2010. Windhoek: Office of the Auditor General.
3. Choi, Y.K., Han, S.H., & Lee, S. (2014). Audit Committees, Corporate Governance, and Shareholder Wealth: Evidence from Korea. *Journal of Accounting and Public Policy*. Vol. 33 (5).
4. Controller and Auditor-General, New Zealand. (2008, March). Good practice guide: Audit committees in the public sector
5. Daily, C., Dalton, D. & Cannella Jr., A. (2003) *Corporate Governance: Decades of Dialogue & Data: Academy of Management Review*. pp. 371-382
6. Deloitte & Touche Namibia (2014). The Corporate Governance Code for Namibia NamCode, presented to the NAMCODE Seminar - August 2014. Retrieved from: [http://www2.deloitte.com/content/dam/Deloitte/na/Documents/risk/za\\_Deloitte\\_NamCode\\_Brochure.pdf](http://www2.deloitte.com/content/dam/Deloitte/na/Documents/risk/za_Deloitte_NamCode_Brochure.pdf)
7. Demidenko, E., & McNutt, P. (2010). The ethics of enterprise risk management as a key component of corporate governance. *International Journal of Social Economics*. Vol. 37 (10). pp.802 - 815
8. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). (2014, April). Functioning of Audit Committees. Participants' Handbook
9. European Union. (2014). Role of Audit Committees for Internal Audit in the public sector: Discussion document. Retrieved from [http://ec.europa.eu/budget/pic/lib/docs/pic\\_paper4\\_en.pdf](http://ec.europa.eu/budget/pic/lib/docs/pic_paper4_en.pdf)
10. FM Solutions. (2008, March) Improving internal audit. Retrieved from: <http://siteresources.worldbank.org/EXTFINANCIALMGMT/Resources/>
11. Institute of Chartered Accountants in England and Wales. (2008, September). Audit Quality, Evolution Impact of audit committees on auditing background paper
12. Magrane & Malthus, (2010) "Audit committee effectiveness: a public sector case study", *Managerial Auditing Journal*, Vol. 25 Iss: 5, pp.427 - 443
13. Mauritius Audit Committee Forum (2014, July). Best Practice Guidance Notes for Audit Committees. Retrieved from <http://www.afcgn.org/wp-content/>
14. Naidoo, R. (2009). *Corporate Governance: An Essential Guide for South African Companies*. 2<sup>nd</sup> Edition. Durban: LexisNexis
15. Namazi, M (2013). Role of the agency theory in implementing management's control. *Journal of Accounting and Taxation*, Vol. 5 (2). Retrieved from:[http://www.academicjournals.org/article/article1379425775\\_Namazi.pdf](http://www.academicjournals.org/article/article1379425775_Namazi.pdf)
16. Namibian Sun. (2012, November). Permanent Secretaries Admit Operational Challenges. Retrieved August 11, 2014, from Namibian Sun Website: <http://www.sun.com.na>
17. Namibia State Finance Act of 1991, 31. §§ 14-15.
18. Nampa (2014). Curb misuse and misappropriation of Government assets: Pohamba. Retrieved from <http://www.leramobile.com/content/37215/Curb-misuse-and-misappropriation-of-Government-assets-Pohamba/>
19. Public Sector Audit Committee Forum. (2013, March 31). Public Sector Audit Committee Role in Overseeing Internal Audit. South Africa.
20. Selim, G. (2008). The Changing Function of Audit Committees in the Public Sector. Case Business School. London, UK. Retrieved from: [www.ec.europa.eu/dgs/pdf/selim\\_08](http://www.ec.europa.eu/dgs/pdf/selim_08)
21. South African Public Sector Audit Committee Forum. (2013). Challenges facing Public Sector Audit Committees. Retrieved from <http://www.iodsa.co.za>
22. Southern Africa Development Community Organisation of Public Accounts Committees (SADCOPAC). (2015). Establishment. Retrieved from [http://www.sadcopac.org/about\\_us/index.php](http://www.sadcopac.org/about_us/index.php)
23. South African Public Finance Management Act of 1999, 1. § 38
24. The Institute of Internal Auditors. (2014, June). Global Public Sector Insight: Independent Audit Committees in Public Sector Organizations. Florida, United States of America.
25. The Institute of Internal Auditors (IIA). (2012, January). Supplemental Guidance: The role of auditing in Public Sector Governance. 2<sup>nd</sup> Edition.

# THE LINK BETWEEN CAPITAL STRUCTURE AND BANKING SECTOR PERFORMANCE IN AN EMERGING ECONOMY

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## Abstract

South African banks are small compared to the international standards and this necessitates them to remain efficient and competitive at both national and international levels. Such competitiveness shelter them from global competitors wishing to enter into the South African market. Putting in mind the critical role played by banks in the economic development of every country, managers in the banking industry should ensure they make sound financial decisions in order to remain profitable and competitive amidst challenges of the debt-equity choice. This study seeks to determine the influence of capital structure on profitability of banks listed at the Johannesburg stock exchange (JSE) using the random effect regression model. Empirical studies that studies the impact of capital structure on profitability of the banking sector in emerging markets and Africa are very scant. The few empirical studies that focused on the banking sector are yet to focus on African and to agree on the relationship between capital structure and profitability. It is against these reasons that the current study chose to investigate how profitability of South African banks is affected by their capital structure. The study found out that capital structure is a key determinant of profitability of banks in South Africa. As such, the study recommends that optimal capital policies need to be pursued if banks are to not only to increase profitability but ensure long term stability and sound performance.

**Keywords:** Capital structure, Profitability, Johannesburg Stock Exchange, South Africa

## 1. INTRODUCTION

Businesses operate with a major objective of maximizing profit so that they can survive in the financial competitive environment. Finance is a key determinant in the establishment of new businesses as good financial control enables the business to grow, expand, invest and to be innovative. Expansion increases the possibilities of a business to invest in assets that helps it to generate profits. However, before a firm could invest in assets it has to decide its source as either to use debt or equity, or a combination of the two sources. This combination or proportion of debt and equity to finance a firm is referred to as capital structure (Manurung et al Nuzula, 2014).

Raheman et al (2007) noted that, because of the different ways of making financial decisions, there is lack of a standardized capital structure that could be used by all firms. Basing on capital structure perspective, a firm with higher debts compared to its equity is assumed to have greater risks while that with higher equity compared to the debts is said to have profitability (Shubita & Alsawalhah, 2012). On the other hand, Mohammadzadeha, Rahimia & Rahimib (2013) described profitability as the potential of a firm to generate profits hence, it is a relative measure of the earning capacity of the firm. They noted that, profitability explains the state of profits of business whether they are constant, improving or deteriorating.

In finance and business management, capital is classified into two categories namely equity and debt capital. Each of these two categories has its advantages and disadvantages basing on which a meaningful capital structure could be established in relation to risks or rewards payoff of the stakeholders. Raheman et al. (2007) observed that equity capital relates to the money put up and owned by the owners of the business also called the shareholders. They observed that equity capital could be raised through contribution to capital during the inception of the business for the purposes of acquiring shares, stock or ownership in the firm. They further noted that equity capital may also rise from retained earnings whereby members decide not to withdraw the profits from the business with a purpose of strengthening the balance sheet so that the business can grow and expand. On the other hand, debt capital refers to borrowed money from other financial institutions like; banks, credit unions, finance companies, and credit card companies for the operation of the business (Shubita & Alsawalhah, 2012).

According to the Johannesburg Stock Exchange annual report of 2013 (JSE, 2013), JSE is the only South Africa's licensed full service securities exchange and has close to four hundred (400) listed companies. The report noted that that the JSE plays a big role in the country's economic landscape as it connects buyers and sellers in various markets that include but not limited to: equities, financial

derivatives, commodity derivatives, currency derivatives and interest rate instruments. The report further observed that in terms of soundness of the JSE listed banks, South Africa (SA) was number three by 2010 and for provision and availing of financial services, they ranked number two by 2010 - 2013. The report signifies that, it is paramount that for these high standards to remain high so as to strengthen the country's ability to compete for a share of foreign investment flows. Based on this understanding, it is appropriate to conduct research of the influence of capital structure on profitability of these banks.

However, despite of the critical role played by banks for economic growth, investigation into their optimal capital structure determinants and the role it plays on profitability is still limited (Gatsi & Akoto, 2010). As researchers (Delcours, 2007; Goyal, 2013; De Bandt et al., 2014) argued that, this lack of clarity on optimal capital structure determinants and consensus on the universal model applicable to the real business world does not only affect banks but also the national economy. Such has also been worsened by the numerous theories of capital structure and literature that give varying determinants of capital structure influence on profitability (Shubita & Alsawalhah, 2012). Whilst there are plenty of studies that focused on the impact of capital structure on profitability, those particular to South African banks listed on JSE are scarce. Such has caused lack of clarity whether capital structure has influence on profitability of banks listed on JSE. It is against this background that the current study sought to determine the impact of capital structure on profitability for banks listed on the Johannesburg Stock Exchange (JSE), South Africa for five years ranging from 2010 to 2014.

The rest of the study is structured as follows: Section 2 discusses literature review. Section 3 explains the methodology that was used, show and interpret the results. Section 4 concludes the study whilst section 5 list the references that were used in the study.

## 2. REVIEW OF RELATED LITERATURE

This section discusses the literature on the influence of capital structure on profitability. In particular, it reviews the previous work, theories and debates on capital structure and profitability, particularly in the context of South Africa and gives the contribution this study makes in bridging the identified gaps in the literature.

Raheman et al. (2007) noted that various theories that explain the capital structure of firms have been suggested and developed. These theories have led to numerous studies on capital structure and its influence to profitability. However, recent studies such as (Shubita & Alsawalhah, 2012; Goyal, 2013; Chisti et al., 2013) show that the variation of these theories just increases the criticality of the influence of capital structure on profitability. They asserted that, this comes as a result of lack of consensus among financial management researchers about the optimal capital structure, hence necessitating the need for further research to determine the relationship between capital structure and profitability.

Capital structure could be looked at as a basis of how an organization or firm finances its assets that may include a combination of various sources like senior debt, mezzanine debt and equity (Mohammadzadeha et al., 2013). Depending on its structure, an organization may solicit business finances from various sources that may include drawing funds from other business entities to make its capital structure sounder. From this perspective, capital structure could be looked at as the interlink between these different financing sources as they appear on the organization's balance sheet (Shubita & Alsawalhah, 2012). It is essential to note that the relationship between capital structure and profitability is core in the improvement of the profitability of a firm that leads to its sustainability survivability (Chisti, Ali, & Sangmi, 2013).

Chisti et al. (2013) argued that of the different capital investment an organization may decide to opt for when starting a business, the capital structure decision is regarded and should be treated as the most vital. Their study further noted that such a decision greatly and directly influences the organization's profitability. Goyal (2013) noted that it is more advantageous for a firm to leverage on debt than equity capital as debt capital is easier to raise and cheaper than equity capital since financing companies pick only the lowest credit risk companies and further secure their loan with assets. Their study further noted that the financing companies do not take up ownership interest in the firm that has borrowed money hence giving the stakeholders a chance of remaining the overall controller of business without being answerable to the financiers. However, it is also important to note that the strength of the equity capital is its protection of the firm from loan interest payments that could assist the business to cope with competitiveness and also increases the margin of safety (Manurung et al., 2014). Moreover, when stakeholders raise equity capital, they are liable to share the risks, allow smooth transition of business and become committed to the firm up to when they decide to exit.

Profitability is defined as earnings before interest and taxes, divided by assets or capital of an organization (Utary & Setyadi, 2014). It could generally be looked at as the ability of an organization to make a profit after costs and all business overheads have been set off. According to Velnampy & Niresh (2012), an organization's profit could be seen as what is left of the generated revenue after all related expenses incurred in the process of getting the revenue have been deducted.

Apart from the non-profit service oriented organizations, all businesses operate with an aim of maximizing profits hence managers ensure that this aim is achieved. Based on this understanding, several studies have been conducted to address the concept of capital structure, profitability and the influence of capital structure on profitability (Mohammadzadeha et al., 2013). Much of today's research on capital structure have been prompted by earlier research of Modigliani and Miller (1963) correction paper on corporate income taxes and the cost of capital which they published to rectify the impression they had created that financing has no material effect on the firm's value. Their earlier study had developed a theory known as the

Modigliani and Miller theory also known as the MM theory.

The MM theory has given birth to many other theories and studies on capital structure that came up as a result of disproving it. In the effort to disprove the MM theory, Myers (2001) conducted a research in which he examined two other theories of the 'Optimal theory' and the 'Trade-off theory'. His findings established that none of the three theories gives a concrete financing strategy. Thus he referred to them as conditional theories that need to work with other factors in order to meet the business needs and thus recommended further research in the direction of determining the influence of outside financing that is to say debt vs equity.

Recent research advanced the concept of capital structure in Myers (2001) direction of recommendations. Raheman et al. (2007) conducted a study to establish the effect of capital structure on profitability of 94 non-financial firms that were listed on Islamabad Stock Exchange in the years 1999 to 2004. Their quantitative analysis findings indicated that capital structure has significant effect on the profitability and that more equity leads to more profits. More so, their findings indicated long term debts are not good for business as they lead to less profitability. However, their study only looked at one stock exchange firm in one district in Pakistani firms this could limit generalization of their results to apply in the South African perspective.

Chen et al (2009) conducted a study to test and verify the relationships among capital structure, operational risk and profitability taking a case study of life an insurance industry in Taiwan. Like other previous researchers such as (Myers, 2001; Raheman et al., 2007), their study wanted to verify whether Modigliani & Miller (1963) assumptions that had led to the belief that capital structure of a firm is irrelevant to its value assuming perfect markets and zero transaction costs were relevant. Their findings established that higher debt financing of a firm is tentative to increases the probability of bankruptcy. They also established that, there is a need for market equilibrium where debt increase is balanced by profitability and thereby recommended that firm managers should decrease or diversify their investment to protect profits and prevent losses.

Khalid (2011) carried out research on financial reforms and dynamics of capital structure choice in which he integrated financial reforms and corporate finance in a dynamic setup. The study analyzed factors of capital structure choice in a Stock Exchange of Pakistan for 10 year range period from 1988-2008. By using the Arellano-Bond Dynamic Panel-Data Estimation technique, his study established that firms shifted from debt to equity market once the financial constraints were eased out. The study also established that because of high costs, firms avoid borrowing for fear of debt financing if there is a possibility of having equity market.

Velnampy & Niresh (2012) investigated the relationship between capital structure and profitability by taking ten listed Srilanka banks in a period of eight (8) years. Their descriptive and inferential study also sought to establish whether there is significance between the capital structure decision of a bank and other non-financial firms.

They found out that several other factors do exist that affect firms' profitability. Such factors they noted could include but not limited to; organizational size, ownership status, operating expense, decision making in relation to costs, organizational assets and liabilities.

Other similar empirical studies done by (Shubita & Alsawalhah, 2012; Goyal, 2013; Chisti et al., 2013) concluded that capital structure had a more prominent role in terms of influencing profitability of firms. Their studies recommended that research on the influence of capital structure profitability should be extended to firms that belong to different sectors of the economy. Many of these studies have been conducted in the developed countries yet little has been done to investigate these factors in the perspective of developing countries.

Velnampy & Niresh (2012) argued that since different businesses are started for various reasons, organizations find several ways of raising and rearranging the sources of its capital structure. They put it that, due to these variations the relationship between capital structure and profitability has attracted and gained considerable attention in the business finance domain and literature. Mohammadzadeh et al. (2013) observed that due to latent company-specific factors that may include but not limited to the probability of bankruptcy, profitability, quality and structure of assets, the relationship between an organization's capital structure and its profitability vary from one organization to another. Additionally Utary and Setyadi (2014) further emphasized that these variations of the influence of capital structure on profitability are the ones responsible for the lack of a common understanding on this discussion hence causing continued lack of consensus.

Modigliani & Miller (1963) had earlier on observed that the lack of a common understanding of what should constitute capital structure lead to different several theories that conflict against each other. From their perspective, a lot of intervening factors such as taxes and interest plays a critical role when dealing with capital structure. Modigliani and Miller suggested that increasing an organization's utilization of a debt in the capital structure has an impact on the risk for equity providers and hence the cost of equity capital.

Raheman et al. (2007) alluded that various theories to explain the capital structure of firms have been suggested and developed. Utary & Setyadi (2014) added that these theories have led to numerous studies on capital structure and its influence on profitability. However, recent studies such as (Shubita & Alsawalhah, 2012; Goyal, 2013) show that the variation of these theories just increases the criticality of the influence of capital structure on profitability. They asserted that this comes as result of lack of consensus among financial management researchers about the optimal capital structure whereas Mohammadzadeh et al. (2013) attribute the lack of consensus to failure to identify the factors that should be considered when addressing capita structure.

The concept of the theories of combining financial resources was first initiated by Weston (1955) and his idea gave birth to the first capital structure theory by Modigliani & Miller (1958) that

suggested that too much capital decrease banks' value. However, Modigliani & Miller (1963) modified the capital structure theory to include the proposition of borrowing. They argued that since borrowing comes with taxes and interest, tax benefit caused through borrowing, renders borrowing to be an important element of financial supplement due to the fact that it leads to an increase in the company value. Later researchers Myers (2001) contrasted the Modigliani & Miller theory by coming out with two theories of Static Trade-off Theory and Pecking Order Theory on the capital structure. In the tradeoff theory, Myers (2001) predicted moderate borrowing by tax-paying organizations. On the other hand, in the pecking order theory it is assumed that an organization borrow, rather than issuing equity, when internal cash flow is not sufficient to fund capital expenditures. Goyal (2013) noted these divergent theories may influence the impact of capital structure on profitability challenges in financial institutions.

Mohammadzadeha et al. (2013) noted that in a business decision making, capital structure decision is vital and paramount for all aspects of capital investment decisions. Chisti et al. (2013) added that since profitability is influenced by business decisions, managers need to be informed of the how and, what capital structure decisions to make in the business process. They noted that several options exist but to determine which option to take needs to know all factors that influence a particular scenario. Shubita & Alsawalhah (2012) also indicated that as much as debt in the capital structure may be considered less costly than equity each has advantages and disadvantages.

Literature has shown that there are a number of studies that have been conducted to establish the relationship between capital structure and profitability of an organization. However, as Shubita and Alsawalhah (2012) noted, there is still lack of consensus whether these two concepts really influence one another and if so, the extent to which they do influence and impact on each other need to be clarified to help firms to map their competitiveness and sustainability strategies.

The discussed theories in this study indicate that this lack of consensus and the divergent of the theories is another major area of concern especially with financial institutions like banks that depends heavily on borrowing. The discussed literature also indicated that the confusion may be resulting from the lack of predetermined factors that could be considered when deciding on a list of determinants of capital structure. This implies that more research is needed to establish this relationship in varied business environment especially in the banking sector.

### 3. METHODOLOGY

The research methodology should therefore focuses on the research process and the kind of tools and procedures to be used in the study including the literature and document analysis, survey methods, data collection and sampling as well as the analysis of both secondary and primary data collected for the study (Salkind, 2012; Saunders, Lewis & Thornhill, 2009). The main aim of this section is to outline the methodological approach adopted by this

study so as to achieve the set objectives intended to solve the research problem. The flow of this section is as follows: It begins with the discussion of the research approach, followed by sampling, data sources and collection methods, then main variables of this study, regression analysis and lastly the discussion and implication to theory and practice.

#### 3.1. Research Approach

Creswell (2009) alluded that during research philosophical ideas should be used together with broad approaches and implemented with specific procedures by combining research strategies with methods that applicable to theory and practice. He presented three basic approaches that could be used in research namely, qualitative, quantitative and mixed methods. The study by Creswell (2009) further noted that the choice of a research approach should be well aligned with the paradigm that is being followed by the study. De Vaus (2001) refers to a research design as the overall strategy that a researcher follows to integrate different components of the research in a clear and understandable way. The current study followed the quantitative research approach. More so, the study uses secondary data to analyze the relationship between short-term debt, long-term debt as well as total debt and total assets and profitability in relation to theory and practice of capital structure. It is against this backdrop that the current study used the regression analysis to achieve the objectives of the study. The quantitative approach was also deemed appropriate for this study since the study followed a positivism paradigm.

#### 3.2. Data Sources and Collection

Secondary data ranging from 2010 to 2014 was collected from the JSE Market data portal and supplemented by that from the Financial and Business Information Service company database. Several forms of market data is available such as; Equities, Indices, Equity and Commodity Derivatives, Currencies and Interest Rate Derivatives, Bonds, International Securities Identification Number (ISIN), Historical, Market Announcements and credit information. These sources of data were chosen because of their credibility and less costly because they are publicly available. Judgmental sampling was used to select two banks listed at the JSE based on the following reasons: (1) they were consistently the largest in terms of balance sheet, (2) most performing during the period under study and (3) availability of complete data during the period under study.

From the secondary data collected, datasets were extracted on financial data based on statements of financial position and statements of comprehensive income (income statements) of the two banks. From this dataset, the variables used for the analysis included profitability and leverage ratios and reported according to the International Financial Reporting Standards (IFRS). The leverage ratios used include:

- Short-term debt to the total assets;
- Long-term debt to total assets; and
- Total debt to total assets

- The firm size and sales growth were included as control variables.

**3.3. Main Variables Used in the Study**

Two dependent variables, Return on Assets (ROA) and Return on Equity (ROE) are mostly considered to as profitability variables (business revenue) for various studies (Bokhari & Khan, 2013; Mohammadzadeh et al., 2013). In the studies of establishing the relationship of capital structure on profitability, some researchers used ROA as the dependent variable (Abor, 2005; Singh, 2013; Habib, Khan, & Wazir, 2016) and others use ROE (Shubita & Alsawalhah, 2012; Velnampy & Nireesh, 2012) whereas some use both ROA and ROE expressed with two different regression models (Bokhari & Khan, 2013; Mohammadzadeh et al., 2013). In such situations leverage ratios are used as independent variables.

a) Return on Asset (ROA): indicates the ability of a firm generate profits against its total assets (Habib et al., 2016). It is represented as (ROA = Net income/Total assets)

b) Short-term Debt to Total Assets (STDA): it is the firm's portion of assets that are financed with debt payable within a year (Shubita & Alsawalhah, 2012). It is represented as (STDA =short term debt/Total assets)

c) Long-term Debt to Total Assets (LTDA): Shows the percentage of assets financed with debt which is payable after more than one year. It includes bonds and long-term loans (Shubita & Alsawalhah, 2012; Habib et al., 2016). It is represented as (LTDA = Long-term debt/Total assets)

d) Total Debt to Total Assets (TDA): Total debt is the mix of short-term liabilities and long-term liabilities sometimes presented as "Total Liabilities" in the Balance sheet (Bokhari & Khan, 2013; Habib et al., 2016). It is represented as (TDA = Total debt/Total Assets)

e) Size: is a control variable is computed as a Natural Logarithm of firm's sales, lagged one year

period (Shubita & Alsawalhah, 2012).

f) Sales Growth (SG): control variable that indicates a change in sales from one year to another. It is calculated as current year's sales minus previous year's sales divided by previous year's sales. (SG = (Current year sales - Previous year sales)/Previous year sales).

The random effect regression model as expressed by Abor (2005) was based on to express the relationship between the dependent and the independent variables. Taking return on assets (ROA) as the dependent variable and the leverage ratios as the independent ones, the following regression models were derived and used for data analysis (Bokhari & Khan, 2013; Mohammadzadeh et al., 2013; Singh, 2013; Habib et al., 2016).

$$ROA_{it} = \beta_0 + \beta_1 STDA_{it} + \beta_2 SIZE_{it} + \beta_3 SG_{it} + \epsilon_1 \quad (1)$$

$$ROA_{it} = \alpha_0 + \alpha_1 LTDA_{it} + \alpha_2 SIZE_{it} + \alpha_3 SG_{it} + \epsilon_2 \quad (2)$$

$$ROA_{it} = \mu_0 + \mu_1 TDA_{it} + \mu_2 SIZE_{it} + \mu_3 SG_{it} + \epsilon_3 \quad (3)$$

Where  $\beta_0, \alpha_0, \mu_0$  = intercept of the regression models

$\beta, \alpha, \mu$  = coefficients for independent variables

$i$  = Bank

$t$  = Time 1.....5 years

$\epsilon_1, \epsilon_2, \epsilon_3$  = Error terms

**3.4. Regression Analysis**

Regression analysis measures the relationship between the dependent variable against one or multiple independent variables (Pallant, 2010). The independent construct's contribution to the overall prediction of the model is significant if and only if its critical ratio (t-value) is greater or equal to  $\pm 1.96$  (Robila, 2006). Table 1 demonstrates the model summary while Table 2 illustrates the results of regression analysis for this study.

**Table 1. Model Summary**

| Model | R                  | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|--------------------|----------|-------------------|----------------------------|
| 1     | 0.876 <sup>a</sup> | 0.767    | 0.702             | 0.23842                    |

a. Predictors: (Constant), STANDLT, DEBIT, EQUITYPOLICY, EQUITY, COMPANYSIZE, TPCS

Results demonstrated in Table 1 indicate that R-square (0.767) which implies that the overall predication of the model is 76.7%. Statistically this implies that the constructs that were selected for this study contribute significantly to the influence of

capital structure on profitability. Table 2 demonstrates how each construct independently contribute to the influence of capital structure on profitability.

**Table 2. Regression analysis**

| Model       | Unstandardized coefficients |                | Standardized coefficients | t      | sig   | Collinearity statistics |       |
|-------------|-----------------------------|----------------|---------------------------|--------|-------|-------------------------|-------|
|             | B                           | Standard error | Beta                      |        |       | Tolerance               | VIF   |
| Constant    | 5.469                       | 0.568          |                           | 9.628  | 0.000 |                         |       |
| TPCS        | 0.878                       | 0.105          | 0.545                     | 8.367  | 0.000 | 0.213                   | 4.694 |
| DEBIT       | -0.046                      | 0.023          | -0.179                    | -1.999 | 0.050 | 0.451                   | 2.217 |
| EQUITY      | 0.482                       | 0.085          | 0.450                     | 5.671  | 0.004 | 0.271                   | 3.690 |
| DEBITPOLIC  | 0.281                       | 0.088          | 0.324                     | 3.197  | 0.032 | 0.237                   | 4.219 |
| EQUITYPOLIC | -0.256                      | 0.055          | -0.390                    | -4.605 | 0.023 | 0.331                   | 3.021 |
| COMPANYSIZ  | 0.452                       | 0.161          | 0.222                     | 2.807  | 0.039 | 0.467                   | 2.141 |
| STANDLT     | -0.379                      | 0.074          | -0.442                    | -5.118 | 0.011 | 0.252                   | 3.968 |

Results in Table 2 demonstrated that all constructs have significant contribution to the prediction of the model with theory and practice of capital structure (TPCS) having the biggest contribution 54.5% (R - Square = 0.545) and  $p=0.000$  significant at 0.05. Other constructs like equity, short-term and long-term debt, equity policy, debit policy also had higher contributions of 45%, 44.2%, 39.0% and 32.4% respectively all significant at 0.05. Much as the contributions of company size and debt were significant at 0.05, their level of contribution 22.2% and 17.9% respectively is lower compared to other constructs.

Results presented in Table 2 indicate that the theory and practice of capital structure plays an important role in the influence of capital structure on profitability. The regression analysis results are also in agreement with the findings of other researchers such as (Servaes & Tufano, 2006; Oppong-Boakye et al, 2013) who suggested that, firms can only understand the importance of capital structure and how to apply it effectively if and only they can understand under what circumstances it does not matter. This is only implied when they understand the theory and practice of capital structure. Results of this study are also in agreement with Modigliani and Miller (1963) who suggested that the theory such as Trade off Theory and Pecking Order Theory drives the firm in conjunction with the practice and are important elements in determining the capital structure that in the end determines the firm's performance and profitability.

Equity was found to be significant and highly contributing construct to the influence of capital structure profitability. This study's findings are in agreement with many of the previous researchers (Velnampy & Niresh, 2012; Mohammadzadeha et al, 2013; Shubita & Alsawalhah, 2012) who argued that good acquisition of equity by a firm improves its capital structure, reduces its risks and increases its profitability. More so, this also agrees with what Myers (2001) noted that managers and decision makers are forced to use internal financing since equity reduces the firm's risks and improves the capital structure that in end increases the profitability.

The argument of equity being an important element in firms endeavor to increase profitability is an argument that justifies why the debit construct contributed lower whereas debt policy and equity policy contributes higher to the prediction of the influence of capital structure on profitability. Velnampy & Niresh (2012) and Shubita & Alsawalhah (2012) agreed that it is important for a firm to leverage on equity as the increase in the level of debt finance increases the interest payments thus resulting in a decline in profitability. This also explains why the debt, the equity policy and the short-term and long-term debt were found to be negatively contributing to the overall prediction of the model. Results of this study are also in agreement with what Abor (2005) observed that there is a positive relationship between short-term debt to total assets and profitability and between total debt to total assets and profitability in firms. Long term debt causes a negative influence as exhibited in this study in Table 2.

#### 4. CONCLUSION

The study investigated the role capital structure plays in influencing profitability of South African banks listed at the Johannesburg Stock Exchange (JSE) using the random effect regression model. The study was necessitated by three reasons: (1) The lack of consensus on the subject matter in the literature, (2) the lack of such studies that focused on banks that were listed at the stock exchange especially in emerging markets and Africa.

This study contributed theoretically on the awareness of the influence of capital structure on profitability. More so, the study's results could be used by banks to determine how their capital structure influences their profitability in order for them to know those areas that need to be strengthened for competitiveness. This study presented the results on the influence of capital structure on profitability in which constructs playing major role in this relationship were tested. Results indicated that the theory and practice of capital structure is essential whereas the debt of firm has a low but negative influence on the influence of capital structure on profitability.

Overall, the study found out capital structure plays a pivotal role in influencing profitability in the banking sector in South Africa. More specifically, higher equity and low debt levels were found to have a significant positive impact on profitability whilst higher debt and low equity levels were found to have had a pulling down effect on profitability of the banking sector in South Africa. It is against this background that the current study recommends that banks must aim to finance their projects using equity rather than debt. Strategies such as listing at the stock exchange, rights issues and unbundling which increases more equity capital inflow should be pursued if banks are to ensure profitability and sound performance in the long run.

#### REFERENCES:

1. Abor, J. (2005). The effect of capital structure on profitability: An empirical analysis of listed firms in Ghana. *The Journal of Risk Finance*, Vol. 6, No. 5 pp. 438-445.
2. Bokhari, H. W. and Khan, M. A. (2013). The impact of capital structure on firms Performance (A case of non-financial sector of Pakistan). *European Journal of Business and Management*, Vol. 5, No. 31, pp.111-137.
3. Chen J. S., Chen M. C. Liao, W. J & Chen, T.H. (2009). "Influence of capital structure and operational risk on profitability of life insurance industry in Taiwan", *Journal of Modelling in Management*, Vol. 4 No.1, pp. 7 - 18
4. Chisti, K. A., Ali, K. & Sangmi, M. (2013). Impact of Capital Structure on Profitability of Listed Companies (Evidence from India). *The USV Annals of Economics and Public Administration* Vol.13, No. 17, pp.183-191
5. Creswell, J.W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches*. (2<sup>nd</sup> Ed). London: Sage.
6. Creswell, J.W. (2009). *Research design: Qualitative, quantitative and mixed methods approaches*. (3<sup>rd</sup> Ed). London: Sage.
7. De Bandt, O., Camara, B., Pessarossi, P and Rose, M. (2014). Does the capital structure affect banks' profitability? Pre- and post- financial crisis



- evidence from significant banks in France. Direction des Études - SGACPR, pp. 1-49
8. Delcours, N. (2007). The determinants of capital structure in transitional economies. *International Review of Economics and Finance*, 2007:16.
  9. De Vaus, D. A. (2001). *Research Design in Social Research*. London: Sage
  10. Gatsi, J. G. and Akoto, R. K. (2010). Capital Structure and Profitability in Ghanaian Banks. Available at SSRN: <http://ssrn.com/abstract=1618952>, Accessed: 9th October 2014.
  11. Goyal, A.M. 2013. Impact of Capital Structure on Performance of Listed Public Sector Banks in India. *International Journal of Business and Management Innovation*, Vol. 2, No. 10, pp. 35-43
  12. Habib, H. J. Khan, F and Wazir, M. I (2016). Impact of Debt on Profitability of Firms; Evidence from Non-Financial Sector of Pakistan. *City University Research Journal*, Vol. 6, No. 1, pp. 70-80
  13. Johannesburg Stock Exchange (JSE), 2013. Integrated Annual Report. Available at: [http://www.jsereporting.co.za/ar2013/download\\_pdf/jse\\_ar2013.pdf](http://www.jsereporting.co.za/ar2013/download_pdf/jse_ar2013.pdf), accessed: 15<sup>th</sup> August 2014
  14. Khalid, S. (2011). Financial Reforms and Dynamics of Capital Structure Choice: A Case of Publicly Listed Firms of Pakistan. *Journal of Management Research*, Vol. 3, No. 1, pp. 1-16
  15. Manurung, S. D, Suhadak & Nuzula, N. F. (2014). The Influence of Capital Structure on Profitability and Firm Value: A Study on Food and Beverage Companies listed in Indonesia Stock Exchange 2010-2012 period. *Jurnal Administrasi Bisnis (JAB)*, Vol. 7 No. 2, pp. 2-8.
  16. Modigliani, F., and Miller, M. H. (1963). Corporate Income Taxes and The Cost of Capital: A Correction. *The American Economic Review*, Vol. 53, No. 3, pp. 433-443
  17. Mohammadzadeha, M., Rahimia, F. & Rahimib, F. (2013). The Effect of Capital Structure on the Profitability of Pharmaceutical Companies The Case of Iran. *Iranian Journal of Pharmaceutical Research*, Vol. 12 , No. 3, pp.573-577
  18. Myers, S. C. (2001). Capital Structure. *Journal of Economic Perspectives*. Vol. 15, pp. 81-102.
  19. Oppong-Boakye, P. K, Appiah, K. O, and Afolabi, J.K. (2013), Determinants of Capital Structure: Evidence from Ghanaian Firms. *Research Journal of Finance and Accounting*, Vol. 4, No. 4, pp. 44-53.
  20. Pallant, J. (2010). *SPSS Survival Manual: A Step By Step Guide to Data Analysis Using SPSS for Windows*. New York: McGraw-Hill.
  21. Raheman, A., B. Zulfiqar, and Mustafa. (2007). "Capital Structure and Profitability: A Case of Islamabad Stock Exchange". *International Review of Business Research Papers*, Vol.3, No. 5, pp.347-61.
  22. Robila, M. 2006. Economic pressure and social exclusion in Europe. *The Social Science Journal*, Vol. 43, pp. 85- 97.
  23. Salkind, N. J. (2012). *Exploring Research* (8<sup>th</sup> Ed.) Upper Saddle River, NJ: Prentice Hall
  24. Saunders, M., Lewis, P. & Thornhill, A. (2009). *Research methods for business students* (5<sup>th</sup> Ed.) London: Pearson education
  25. Servaes, H. and Tufano, P. (2006). *The Theory and Practice of Corporate Capital Structure*, Corporate Financial Policies and Practices Series, Deutsche Bank
  26. Singh, G. (2013). Interrelationship between capital structure and profitability with special reference to manufacturing industry in India. *International Journal of Management and Social Sciences Research (IJMSSR)*, Vol. 2, No. 8, pp. 55-61
  27. Shubita, M. F., and Alsawalhah, J. M. 2012. The Relationship between Capital Structure and Profitability. *International Journal of Business and Social Science*, Vol. 3, No. 16, pp. 104-112.
  28. Utary, A. R and Setyadi, D. (2014). An Empirical Analysis of Relationships between Capital Structure, Market Power, Profitability and Expenditure, *European Journal of Business and Management*, Vol.6, No.36, pp. 132-141
  29. Velnampy, T., and Niresh, J. A. (2012). The Relationship between Capital Structure & Profitability. *Global Journal of Management and Business Research*, Vol. 12, Issue 13, pp. 66-74.
  30. Weston, J. F. (1955), *Toward Theories of Financial Policy*. *The Journal of Finance*, Vol. 10, No. 2, pp. 130-143.

# E-COMMERCE AS AN INSTRUMENT OF GOVERNING SMEs' MARKETING STRATEGY IN AN EMERGING ECONOMY

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## Abstract

The purpose of this paper is to report on the use of e-commerce as an instrument of governing SMEs' marketing strategy in an emerging economy. The study aimed to assess and critically discuss various factors influencing the use of e-commerce as an instrument of governing SMEs marketing strategy and identify the extent to which SMEs owners/managers perceived e-commerce to be important to their businesses survival and growth. A mixed method approach allowed for qualitative and quantitative techniques in collecting data from targeted respondents, with primary collected from rural areas of an emerging country. The research instrument consisted of closed-ended questionnaires made up of 5-point Likert scale responses were distributed to each respondent. The research findings indicate that most respondents believed that the use of e-commerce is motivated by the cost saving and other financial factors in the form of benefits for the customer. In addition, large number of respondents disagreed that the use of e-Commerce has changed their consumer buying behaviour. The paper's benefit will be to the owners/managers SMEs as well as policy makers and financial agencies for SMEs.

**Keywords:** Consumer Buying, Small and Medium Enterprises, E-Commerce, Behavioural Change, Rural, Products

## 1. INTRODUCTION

Electronic commerce (e-commerce) is the exchange of information across electronic networks, at any stage in the supply chain, within an organisation, between businesses, between business and consumers or between public and private sectors (Stayner & McNeil, 2003). Forman, Ghose & Goldfarb (2013) point that the Internet retailing revolution has established a new distribution channel that represents a fundamental paradigm shift in consumer buying patterns. Thus means the rapid growth of alternative retail channels has transformed not only the competitive structure of several industries but also the way in which consumers shop for products. It is believed that advances in technology are rapidly changing consumers' behaviour and businesses are eager to take advantage (Hudson, 2014). Rhodes (2003) believes that modern technologies such as ITC's may break down some of the barriers of access such as physical remoteness for poor rural communities. However, advances in electronic service technology have created great opportunities as well as threats to organizations in various business and services sectors. As such businesses, either willingly or reluctantly, are increasingly embracing the Internet as distribution channel in order to remain competitive or gain market share. With particular reference to e-services, absence of accurate information on factors that have influenced user's behaviour to adopt or use e-services could mislead an organization into adopting unhelpful solutions as it strives to accelerate the implementation of e-

services (Mpungose, 2012). According to Sharma (2005), e-commerce has already improved business value by fundamentally changing the ways products are conceived, marketed, delivered, and supported. The relationship and interaction of various stakeholders such as customers, suppliers, strategic partners, agents, and distributors is entirely changed. On the positive side, e-commerce has been creating opportunities for individuals and businesses in the new economy. E-commerce is helping organizations to reduce transaction, sales, marketing, and advertising costs (Sharma, 2005). Rural markets have always been a challenge for market researchers. Conventional tools applicable in urban areas are not directly adaptable in the rural setting. With the emergence of rural markets in terms of brand awareness, and the shift from nominal decision-making process to a more extensive decision-making process, more innovative research tools are required to capture data about rural consumers in a more effective way (Mohanta, Mishra & Dash, 2012). E-commerce in China's rural areas report (2014) highlights that it is worth remembering that while the choice of products may be similar, consumer buying habits are still very much influenced by their location. This means that rural consumers are likely to value quality over fancy designer labels as their generally lower incomes require a more frugal attitude to shopping.

## Problem Statement

Recent research has shown that benefits gained through e-commerce are being realized by larger,

rather than smaller, firms and small to medium-sized enterprises (SMEs) have been slow to capitalize the advantages of e-commerce (Jagoda, 2010). Sanchez (2013) reports that business-to-consumer e-commerce sales in South Africa are expected to grow by 25 percent in 2013. The number of active Internet users in South Africa grows at small double-digit growth rates, with mobile being the leading type of connection. Local online retailers, auctions websites and international sites are among the prominent players on the South African e-commerce market. Inusa (2006) study reveals that the use of e-commerce by rural communities is a bit complicated. It is found that the availability and use of appropriate e-commerce technologies extend beyond provision of access, to provision of support outside technology and multi-stakeholder approach to addressing the economic situation of rural communities (Inusa, 2006). Literature indicates that in many developing countries lack of telecommunication infrastructure such as poor internet connectivity, lack of fixed telephone lines for end user dial - up access and the underdeveloped state of Internet service providers, lack of qualified staff to develop and support e-commerce sites, lack of skills among consumers needed in order to use the Internet, lack of timely and reliable systems for the delivery of physical good (Kapurubandara, 2009).

### Aims and Objectives

The main aim of this survey was to investigate and describe the use of all -times e-Commerce in order to propose new ways to improve use of e-Commerce by rural entrepreneurs.

This overall aim is guided by the following research objectives:

- To identify the respondents' e-commerce knowledge; and
- To identify the extent to which rural consumers use and perceived e-Commerce to be important to their buying process.

## 2. LITERATURE REVIEW

The term 'E-commerce' has come out of the term 'e-mail' which means doing online business with the help of computer, e-mail, fax, and telephone lines. In 1972, IBM used the term 'e-commerce' and with the invention of computers in 1973 the first successful transaction was carried out between USA and European Union. In the 1990's we witnessed commercialization of internet, and growing popularity of the term e-commerce. Increasing mobile penetration is further expanding the scope and size of e-commerce (Anjum & Tiwari, 2011). In simple terms, e-commerce means electronic commerce, which is defined as the buying and selling of products or services over electronic systems such as the Internet (Chaudhury & Kuilboer, 2002). What is critical concept is that the Internet allows rural businesses or organizations 24-hour exposure to an always open and international marketplace. Further, Lane (2014) maintains that because exchanges of goods and services are done completely electronically or with contracted mail providers, electronically based commerce removes the remoteness of rural location as a determinant

for business growth. Thus, rural community education programs focused on the subject of technology are added in hopes that personal use of technology will increase along with the adoption of e-commerce strategies as a means to intensify economic development efforts.

### Consumer Behaviour Concept

Consumer behaviour is an ever changing concept, which tends to change according to time, tastes and fashions, income of consumers and so on. It is understood that there is always a gap in the study of consumer behaviour, particularly towards FMCG products. Urban markets are almost saturated on account of aggressive marketing of firms and buying habits of urban consumers, rural markets are possessing a huge potential yet untapped on account of many reasons like less income among rural consumers (Karnam, Rao & Reddy, 2014). People with more online experiences in a more private and secure environment like home are disposed to order more from the Internet (Koyuncu & Lien, 2003). Consumer's trust, privacy concerns, security concerns are the major factors for using internet for shopping, the trust on websites influence to the purchasing decision of any consumer (Mittal, 2013). Age, income and education permit a deeper analysis and comparison (De Muyllder, de Oliveira & Alves, 2013). Al-Kasasbeh, Dasgupta & AL-Faouri (2011) articulate that user satisfaction is an important predictor of online consumer behaviour and the success of a web-based system. Therefore, if customers are satisfied with the services received through the online system, it is likely they will keep using the system but if customers believe that an organization's website is hard to use, poorly designed and doesn't take into consideration distinguished services for each user, then customers are likely to move to other organizations websites.

### The Important Benefit of E-Commerce

It has been found that rural businesses were beginning to apply e-commerce tools to add value to products and improve relationships with customers (Stayner & McNeil, 2003). Electronic commerce is one of the most discussed topics in business today. It is already leading to the reshaping of customer and supplier relationships, the streamlining of business processes and, in some cases, even the restructuring of whole industries. E-commerce is beneficial to both businesses and consumers by removing time and space barriers. For modern enterprises, the value of information technology is multi-faceted, such as improving product variety, quality, and customer satisfaction, facilitating administrative processes, reducing cost, enriching labour and management productivity, and enhancing a competitive (Senarathna & Wickramasuriya, 2011). Anjum & Tiwari (2011) indicate that one of the most important benefits of e-commerce is its potential to help a developing rural community to leap-frog into the knowledge paradigm. E-Commerce is providing useful resource for growth of microfinance and MSME's. The positive effects of e-commerce can be magnified beyond purely commercial growth to have a profound impact on all aspects of rural

community. With an appropriate IT infrastructure firms were able to harness benefits of the internet technologies (Eriksson, Hultman & Naldi, 2008). However, many researchers pointed out that SMEs are slow to adopt e-commerce applications to their business models (Simpson & Docherty, 2004).

**Use of E – Commerce in Rural Areas**

E-Commerce generally refers to the use of the internet for buying and selling activities including advertising, invitation to treat negotiation and conclusion of contracts (Chen & McQueen, 2008). Research indicates that the use of e-commerce by rural communities is a bit complicated. It is found that the availability and use of appropriate e-commerce technologies extend beyond provision of access, to provision of support outside technology and multi-stakeholder approach to addressing the economic situation of rural communities (Inusa, 2006). The Internet revolution has transformed the way many companies do business. However, in South Africa, e-commerce is described as a sale or purchase of goods or services, conducted over

computer networks by methods specifically designed for the purpose of receiving or placing of orders (South African Department of Communications, 2014)

According to Lamie, Barkley & Markley (2007), many U.S. businesses are finding that they are no longer constrained by geographic location due to the fact that e-commerce afforded them access to a full range of market opportunities from local to international. This include rural entrepreneurs and small business owners as it internet revolution offers a double-edged sword. It helps rural businesses to get access into the new markets and service new customers through the effective use of e-commerce. This new competitive e-environment, rural entrepreneurs will need to adopt innovative and informed e-marketing strategies to remain distinct and profitable (Lamie, Barkley & Markley, 2007). The Mobility 2011 research project, conducted by World Wide Worx and backed by First National Bank (FNB), reveals that 39% of urban South Africans and 27% of rural users are now browsing the Internet on their phones (Goldstuck, 2011) more explanation is provided in table 1.

**Table 1.** South Africa mobile Internet usage

| Website type | Age categories      | Urban area | Rural area |
|--------------|---------------------|------------|------------|
| Mxit         | Over -16 year old   | 29%        | 19%        |
| Facebook     | Over - 16 years old | 30%        | 13%        |
| Twitter      | Over - 16 years old | 8%         | 4%         |

The study excludes deep rural users and represents around 20 - million South Africans aged 16 and above. This means that at least 6-million South Africans now have Internet access on their phones.

**Impact of E- Commerce of Rural Consumer Buying Patterns**

IT has been found that e-commerce adoption affects business success (Palan & Sommai, 2011). The Internet revolution is transforming the way many businesses operate. Through e-commerce, they are securing affordable access to a full range of market opportunities. For rural entrepreneurs and small business owners, this Internet revolution, and general "flattening" of the global economic context, represents a double-edged sword (Spoto, 2010). The major impediments towards the non-adoption of e-marketing include technology incompatibility with target markets, lack of knowledge, stakeholder unreadiness, technology disorientation and technology perception (Dlodlo & Dhurup, 2010). These make it difficult for businesses including rural businesses to get access into the new markets and serve new customers through the effective use of e-commerce as by doing so will thrusts them into a new marketplace where they experience increased competition, most well outside of their normal market reach. It has been noticed that in this new competitive e-environment, rural entrepreneurs must adopt innovative and informed e-marketing strategies to be profitable (Dlodlo & Dhurup, 2010). Consumers increasingly rely on the Internet for information, and a website is a relatively inexpensive way to present information on a business' products,

hours, location, phone number, and sales (Lamie, Barkley & Markley, 2007).

**Factors Affecting Use of E-Commerce**

Literature indicates that size and age of a firm plays a vital role in e-commerce adoption (Jagoda, 2010). On the other hand, consumer’s purchasing behaviour with regard to e-commerce found to be relevant on the perceived ease of use, perceived usefulness, perceived risk with products/ services, and perceived risk in the context of online transactions (Lee, Park & Ahn, 2000). This means that firms providing products/services through e-Commerce should consider these contextual factors in order to facilitate consumers’ adoption behaviour. However, it has been noticed that factors are perceived differently by adopter/ users, intended adopters and those not intending to adopt (Wymer & Regan, 2010). Study conduct in Saudi Arabia by AlGhamdi, Nguyen & Jones (2013) found that e-commerce was lacking in governmental support as well as relevant involvement by both customers and retailers. On the hand Shemi & Procter (2013) mention that characteristics of the managerial, technological and environmental issues that confront each SMEs.

**3. RESEARCH METHODOLOGY**

The primary data were collected using mixed method approach of both quantitative and qualitative. It was collected from 224 local people with a questionnaire containing both closed -ended and open -ended questions. The research design was exploratory and cross-sectional in nature

**Target Population**

The target population of the study was local people who normal buy from SMEs located in rural areas of KwaZulu - Natal province. It has been indicated each rural municipality has more than 284 SMEs in the province (Nkonde, 2012). However, the number of SMEs specifically located in rural areas of the province is not known.

**Sampling**

Since a suitable sampling frame was not available from which draw a probability sample, a quota sampling approach was used to select respondents from five areas in rural KZN, namely from Nquthu, Kwa-Nongoma, Empangeni, Ulundi and Escourt. The main reason for selection of these areas was that they have relatively large rural municipalities and rural populations, which allowed for the identification of more SMEs in these areas. This final usable sample is shown in Table 1 in terms of demographic profile of respondents.

**Questionnaire Design**

The measuring instrument used was a questionnaire, consisting mainly of closed-ended questions. The

literature was used as the source of information to formulate the questionnaire for this study. Each question also allowed for comment via an open-ended response alternative. The main questions are summarised in Table 2.

**Table 1.** Demographic profile of respondents

| Gender                 | Frequency | Percentage |
|------------------------|-----------|------------|
| Female                 | 146       | 65 %       |
| Male                   | 78        | 35 %       |
| <b>Race</b>            |           |            |
| Black                  | 199       | 85%        |
| White                  | 12        | 5%         |
| Indian                 | 20        | 9%         |
| Coloured               | 3         | 1%         |
| <b>Education level</b> |           |            |
| < matric               | 56        | 25%        |
| Matric                 | 97        | 43%        |
| Diploma                | 48        | 22%        |
| Degree                 | 20        | 9%         |
| Post -graduate         | 3         | 1          |
| <b>Geographic area</b> |           |            |
| Nquthu                 | 32        | 14%        |
| Empangeni              | 75        | 33%        |
| Ulundi                 | 53        | 24%        |
| Kwa-Nongoma            | 27        | 12%        |
| Escourt                | 37        | 17%        |

**Table 2.** Summary of key questions

| Research area                          | Question  |
|--|---|
| Behavioural change                     | <b>e- Commerce has changed the way I use to buy products from small and medium retailers/traders</b><br>Response alternatives: <i>Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree</i>   |
| Customer convenient                    | <b>e- Commerce can make me to choose and purchase almost anything from my home</b><br>Response alternatives: <i>Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree</i>   |
| Advantage of e-commerce                | <b>e-Commerce is costs effective, safe and improves the way we use to do things including buying of goods/ services</b><br>Response alternatives: <i>Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree</i>  |
| Disadvantage of e-commerce             | <b>e-Commerce does not allow me to inspect goods in advance of purchase</b><br>Response alternatives: <i>Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree</i>  |
| Risks of using e-commerce              | <b>e-commerce risks us in buying damaged or broken goods</b><br>Response alternatives: <i>Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree</i>   |
| Most common frustrations of e-commerce | <b>Most common frustration with shopping websites are:</b><br>Response alternatives: <i>Unable to reach the e-shop by phone; problems with account/ logging in; lack of information about the products/service; lack of fast chat/instant messaging; difficult reaching the organisation; Trouble at checkout</i> |

**Data Collection**

The questionnaires were administered during personal interviews with respondents at their local villages. In order to standardize the conditions under which the questionnaires were completed, former unemployed matric students were in the selected areas were recruited and brief as fieldworkers. They distributed and collected self-completion questionnaires to the targeted population. The survey was conducted at the same period on weekdays and over weekends. To increase the respondents' ability to answer the questionnaires and thus improve the response rate, a number of instructions were proved throughout the questionnaire and the interviewer was on hand to explain any uncertainties where necessary. However, inconsistency in coding of the closed - ended questions was avoided by having all questionnaires pre-coded.

**Data Analysis**

Data were entered into the computer according to the question codes and analysed using SPSS version 22.0. The first type of analysis was to check frequencies, which was also used to check the coding of data. Variables were then screened, identifying those that were highly influential on the dependent variables of the study. A number of analytical procedures were used. Descriptive statistics were used to help describe and compare the main features of the collected data. Bivariate analysis was used in the form of cross -tabulations to test relationship. Inferential statistics were used to test relationship and data were presented by means of bar graphs and tables to show the association between variables. The statistical finding of the survey are integrated and presented with the discussion of the findings that follow.

**Validity and Reliability**

Content and construct validity were assessed via the assessing of the questionnaire by research and statistical experts and by pre-testing it with a small sample similar to the population. No significant changes were required. Reliability was tested using Cronbach's coefficient alpha, achieving a coefficient of 0.756, thus concluding that the reliability of the study were acceptable.

**4. DISCUSSION OF FINDINGS**

Literature review was used e-commerce to identify problems experienced by rural consumers with regard to the use of e-commerce and its influence on their buying behaviour and variables to be tested were also identified. Completed questionnaires were received from 224 local consumers living in rural KZN (n=224). And the key findings of this research reveal the following results.

**Figure 1.** Respondents' consumer buying Behavioural change

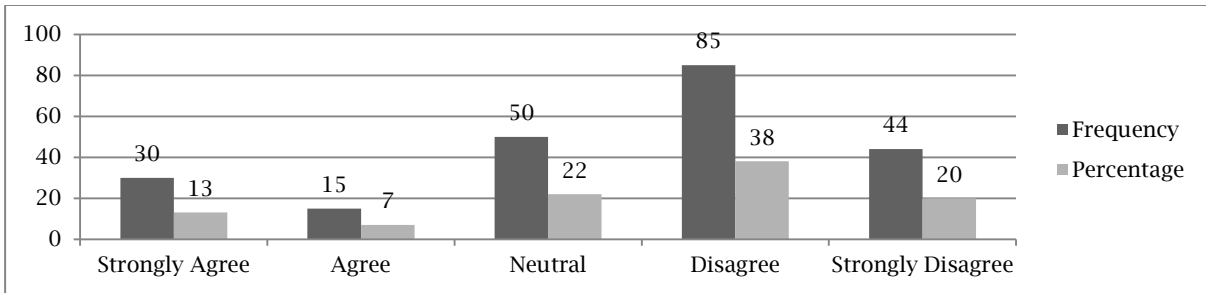


Figure 1 illustrate that 30 (13 percentage) and 15 (7 percentage) respondents agree that e-Commerce has changed the way they use to buy products from small and medium retailers/traders. Thus indicate that people at rural areas of South Africa with specific reference to KwaZulu -Natal has started using e-Commerce and believe that e-Commerce has changed their past consumer buying behaviour. At the same time, 50 (22 percentage) were neutral and large number of the respondents

85 (38 percentage) and 44 (20 percentage) disagree that the use of e-Commerce has changed their consumer buying behaviour. This suggests that at all times e-Commerce is not effectively used by many and they don't see it as an agent for change in their daily consumer buying behaviour. A Chi-square goodness of fit test indicated this finding to be statistically significant (P-value = .000; std. deviation = 1.25838; mean = 3.4375).

**Figure 2.** Respondents perceptions of e-Commerce convenient

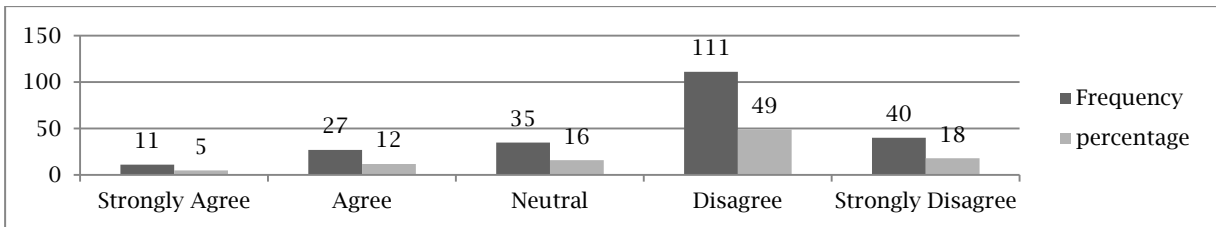


Figure 2 indicates that majority of respondents 111 (49 percentage) and 40 (18 percentage) disagree with the statement that e-commerce is more convenient for them to do purchase everywhere they are even from their home. 35 (16 percentage) of the respondents were neutral with the statement, while

a few respondents 11 (5 percentage) and 27 (12 percentage) agree. A Chi-square goodness of fit test indicated this finding to be statistically significant (P-value = .000; std. deviation = 1.06300; mean = 3.6339).

**Figure 3.** Respondents perceived advantage of e-commerce

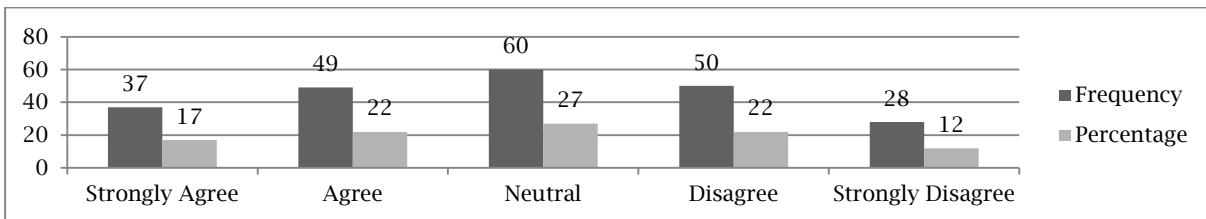


Figure 3 indicates that 37 (17 percentage) and 49 (22 percentage) of respondents agree that e-commerce is costs effective, safe and makes things easier for them in their respective areas including

buying of products from different small businesses. 60 (27 percentage) of respondents were neutral and 50 (22 percentage) and 28 (12 percentage) disagree with the statement. Thus indicate that about 78

percentages of people who live in the South African rural areas particularly in KZN do not understand the reasons why they should use e-commerce. A Chi-

square goodness of fit test indicated this finding to be statistically significant (P-value = .000; std. deviation = 1.26652; mean = 2.9241).

**Figure 4.** Respondents perceived disadvantage of e-commerce

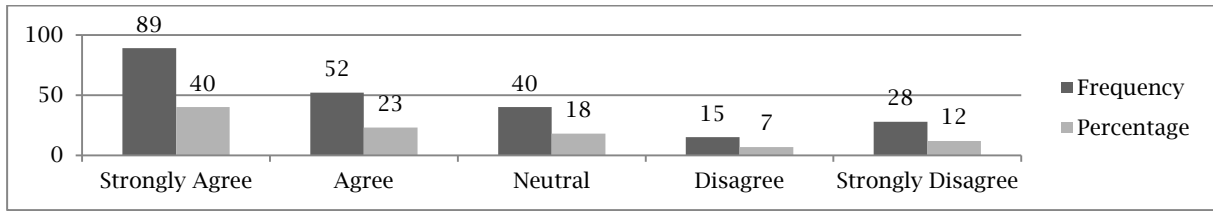
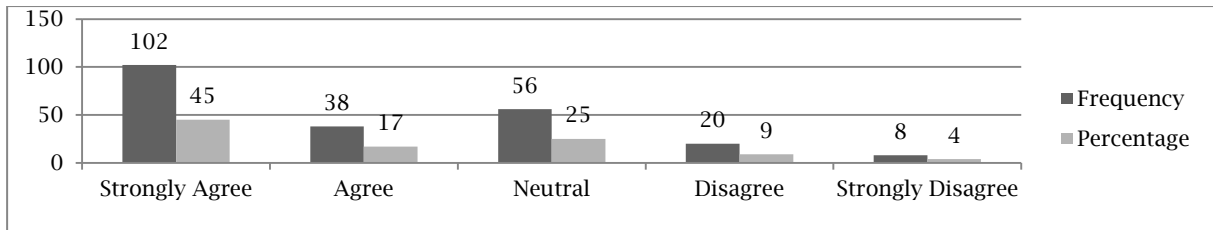


Figure 4 shows that more than half of the sample agreed that e-Commerce does not allow me to inspect goods in advance of purchase (89 (40 percentage) and 52 (23 percentage). However, there were some few who were neutral and disagree with

the statement. A Chi-square goodness of fit test indicated this finding to be statistically significant (P-value = .000; std. deviation = 1.37586; mean = 2.2902).

**Figure 5.** Respondents perceived risk of using e-commerce



The second objective was to examine the extent to which rural consumers use and perceived e-Commerce to be important to their buying process. Although majority of respondents do not use or notice the important of e-commerce and how it can affect their buying patterns, more than half of the respondents do understand the advantages of using e-commerce and the risk associated with it, which is

shown in Figure 5, with 102 (42 percentage) 38 (17 percentage) agree that e-commerce risks them in buying damaged or broken goods. While other small portion of respondents were neutral and disagree with the statement. A Chi-square goodness of fit test indicated this finding to be statistically significant (P-value = .000; std. deviation = 1.17629; mean = 2.0804).

**Figure 6.** Most common frustrations caused by e-commerce

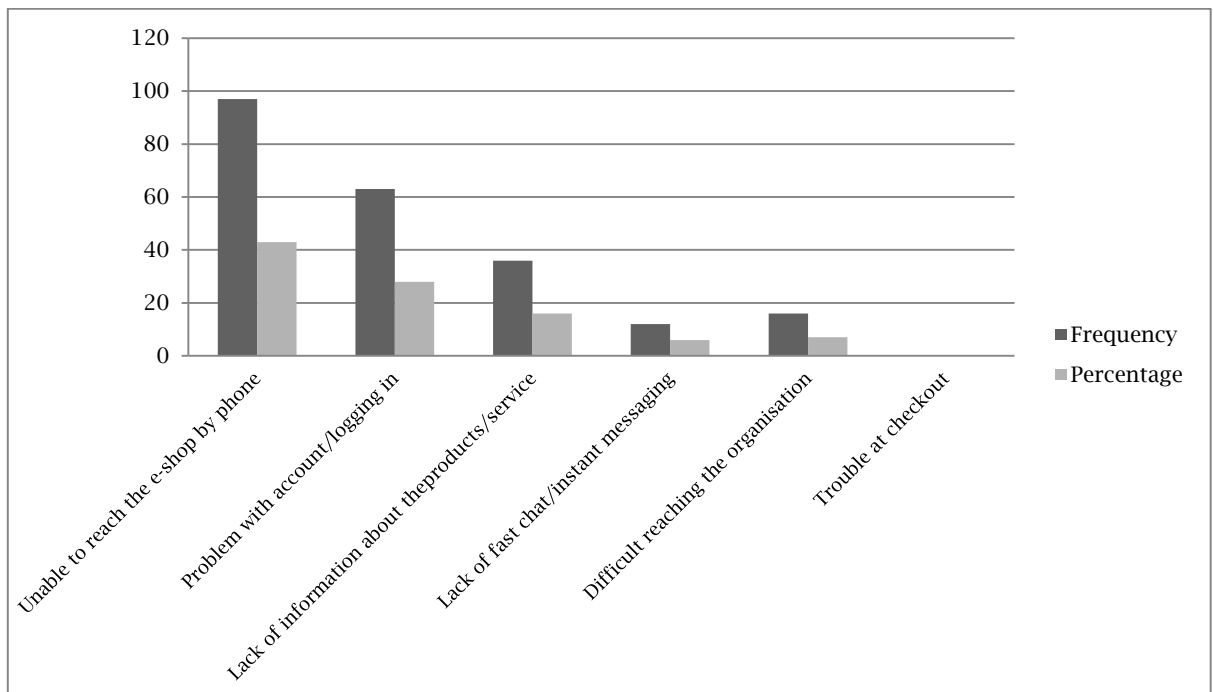


Figure 6 shows that there was a general feeling among the sample that major challenges facing rural consumers included unable to reach the e-shop by phone and problems with account/ logging in to access to e-commerce transactions 97 (43 percentage) and 63 (28 percentage) in KwaZulu – Natal rural areas. However, lack of information about the products/services, lack of fast chat/instant messaging, and difficult reaching the organisation also have significant impact for the consumer behaviour. A Chi-square goodness of fit test indicated this finding to be statistically significant (P-value = .000; std. deviation = 1.20622; mean = 2.0491).

### Limitations

This study did not include all rural areas of KwaZulu –Natal province, was only confined KZN areas only, therefore, the results of the study cannot be generalized to all South African Provinces. Due to the size of South Africa, as well as socio –economic` difficulties and geographical profiles, it was difficult to research every rural area in every province. Further research needs to include other rural areas in other provinces with large sample.

### Implications

A first managerial implication results from the findings is that SMEs owners/mangers in South Africa want to or need to success /sustain business growth or simultaneously. This study provides some useful strategies which can be applied with regard to encouraging local consumers to use e-Commerce every time they want to buy products/ services. This study suggests different promotional activities that can be employed to enhance the use of e-commerce in rural business environment.

A second managerial implication is that it is evident SMEs owners/managers should structure and improve on their communication strategies with consumers and their marketing tactics should be well communicated and known by local consumers including the important of using e-Commerce.

Finally, the analysis of the results indicate that the most difficult facing rural consumers when want to use e-Commerce include unable to reach the e-shop by phone and problems with account/ logging into access to e-commerce transactions, which have managerial implication of losing potential customers if SMEs owners/managers does not re-direct their focus and improve their ICT infrastructure by working together with South African government.

### CONCLUSIONS

This paper attempted to find the most significance of e-commerce has in changing rural consumers buying behaviour in KZN. The research found that majority of respondents do not use e-commerce to purchase SMEs products with about half of respondents indicate that still do not agree that e-commerce can change their buying behaviour. However, on the other hand, many respondents believe that e-commerce is more costs effective, safe and important for the improvement of rural consumers; but, thus it is not mean that they are

using it. Since the use of new emerging technology is rapidly growing in South Africa in both the business and social sectors, SMEs owners/managers in rural emerging economies can build more awareness campaigns to the rural consumers with regard to the benefit and importance of using e-commerce. Furthermore, the results indicate that most of the respondents believe SMEs owners/managers lack corporate government orientation due to lack of qualified members of corporate in their business leadership structures. Therefore, partnership with government agencies is encouraged as this will be help them in limiting the skills gap and shortage of human capital in rural SMEs sector in South Africa. This study found that many people don't believe e-commerce is more convenient indicate the need for SMEs in operating in rural areas to put more effort on direct marketing and consumers education with regard to the advantages of using e-commerce.

### RECOMMENDATION

It has been noticed from the findings that e-commerce does not show much influence in the change of rural consumer behaviour. However, it is evident that most consumers perceived the use of e-commerce as a high risk taking due to the fact that products are purchased before physical inspection. Therefore, this recommends that government should spread the availability of ICT facilities in rural and remote areas of KZN, community briefing and workshops with regard to the benefits of using internet and buying products through the e-commerce transactions. The awareness building and community education in both rural entrepreneurs and community at large must be conducted by the well trained government staff on ICT importance and benefits. Furthermore, in the current business environment, rural SMEs need to adapt to new technologies to stay relevant with competitors and access the global marketplace. Technology partnership can strengthen any SMEs capabilities and support stable growth, when it comes to time to adapt to a new to trading technology. A technology partnership can keep transition and training issues from overshadowing the business plan, therefore, it is important for rural SMEs to start using new technology. In addition, the use of digital marketing can be effective in rural SMEs sector in South Africa as technology making physical location factor less important as networks become ubiquitous, allowing previously unavailable internet and cellphone access in even the most remote location. This can allow rural SMEs to navigate foreign market and understand the consumer behaviour of their target audiences.

### REFERENCES:

1. AlGhamdi, R., Nguyen, A. & Jones, V. (2013). A Study of Influential Factors in the Adoption and Diffusion of B2C E-Commerce. (IJACSA) International Journal of Advanced Computer Science and Applications, 4(1).
2. Al-Kasasbeh, M.M., Dasgupta, S. & AL-Faouri, A.H. (2011). Factors Affecting E-Service Satisfaction. Retrieved from: <http://www.ibimapublishing.com/journals/CIBIMA/2011/547937/547937.pdf> (Accessed 22/09/2014).



3. Anjum, B. & Tiwari, R. (2011). Economic and social impacts of e-commerce. *International Journal of Computing and Corporate Research*, 1(3): 1-13.
4. Chaudhury, A. & Kuilboer, J. P. (2002). *E-business and e-commerce infrastructure*. New York, NY: McGraw-Hill.
5. Chen, J. & McQueen, R.J. (2008). Factors affecting E-Commerce stages of growth in Small Chinese firms in New Zealand. *Journal of Global Information Management*, 16 (1): 26-60.
6. De Muylder, D., de Oliveira, F. & Alves, F. (2013). *Consumer Behaviour and E-Commerce: Brazilian Case Study*. *International Journal of Business and Commerce*, 2 (11).
7. Dlodlo, N. & Dhurup, M. 2010. Barriers to e-marketing adoption among small and medium enterprises (SMEs) in the Vaal triangle. *Act commercial* 2010.
8. E-commerce in China's rural areas report. (2014). *E-commerce in China's rural areas*. Retrieved from: <http://www.marketmechina.com/e-commerce-in-chinas-rural-areas> (Accessed 02/08/2014).
9. Eriksson, L.T., Hultman, J. & Naldi, L. (2008). Small business e-commerce development in Sweden- An empirical study. *Journal of Small Business and Enterprise Development*, 15(3): 555-570.
10. Forman, C., Ghose, A. & Goldfarb, A. (2013). The impact of location on consumer purchases in electronic markets: 2<sup>nd</sup> statistical challenges in E-commerce Research symposium. Retrieved from: [http://www.researchgate.net/publication/242574671\\_The\\_Impact\\_of\\_Location\\_on\\_Consumer\\_Purchases\\_in\\_Electronic\\_Markets\\_2nd\\_Statistical\\_Challenges\\_in\\_E-Commerce\\_Research\\_Symposium](http://www.researchgate.net/publication/242574671_The_Impact_of_Location_on_Consumer_Purchases_in_Electronic_Markets_2nd_Statistical_Challenges_in_E-Commerce_Research_Symposium) (Accessed 14/07/2014).
11. Goldstuck, A. (2011). SA mobile Internet usage soars to 39%. Retrieved from: <http://www.itnewsafrika.com/2011/08/sa-mobile-internet-usage-soars-to-39/>(Accessed 23/06/2014).
12. Hudson, T. (2014). Exciting Developments in the ICT Sector in Africa. Retrieved from: <http://www.theafronews.ca/2014/03/19/12562/> (Accessed 12/07/2014).
13. Inusa, D.Y. (2006). The use of e-commerce by rural communities for small business development, Master of Technology in Business Information Systems. Cape Peninsula University of Technology, South Africa.
14. Jagoda, K. (2010). The Use of Electronic Commerce by SMEs. *Entrepreneurial Practice Review*, 1 (3).
15. Kapurubandara, M. (2009). A framework to e-transform SMEs in developing countries. *The Electronic Journal of Information Systems in Developing*, 39 (3): 1-24
16. Karnam, R.P., Rao, N.A. & Reddy, I.L. (2014). Consumer behaviour of rural women towards bathing soaps: a study of villages in irala mandal, chittoor dist., and hra Pradesh. *Sai Om Journal of Commerce & Management*, 1 (2).
17. Koyuncu, C. & Lien, D. (2003). E-commerce and consumer's purchasing behaviour. Retrieved from: <http://ideas.repec.org/a/taf/applec/v35y2003i6p721-726.html> (Accessed 19/07/2014).
18. Lane, S. (2014). National e-Commerce Extension Initiative for Rural Entrepreneur. Retrieved from: <http://www.choicesmagazine.org/magazine/print.php?article=159> (Accessed 14/07/2014)
19. Lamie, D., Barkley.L. & Markley, D.M. 2007. Positive Examples and Lessons Learned from Rural Small Business Adoption, <http://www.clemson.edu/uced/positiveecommerce.pdf> (Accessed 14/07/2014).
20. Lee, D, Park, J. & Ahn, J. (2000). On the explanation of factors affecting e-commerce adoption. Retrieved from: [http://misrc.umn.edu/workingpapers/fullpapers/2000/0025\\_12010\\_0.pdf](http://misrc.umn.edu/workingpapers/fullpapers/2000/0025_12010_0.pdf) (Accessed 12/05/2014).
21. Mittal, A. (2013). E-commerce: It's Impact on consumer Behaviour. *Global Journal of Management and Business Studies*, 3 (2): 131-138.
22. Mpungose, M. B. (2012). Digital Communication: perceptions of rural communities on the safety of e-commerce transactions. Retrieve from: <http://uzspace.uzulu.ac.za/handle/10530/1218> (Accessed 24/05/2014).
23. Mohanta, S.M., Mishra, A. & Dash, S. (2012). Understanding the Rural Consumer's Behaviour in Context to His Ecosystem: A Telecommunication Perspective. *International Journal of Market Research*, 54 (5): 603-612.
24. Nkonde, S. D. (2012). Information Asymmetry and Obstacles on SMMEs growth in the Rural Areas of uThungulu District Municipality of KwaZulu-Natal. Retrieved from: <http://uzspace.uzulu.ac.za/bitstream/handle/10530/1227/Information+Asymmetry+and+Obstacles+on+SMMEs+growth.pdf?sequence=1> (Accessed 24/09/2014).
25. Rhodes, J. 2003. Can E- Commerce Enable Marketing in an African Rural Women's Community Based Development Organisation?. *Informing Science Journal Special Series on Community Informatics*, 6:
26. Sanchez, D. (2013). What Are the Leading Online Shopping Markets in Africa? Retrieved from: <http://afkinsider.com/34025/leading-online-shopping-markets-in-africa/> (Accessed 13/04/2014).
27. Senarathna, R.P.I.R. & Wickramasuriya, H.V.A. (2011). Organizational Factors Affecting E-commerce Adoption in Small and Medium-sized Enterprises. *Tropical Agricultural Research*, 22 (2): 204 - 210.
28. Simpson, M. & Docherty, A.J. (2004). Ecommerce adoption support and advice for UK SMEs. *Journal of Small Business and Enterprise Development*, 11(3): 315-328.
29. Sharma, S.K. (2005). Chapter I: Socio-Economic Impacts and Influences of E-Commerce in a Digital Economy. Retrieved from: [www.rinc.nl/KASS/download.php?object=357985](http://www.rinc.nl/KASS/download.php?object=357985) (Accessed 12/07/2014).
30. Shemi, A.P. & Procter, C.T. 2013. Challenges of E-Commerce Adoption in SMEs: An Interpretive Case Study of Botswana. *Botswana Journal of Business*, 6 (1).
31. Spoto, K. (2010). A review of The World Is Flat: A Brief History of the 21st Century. *Journal of Extension*. 48 (1).
32. Stayner, R. & McNeil, J. 2003. CHANGING BUSINESS REALITIES? The Implications of E-commerce Technologies for Rural Non-Farm Businesses. Retrieved from: <http://www.nswbusinesschamber.com.au/NSWBC/media/Misc/Ask%20Us%20How/Changing-Business-Realities.pdf> (17/07/2014).
33. South African Department of Communication. 2014. e-Services, including e-Government. Retrieved from: [www.doc.gov.za/.../22-national-integrated-ict-policy-green-paper.html](http://www.doc.gov.za/.../22-national-integrated-ict-policy-green-paper.html)? (Accessed 17/09/2014).
34. Palan, J. & Sommai, K. (2011). Factors affecting e-commerce adoption and business success of Thai SMEs. *International Academy of Business and Economics*, 11 (3).
35. Wymer, S. A. & Regan, E.A. 2010. Factors Influencing e-commerce Adoption and Use by Small and Medium Businesses. *Electronic Markets*, 15 (4).

# AN ANALYSIS OF PUBLIC PRIVATE PARTNERSHIP IN EMERGING ECONOMIES

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## Abstract

This article examines the significance of Public Private Partnership (PPP) in emerging economies. The major focus of the paper is the African continent. The article briefly discusses the origin and implementation PPPs in different continents across the globe. A qualitative research paradigm is adopted to analyse public private partnerships in Sub-Saharan Africa (SSA). Qualitative research is exploratory and is frequently used to investigate a subject area in which there is limited information. This method of investigation sheds light on the different PPP projects. A case study strategy adopted in this study was used create understanding of the different process emanating from the implementation of PPPs in Africa continent. A comprehensive understanding of PPP implementation in SSA is essential. PPPs should be considered in sectors where there is a need to improve infrastructure and service delivery. Every government should have legislation in place as well as a regulatory framework on PPPs to facilitate local and foreign investors to implement new projects. The absence of a legal and regulatory framework on PPPs hinders close collaboration between the public and private sector in certain countries in Sub-Saharan Africa. Anecdotal evidence from interviews with public officials indicates the need for government to focus on a specific project where it (government) perceives a need for a private company to participate. This article argues that the Build-Operate-Transfer (BOT) project is an excellent model for governments in SSA where there is a deficit infrastructure, required to provide improved service delivery. Most BOT projects require sizeable financial investment. Most governments prefer to use BOT to construct specific infrastructure such as new electricity power plants, toll roads, prisons, dams and water plants. Experience has revealed that BOT agreements tend to reduce market and credit risk for the private sector because in most instances government is the only customer, thus reducing the risk associated with insufficient demand and the inability to pay.

**Keywords:** Public Private Partnerships, Infrastructure, Build-Operate-Transfer, Service Delivery

## 1. INTRODUCTION

Most countries in Sub-Saharan Africa (SSA) still face difficulties in terms of service delivery. The lack of service delivery differs from one country to another. This is evident in sectors such as water, electricity, housing, prison, public hospital, waste management, sanitation and roads. As stated by the World Bank experts, PPPs enhance the reach and quality of basic service provision (World Bank, 2016:188). According to Farlam (2005:3), the SSA faces a lack of infrastructure with startling evidence of service backlogs. Consequently, countries in different sub-regions of Africa south of the Sahara, struggle to invest in infrastructure development. Compared to Asia, Africa still lags behind in most sectors of economic development. The World Bank (2016:189) argues that annual infrastructure needs in Sub-Saharan Africa are estimated at \$93 billion over a period of ten years, or 15% of Africa's Growth Domestic Product (GDP).

In the same region, almost over 400 million people in the region lack access to electricity; 300 million have no clean water while there are only eight telephones on average per 100 inhabitants (Farlam, 2005:3). Given the scarce public resources to finance the development of infrastructure,

governments continue to seek innovative ways of financing projects and building infrastructure. To bridge the gap between available resources and the cost of urgently needed infrastructure and services as well as ensure that these are delivered as efficiently and cost effectively as possible, public authorities are now turning to PPPs (Emirullah & Azam, 2014:69; Partnerships Kosovo, 2009:3).

In SSA, Governments have opted for the implementation of PPPs in an effort to improve the provision of infrastructure and the delivery of services. The aim is to generate greater efficiency and synergy; increase financial revenues and reduce deficits. Quicker market development, faster foreign investments and increased competition are also on the development agenda. According to the World Bank (2010), there is a huge gap in the SSA in terms of infrastructure development with an infrastructure financing gap of almost US\$ 34 billion. The estimated cost of infrastructure in different SSA regions increased on annually because the amount changes each year.

## Origin of Public Private Partnerships

Participation of the private sector in infrastructure sector development began well over two centuries in

Europe and North America. In United Kingdom (UK), the utilization of tollgates was authorised by law in 1364. The first turnpike model was established in 1664 (Grimsey and Lewis: 2004). The justices of Herfordshire, Huntingdon and Cambridge that requested parliament to pass of an Act allowing them to raise funds for the repair and upgrading of the section of the Great Northern Road crossing through the three counties. During this particular period, the legislation gave justices the authority to implement three tollgates to collect at a specific rate on vehicles and livestock passing on the particular section of the road over a period of 21 years (Cossons: 1934). The 21 years was therefore, adequate for the contracted company to recover its debt and turn the road back to government without any charge. As observed by Grimsey and Lewis (2004:4) "it was not until early in the eighteenth century, however, that the customary formula vesting the administration of roads in ad hoc local bodies, and of transferring the cost of maintenance from the public to the users, was firmly established". The experience shows each country in Europe did have its own history on PPPs as seen in UK, Holland (Netherlands).

An analysis of the French national experience on PPP illustrates that the concept however much older than that of other European nations (World Bank, 2009c: 34; Grimsey and Lewis (2004). The French are said to have used PPPs for more than hundred years. The French PPP concession model called "Societe d'Economie Mixtes and Concession", remains one of the most popular modes of constructing and managing commercial public services and public infrastructure. To date, the country has been using PPPs to distribute 75% of its water for more than two decades. The two major operators for water distribution are Lyonnaise des Eaux and Vivendi (currently called Veolia Environment) controlled 62% of water distribution across the France (Prasad, 2006:23). These two companies are involved in many sectors such as sewerage disposal, urban central heating waste collection where PPP are well established in France. It can be concluded therefore that PPPs are more established in France as compared to other EU countries as they have been used in France since seventeenth century (Grimsey and Lewis, 2004: 47).

The French national experience on PPP has had a positive influence on the implementation of PPPs in the Francophone countries (especially in West and Central Africa) (World Bank, 2009a:4). French companies are often contracted to implement PPPs in the water sector in these countries. The companies brought with them the required technology and skills transfer to the region.

Given the foregoing, this paper provides a comprehensive discussion on the origin of PPPs. The paper then explores the definition of PPPs taking into consideration the various regional and international contexts of the concept. Third is the research methods followed in study are also described. The fourth section discusses international experience of PPPs while the fifth addresses PPPs in SSA. The suggested model of preference namely the BOT is discussed in the sixth section followed by lessons learnt and last is the conclusion.

## 2. DEFINITION OF PUBLIC PRIVATE PARTNERSHIP

There is no definitive consensus of the definition of public private partnership.. According to the World Bank (2016:188), in general, "PPP refers to arrangements, typically medium to long term, between the public and the private sector whereby some of the services that fall under the responsibility of the government are delivered by the private sector". The signed contract clearly specifies the duties for each party and how risk will be allocated. Furthermore, a PPP implies the participation of a private sector in a project on behalf of a government. The contract between the host country and the private investor usually takes between 10 and 30 years and thereafter the government can take over the asset from the private investors (Seader, 2004:10-15). There is also the possibility of the private investor negotiating with government to continue managing the asset.

In this context it remains the exclusive authority of the government or local authority to decide whether it wants to retain its links with the same company.

Another definition by the Asian Infrastructure in collaboration with the United Nations (2011:8) states that "PPP is a relationship or collaboration built on the expertise of each partner that meets clearly defined public needs through the appropriate allocation: Resources, Risks, Responsibilities, and Rewards". According to the report, a PPP cannot be considered as a solution to an infrastructure service problem for a country but a PPP model can be considered as a viable solution for the implementation of an infrastructure project. Nevertheless, there are special cases in certain countries, where some sectors of the economy cannot be considered part of PPPs.

A case in point as recognised by the World Bank (2016:139), are sectors which are regulated or where there is extensive private sector initiative this could be telecommunication. In addition, other types of contracts such as management contracts have been removed from the list of PPP definitions by some governments". One of the reasons is that management contracts should fall within the traditional procurement process of government. What the researchers observed is that in the last two decades, there has been an increase of PPP in different sectors of the economy in Africa.

In various literature, the terms PPP and privatization are often used interchangeably. Of critical importance is the dichotomy between the two. Under PPPs, the government still has control over the assets managed by the private sector. On the contrary, privatization refers to the sale of government property to the private sector (Shirley, 1992:59-60). In other words, under PPPs, government exercises control over the private sector. The table below presents a PPP project cycle structure.

The table 1 explains steps taken by PPPs before a project is implemented. First, the government must propose a concrete project which will require the participation of a private partner. Presently in Africa, the involvement of PPPs can be seen in sectors such as energy, road, hospital, seaport and water. When the government calls for a PPP tender, the cycle above or the steps (see table 1) must be

adhered to by the Ministry or the provincial government. The application of this process is meant to prohibit corruption of any kind before the project can be awarded to the successful bidder.

**Table 1.** PPP Project Cycle Structure

| Phases                           | Stages                            | Steps  |
|----------------------------------|-----------------------------------|--|
| <b>1. Project Identification</b> | 1.1 Selection of project          | <ul style="list-style-type: none"> <li>• Identification</li> <li>• Output specification</li> </ul>   |
|                                  | 1.2. Evaluation of the PPP choice | <ul style="list-style-type: none"> <li>• Affordability</li> <li>• Risk allocation</li> <li>• Value for money</li> </ul>  |
| <b>2. Detailed Preparation</b>   | 2.1 Organisation                  | <ul style="list-style-type: none"> <li>• Project team</li> <li>• Time frame</li> <li>• Advisory experts</li> </ul>   |
|                                  | 2.2. Tender process               | <ul style="list-style-type: none"> <li>• Detailed PPP design</li> <li>• Procurement method</li> <li>• Evaluation criteria</li> <li>• Draft PPP contract</li> </ul> |
| <b>3. Procurement</b>            | 3.1. Bidding process              | <ul style="list-style-type: none"> <li>• Prequalification</li> <li>• Invitation to tender</li> <li>• Interaction to bidders</li> <li>• Award</li> </ul>            |
|                                  | 3.2.PPP contract                  | <ul style="list-style-type: none"> <li>• Final PPP contract</li> <li>• Financial agreement</li> </ul>  |
| <b>4. Project Implementation</b> | 4.1. Contract Management          | <ul style="list-style-type: none"> <li>• Monitoring of the PPP project</li> <li>• Dispute resolution</li> <li>• PPP contract termination</li> </ul>                |
|                                  | 4.2. Evaluation                   | <ul style="list-style-type: none"> <li>• Institutional framework</li> <li>• Analytical framework</li> </ul>  |

Source: Update from the Word Bank (2009)

**3. METHODOLOGY**

This paper adopted the qualitative research paradigm. A qualitative research method provides a comprehensive interpretation of concepts, constructs and opportunities which brings the research closer to “social reality” (Claire, Higson-Smith & Kagee, 2006). Further to this, qualitative research is exploratory and is frequently used in an investigation of a subject area in which there is only limited information. This method of investigation sheds light on the different PPP projects. The study also adopted the case study strategy chiefly to create an understanding of the different process emanating from the implementation of PPPs in the African continent.

According to Yin (1984:34) a case study is an empirical inquiry, which investigates a contemporary phenomenon within a real-life context when the boundaries between phenomenon and context are unclear and during which multiple sources of evidence are used. The rationale for using a case study method in the research is that it provides additional information on PPP around the globe and more specifically in emerging economy. The strategy therefore, enabled us to conduct a critical analysis of PPPs in the selected countries in the SSA.

Literature was used extensively to gain theoretical knowledge of the subject matter in this study. In Yin’s (2003:87), view, , because of their value, documents play an explicit role in any data collection when considering case studies and a systematic search for relevant documents as essential to any data collection plan. As a result, the case study method provided an opportunity to verify the data collected from various sources. Access to files and reports from the relevant organisations under scrutiny was also sought.

Whilst this research focused primarily on primary and secondary data, views on PPP from senior government officials from Botswana, Democratic Republic of Congo, South Africa and Zimbabwe were included in the analysis of the paper.

Data collected was analyzed to demonstrate the practicability of using BOT in PPPs in various parts of the world. At the international level, data was utilised from the UK, Australia, and Asia. Regionally, this study reviewed data from Sub-Saharan Africa. The countries included Algeria, Botswana, DRC, Gabon, Ghana, Lesotho, Mozambique, South Africa, Tanzania and Zimbabwe.

**4. INTERNATIONAL EXPERIENCE ON PPPs MODELS**

In the United Kingdom (UK), PPPs were introduced again in 1992 during the recession. One of the reasons was the “off-balance sheet” public accounting treatment. Thereafter the UK economy recovered and the implementation of PPPs became a matter of searching for value for money (VFM) which became the primary reason for the adoption of PPPs in the UK (Vicker, 2004). The poor infrastructure was also a contributing factor, particularly after a decade-long ‘under-investment’ period when the Conservative government was in power. The UK government was about to sign the Maastricht Treaty to restrict public sector borrowing (Clark & Root, 1999: 341-365). Between 1992 and 2004, the financial figure on PPPs in the UK was approximately £GB50 billion. More than 600 PPP projects were signed with private companies.

At the time, the Conservative government explained that PPPs (or private financial initiatives, PFIs) were introduced for several reasons. The first was improved VFM for government through

economic efficiency. The second was to reduce public sector borrowing and to increase investment in public services (Her Majesty's Treasury, 1993). However, not all PPP and PFI projects in the UK were successful. Challenges were experienced with certain projects. According to the World Bank (2010), it was difficult to raise finance for PPPs and PFI schemes in 2008 and 2009. The number of active lenders in the market was significantly reduced, and those that remained, toughened their positions. A number of projects had difficulty in achieving financial closure and those that did so, soon discovered that previously offered terms were no longer available. This was due to the financial crunch which affected most financial institutions worldwide (World Bank, 2010).

According to the World Bank Institute (2010), in March 2009, the British Treasury established the Infrastructure Finance Unit (TIFU) with the objective of lending funds to PFI projects on the same terms as commercial banks in the event of inadequate private sector loans. Moreover, the banks were encouraged to continue their loans if they were in a position to do so, thereby helping companies to complete projects and reach financial closure. For example, the British government used PPP projects to build schools, hospitals, airports, bridges and prisons. Importantly, they also improved waste management services and water provision facilities. Indeed, as shown by Li & Akintoye (2003), private sector investment in the UK has always been active in the transport, health, defence and education sectors.

The Australian experience shows that PPPs are divided into two generations. The first generation principally involved the Build-Own-Operate (BOO) Build-Own Operate-Transfer (BOOT) or Build-Operate-Transfer (BOT) (Duffield, 2004: 1). The Sydney Harbour Tunnel was the first of these projects and was completed in 1988 (Muhammad & Low 2006:10). The first generation of PPPs in Australia also gave access to private capital and the transfer of full risk to the private sector. This so-called Victoria policy has now been implemented across Australia (Yates & Sashegyi, 2001:10). In the post-2000 period, Australia witnessed a more structured approach towards PPP development and implementation with, for example, specific policies, procedures, guidelines, the establishment of government bodies and steering mechanisms (Taseska, 2008: 80).

As substantiated by Partnerships Kosovo (2009:4), all PPPs involve some form of risk-sharing between the public and private sector. The allocation of risk to the private partner is the key determinant in distinguishing between PPP and the more traditional public sector model of public service delivery.

Li & Akintoye (2003) maintain that PPPs are particularly beneficial in infrastructure development and public service delivery in developing economies. The improved infrastructure can support economic growth and make development environmentally sustainable World Bank (1995). An increasing number of countries are now demanding alternative solutions, especially options involving the private sector.

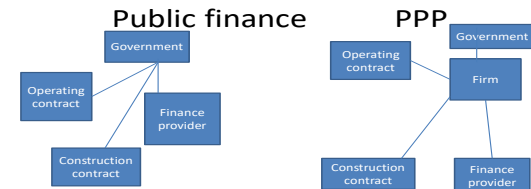
Looking at the Asian experience on PPPs, China introduced the model two decades ago. Prior to this,

most projects were undertaken by Chinese public enterprise companies. According to Xie & Stough (2002:16), the rapid growth of private and non-private sectors in China is well suited to the application of the PPP model. Fiscal decentralization provides strong incentives for local governments to seek cooperation with private and other non-state sectors in urban economic development.

Budina, Brixi & Irwin (2007:10) posit that when a private company takes the risk, project costs will be lower and this reduces the cost to government. However, they claim that the "advantages of contracting out construction, operations and maintenance do not immediately create an argument for private financing of a project". The state can also contract out these functions in publicly financed investment. PPPs should only be used when the cost of construction is less when compared to government investment.

Figure 1 below shows the structure of public finance and PPPs in terms of long term contracts with government.

Figure 1. Public finance to PPPs



comparing public finance to a PPP with a long-term purchase contract

Source: Update from the World Bank (2007)

As illustrated in figure 1 above, the public finance project is controlled by the government budget in accordance with the national budget programme. The project can be financed directly by the national treasury in terms of budget allocation. In addition, under public finance, the money can come from the institutional finance which could be the World Bank, Africa Development Bank, or International Monetary Fund. Therefore, the government will put out a call for a tender where the best company will be allocated the project with specific dates to complete the project. Grimsey and Lewis (2004:85) illustrate that "with traditional procurement of infrastructure the detailed design work is normally completed in advance of calling for tenders, thereby removing scope for innovative new technology or cost devices".

With regards to a PPP under this particular model, there are two major players in place, that is, the government and the private sector. For any project to become a PPP, it first needs to be a bankable project. If a project is not bankable, there is no need to classify it as a PPP project. Every project must first demonstrate VFM.

The government can have a project which requires finance. To complete this project, a private partner will provide funding. The government should discuss the modalities of payment concerning the financial investment with the private partner. In addition, the two partners (Government and private sector) should specify and agree the

terms of risk allocation. Additional players on a PPP project include project financiers. It should be noted that PPPs are not always a panacea to infrastructure development and service provision. However, PPPs can be considered as some of the most viable mechanisms to implement major projects in SSA.

## 5. PUBLIC PRIVATE PARTNERSHIPS IN SUB-SAHARAN AFRICA

In Sub-Saharan Africa, PPPs is still in a developmental phase although there are indications that their use is increasing. It is evident that the majority of the countries in the region need technical expertise in this regard. Amony (2015:4) however presents a contrasting view arguing that the PPP mechanism on the Africa continent is deeper. The author proclaims that the reform of public sector organisations is merely the front of a deep moulding of the state that traces back independence. The implementation of PPP in Sub-Saharan Africa was introduced by the international investors in consultation with government authorities. Although a survey of PPP implementation on the continent is beyond the scope of this study, examples of different regions in Africa are provided below.

According to Panteleo, Rwelamila, Chege, Tjiamogale & Manchidi (2003:313), PPPs were introduced in the construction industry in South Africa, such as the construction of major national roadways, the N1, and N2; and building a prison in the Free State Province. PPP projects have also been initiated to facilitate water distribution and waste collection in the Eastern Cape and Kwazulu-Natal.

In Botswana, three construction projects namely: the Ombudsman and Land Tribunal Office (OLTO), the SADC Headquarters building and the rehabilitation and maintenance of roads are notable PPP projects to date. Farlam (2005:ii) adds that in cases where partnerships have been able to best deliver desired outcomes such as in Botswana, Gabon, Mozambique, South Africa, Tanzania and Uganda, thorough planning, good communication, strong commitment from both parties and effective monitoring, regulation and enforcement by government was prevalent. This validates the World Bank's (2009a:3) argument that successful PPPs have been part of well-designed sector reforms with clear policies and strict adherence to governments policy commitments. The above examples demonstrate the feasibility of implementing PPPs in SSA. However, certain problems were encountered in these projects.

Today, a number of governments in Africa struggle to deliver services such as water, telecommunication and electricity. Private companies, on the other hand, have successfully delivered such services on behalf of the state. PPPs appear to be much more than a simple budget tool. In fact, they have become an instrument for co-operation and are making an operational contribution to socio-economic growth. In the view of Rao & Voldolkova (2006: 2, 3), PPPs in Africa, if implemented properly, would accelerate implementation of projects with new approaches and improved management techniques.

When a PPP project is first conceived, it optimizes the satisfaction of the three fundamental actors involved, namely: the state, citizens and private operators (SEFI, 2001:4). A notable case in point is a PPP project in the Eastern Cape province of RSA where the local authority was unable to deliver water to the community. The local authority signed a contract with a private company to supply water to its residents.

According to Niekerk, Ruiters, Mcwabeni, Kruger & Gringer (1999:55), the successful application of a PPP "demands a relatively high level of administrative capacity from the structure which assumes overall contractual control of the process". They also argue that "partnerships that have been most successful in Africa have been characterized by thorough planning, good communication, clear policies, strong commitment from parties and effective monitoring, regulation and enforcement by government" (Farlam, 2005:2).

In addition, a PPP project in the electricity sector in Tanzania proved to be one of the most unsuccessful PPP projects in the SSA. In 1995 the state-owned public enterprise called Tanesco signed a power purchasing agreement with Independent Power Tanzania Limited (IPTL). This company was a joint venture between local investors and a Malaysian company. The contract was to supply 100 MW to Tanesco for 20 years. The entire process was flawed and became a massive burden for the Tanzanian government because only three officials signed the contract. The project was riddled with corruption by senior government representatives (Farlam, 2005:28) and this demonstrated a clear lack of transparency since due process was not followed.

In the Central African region in 1997, more specifically in Gabon, a French international company called Vivendi Water signed a concession contract for 20 years with the Gabonese government for the provision of water and electricity in Libreville and Port-Gentil (Farlam, 2005:25). This initiative can be classified as a success because of the strong political commitment by the Gabonese government.

Assessment of the West African region, notably Ghana, revealed that a PPP project in the water sector met with many difficulties and ended in failure. Haffner & Fuest (2007:183) reveal that civil society and non-governmental organizations (NGOs) levelled criticism against the Ghanaian Government (GoG) because the stakeholder participation process and the role of the regulator were flawed; and shortcomings in the design of the policy.

They argued that the implementation of the Ghana Water Sector Restructuring project launched in 1995 would negatively affect the indigent population and other stakeholders. Furthermore, the government was severely criticised because the consultation process did not include the Public Utilities Workers' Union or the Trade Union Congress of Ghana. An analysis of the contract revealed that there was no umbrella legislation in terms of PPPs in Ghana. Consequently, the implementation of a PPP remained an administrative document without legislative support (Brocke, 2008:4). Another PPP project which is under construction in Ghana is the BOT trunk road development in Accra and Kumasi.

In its successes and failures, the Western and Central African experience offers lessons for other developing countries on how to improve the quality of urban water supply services; increase the efficiency of operations; and establish the financial credibility of the sector. The regions have experimented with a range of contractual arrangements:

- Long-term concessions transfer the technical, operational, commercial and financing risks and responsibilities to private operators and are primarily for combined power and water supply utilities.
- Medium-term concessions combine private operation of the service with shared commercial risk and public financing for developing infrastructure, notably for water supply services.
- Short-term contracts are most often for combined power and water supply.

- Performance-based service contracts aim to improve the commercial and financial operations of a public water supply utility (World Bank, 2009a:1).

Furthermore, an analysis of PPPs in SSA by Izaguirre (2000:2) revealed that SSA was the only region where private activity increased “Investment flows rose from \$3.4 billion in 2000 to 4.6 billion in 2001, almost reaching the all-time high of 4.8 billion in 1997”. Most of this activity was in the energy sector. Izaguirre (2002:3) points out that in SSA investment flows fell, but only to \$3.5 billion, becoming the third highest level for SSA between 1990 and 2001. Most of this investment was on the gas pipeline between Mozambique and South Africa by Sasol (SA). The exploitation of gas in Mozambique by Sasol has a life expectancy of 25 years.

Table 2 illustrates the number of projects completed on the African continent. These projects were spread across five countries on the continent and include management or lease contracts, concessions, Greenfield projects and divestitures.

**Table 2.** Example of Completed Five PPPs Project on African continent

| Countries  | Capital Value      | Financial closure | Consortium                      | Type of project                           | Financier                              |
|------------|--------------------|-------------------|---------------------------------|---|--|
| Gabon      | US\$ 135 million   | July 1997         | SEEG, Vivendi & local partners  | 20 years of concession                    | 49% of share sold through public offer |
| Lesotho    | US\$ 107 million   | December 2007     | Netcare consortium              | 18 year concession                        | IFC, & DBSA                            |
| Algeria    | US\$ 110.6 million | July 2005         | GEIDA consortium,               | 25 year contract to finance, DBOO finance | Banque National d;Algerie              |
| Mozambique | US\$ 70 million    | April 2003        | Maputo Port Development Company | 15 year concession                        | DBSA, & 17 International Banques       |
| Tanzania   | US\$ 32 million    | November 2004     | Globaleq, TAPDC, TANESCO, etc.  | BOO                                       | IDA, and European Bank                 |

Source: Update from the World Bank: 2009b.

Table 2 above reveals that PPPs projects were completed in SSA and in North-Africa. These projects serve as examples in the text of this article. The projects were undertaken in the Water sector in Gabon, followed by the construction of a hospital in Lesotho, seawater desalination in Algeria, the construction of a port in Maputo and Matola, Mozambique and lastly, construction of a gas fire power plant in Songo Songo Island, Tanzania - Indian Ocean. Other PPPs projects, for example, the Gautrain project in South Africa completed in 2010 before the soccer World Cup could not be illustrated.

The views revealed by the public officials of PPPs projects during the interviews conducted in DRC, Zimbabwe and South Africa are imperative for the respective government’s consideration. They hold that PPPs need to focus on specific projects where the state perceives a need for a private company to participate. According to the Zimbabwean government officials, new mechanisms had been implemented to build the nationwide electricity infrastructure. This implied that the Zimbabwean officials could boost the government coffers through this mechanism. The Zimbabwean Government policy is to protect the private investors. This was the best opportunity for the private companies to recover their investment.

Whereas in the DRC, the Ministry of Energy had already begun to sign other PPP contract with local partners to refurbish certain hydropower plants around the country. The Congolese power utility (SNEL) required PPP because the national utility needed to partner to refurbish their hydropower. In South Africa, the government supports the PPP programme in different sectors. There are no specific models which the government requires the private sector to apply. The two parties agree on a model. Table 3 below illustrates the different types of PPP models.

There are different PPP models for which governments can apply. A distinction must be drawn between PPPs and privatization. According to Hughes (1998:116), privatization is largely seen as involving liberalizing the market and the sale of state assets. Initiatives such as denationalization, contracting out, self-management and de-regulation, form part of privatization (Turner and Hulme 1997: 190-191). A similar definition is one by Cartledge (2006:31) that “privatization is the partial sale or complete sale or transfer of existing enterprises, assets or rights from public ownership to the private sector”. On the other hand, Seader (2004:4) maintains that “partnership refers to an entire spectrum of relationships where private sector resources are used in the delivery of services or facilities for public use”.

**Table 3. PPP models**

| Types of model  | Modality   |
|---|--|
| Service contracts   | The private company procures, operates and maintains an asset for a short period of time. The public sector bears financial and management risks.  |
| Operation and management contracts  | The private sector operates and manages a publicly owned asset. Revenues for the private party are linked to performance targets. The public sector bears financial and investment risks.  |
| Leasing-type contracts <ul style="list-style-type: none"> <li>• Buy-build-operate (BBO)</li> <li>• Lease-develop-operate (LDO)</li> <li>• Wrap-around addition (WAA)</li> </ul>   | The private sector buys or leases an existing asset from the government, renovates, modernizes, and/or expands it, and then operates the assets. Where the asset is bought by the private party, usually there is no obligation to transfer ownership back to government |
| Build-operate-transfer (BOT) <ul style="list-style-type: none"> <li>• Build-own-operate-transfer (BOOT)</li> <li>• Build-rent-own-transfer (BROT)</li> <li>• Build-lease-operate-transfer (BLOT)</li> <li>• Build-transfer-operate (BTO)</li> </ul> | The private sector designs and builds an asset, operates it, and then transfers it to the government when the operating contract ends, or at some other pre-specified time. The private partner may subsequently rent or lease the asset from the government.            |
| Design-build-finance-operate (DBFO) <ul style="list-style-type: none"> <li>• Build-own-operate (BOO)</li> <li>• Build-develop-operate (BDO)</li> <li>• Design-construct-manage-finance (DCMF)</li> </ul>  | The private company designs, builds, owns, develops, operates and manages an asset with no obligation (in some cases) to transfer ownership to the government.   |

Source: Update from International Monetary Fund (IMF): 2004

Seader (2004:4) notes that the private sector contractor or a consortium of contractors finances a project, accomplishes the construction and operates the new facility for a specified period of time, after which it is expected to transfer ownership to the government - often at no cost. The prospective transfer to the host government takes place at the end of the contract. For example, African countries could use the BOT model to build roads and other infrastructure. The BOT model is suitable because it provides the host country with:

- Capacity to reduce capital costs while still implementing a project at a time when it cannot meet the requisite funds, or could use its funds for other projects and;
- A chance to encourage outside investment and to introduce new or improved technology (Seader, 2004:18).

This article discusses the BOT model as being ideal for PPP implementation by African governments.

### 6. BUILD-OPERATE-TRANSFER

Financing is one of the most significant issues in the build-operate-transfer (BOT) contract delivery system (Chang & Chen, 2001:214). Only with sufficient capital can a BOT project be carried out successfully (Tiong 1995: 304-311). The private sector “finances, builds and operates a new infrastructure facility or system according to performance standards set by the government”

(Bennett, Peter & Brad, 1999:2). Shalakany (1996:174) notes that when a host government grants a concession to a private company, the company is referred to as the concessionaire and is responsible for financing, construction, operation and maintenance of the facility over the concession period before transferring the fully operational facility to the government at no cost.

The private company’s control of operations typically spans 10 to 25 years. When the contract expires, the government takes ownership of the infrastructure facilities and regulator of the services (World Bank, 2001). A government often uses BOT for large projects such as new electricity power plants, prison facilities or water purification plants. There are other views coming from Grimsey and Lewis (2004:225) the application of BOT in emerging economy such as African countries provide several advantages. “They are administratively simple and usually do not involve major sectorial restructuring, so that new facilities can be added to the existing infrastructure”. According to the authors, the applicability of BOT in less developed countries with poor regulatory framework can be easily implemented. The main reason could be many BOT schemes act as useful introduction to private sector discipline, bringing substantial efficiencies in construction costs as well as plant and labour management. Table 2 highlights the different agreements in BOT projects for power supply contracts.

**Table 4. Different BOT agreements for power plant projects**

| Number | Parties of agreement          | Agreement description |
|--------|-------------------------------|-----------------------|
| 1      | Host government               | Concession agreement  |
| 2      | Project company               | Investment agreement  |
| 3      | Construction contractors      | Construction contract |
| 4      | Bank and lending institutions | Financing agreement   |
| 5      | Equipment manufacturer        | Supply agreement      |
| 6      | Operator                      | Operating agreement   |
| 7      | Developer                     | Power supply contract |

Source: Askar & Gab-Allah (2002:174)



Experience has revealed that BOT agreements reduce private sector market and credit risk because government is usually the only customer, thus reducing the risk of the inability to pay. Some private sector partners avoid BOT arrangements if a government is unwilling to provide assurances that private sector investment will be paid back (Bennett, Peter & Brad, 1999:3). This model has been used in developing countries in SSA and has revealed great success in Francophone regions.

A number of Asian countries have benefited from infrastructure development through implementation of BOT schemes. An example is Hong Kong where it has been used since the late 1960s. The first was in September 1969 (Mak and Mo, 2005). The Cross Harbour Tunnel (CHT) is a two-lane tunnel in each direction. It took only 36 months to complete and was eleven months ahead of schedule. The CHT was an instant success when it came into operation in August 1972. In a mere three years the tunnel paid back its construction cost and is probably the most successful BOT project undertaken in Hong Kong (Cheung, Chan & Kajewski, 2009: 81-95).

BOT projects in ports, power stations and roads in India, Pakistan, and Sri Lanka, among others, have increasingly attracted the attention of investors (Kumaraswamy & Morris, 2002:97). Comparable studies illustrate that Asian governments have had difficulty in financing infrastructure projects and have encouraged private investment in their countries. In the Asian electricity sector, the typical cost of building a new power plant is approximately \$1 million per megawatt, making it virtually prohibitive to finance a new 1000 MW power station, especially in instances where the public sector is subject to tight credit constraints such as in Vietnam or Pakistan (Robert & Anderson: 2003:226). The same is true of countries such as Thailand, Indonesia and the Philippines. Most PPPs in Asian countries were financed on a build-own-operate; build-own-transfer or an operating concession for a fixed period.

### 6.1. Benefits and Shortcomings of BOT

Like any model, BOT has advantages and disadvantages which vary in scope and magnitude. Advantages of BOT include:

- Technology transfer, training of local personnel and the development of national capital markets;
- The utilization of private financing provides new sources of capital, reduces loans from the World Bank and IMF and improves the host government's credit rating;
- Project risk and the financial burden are transferred to the private sector;
- In contrast to privatization, the government keeps its strategic control over the project (Askar & Gab-Allah, 2002:174);
- Long term income stream for private consortia;
- Project design can be tailored to construction equipment and materials; and
- Tailored maintenance, attention to whole life costs and smoother operations (Cartlidge, 2006:31).

BOT also has a number of disadvantages. Tiong (1996:207) contends that projects face both problems and risk. The following difficulties encountered in BOT projects include:

- lack of consistency and poor governmental management;
- unclear government criteria for project award;
- legal constraints in applying evaluation criteria; and
- problems of contract drafting.

Most of these disadvantages occur when a government does not have experience in managing a BOT project. In developing countries, especially in SSA, governments do not have strong managerial experience and these call for the need to hire consulting experts when implementing projects.

### 6.2. The Role of Government in Build Operate and Transfer

The lack of government funds to finance new projects and the rehabilitation of existing facilities, coupled with the increased demand for capital from traditional alternative sources (World Bank, IMF, Club de Paris, etc.) prompted the need for alternative forms of financing and many governments now resort to private finance (Zayed & Chang, 2002:7). The role of government in private financing of public projects under the BOT arrangement has become that of a "facilitator for the private sector-led economic development and growth" (Ngowi, 2006:3, 4). Under PPPs, resources, skills benefits and risks are shared between both the public and private partners. The aim is "improved delivery of publicly funded goods and services" (Dutz & Harris, 2006:1).

### 6.3. Legal and Regulatory Framework

It is critical for the success of any PPP project that a government has adequate legal and regulatory frameworks. The existence of a legal, financial and regulatory framework provides an environment that is conducive for private companies to participate in PPPs (Zhang & Kumaraswamy (2001:356). A strong legislative framework provides a sound foundation upon which developers can structure a contractual vehicle compatible with the country's laws. Many countries now have PPP legislation, or at least an official guideline. For example, the South African government has a set of guidelines on PPPs such as the National Treasury PPP Practice Note Number 02 of 2004 and the Public Private Partnerships Manual which are implemented by the National Treasury (Republic of South Africa, 2014) while Botswana has the Public Private Partnerships Policy and Implementation Framework introduced in 2009 (Republic of Botswana, 2009).

### 6.4. Political Stability

Political stability is a key element that attracts private investors and in SSA political instability is often a deterrent. Stability gives the host government an opportunity to develop a sound platform for investment across its different sectors. It is also crucial that governments implement a policy acceptable to both parties involved. A comprehensive policy coupled with strong

institutional capacity should bring positive results. As the World Bank (1997:19) puts it, "where policy and programs are implemented more efficiently, citizens and investors have greater certainty about government's future actions. Thus, good policies such as those pursued more recently by many countries in Latin America and Africa increase growth in income per capita by around 4% a year". It is, therefore, a prerogative of governments in SSA to maintain disciplined policies geared at attaining political and economic stability, as this will attract investors. Some Southern Africa Development Community (SADC) nations have already proved this to be true (World Bank, 1997:19).

## 6.5. Risks of BOT

PFI and PPPs are predicated on the principle that significant risk should be transferred from the public sector to the private sector. Indeed this transfer of risk is one of the key PFI criteria. Appropriate allocation of risk between the parties in accordance with ability to manage them, and thereby minimise cost, is one of the primary approaches to achieve value for money (Arrowsmith, 2000: 7). Zayed & Chang (2002:8) argue that the classification of possible sources of risk is an essential area in the risk management process because it allows project parties to identify the risk factor in the project and analyse its potential impact. They can then also consider an appropriate strategy to alleviate its effect.

When governments undertake BOT projects, they do so to transfer the risk to the private partner, but occasionally governments and the private sector share the risk. A variety of risks may be associated with the implementation of BOT but this study will only discuss a few of these and focuses on the SSA sub-region. The following risks will be discussed:

- political risk; and
- regulatory risk.

### 6.5.1. Political Risk

Farlam (2005:41) views political risk as "unforeseeable conduct by a government institution that materially and adversely affects the expected return on equity, debt service or costs of the project". This includes expropriation and nationalization. Politically speaking, most governments should avoid placing any project at risk. However, according to Askar & Gab-Allah (2002:176) the average relative weight of BOT political risk factors are:

- Termination of concession by government:

In this situation there is no positive collaboration with the host government. There is a possibility that a government can end a project or take over from the investors. Political change in the country can also impact negatively, perhaps resulting in a new government to terminate a contract. This situation can arise when there is evidence of corruption, particularly at the tendering stage of the project.

- Increase in taxation

According to Shen, Lee & Zhang (1996:320), the Chinese government enforced comprehensive taxation reform in 1996. New taxes were introduced, including value added tax, business tax, enterprise

income tax, individual income tax and land value-added tax. These various taxes bring investment into the country. However, this could result in an investor to withdraw from the project during its negotiation. If the government does not specify the increase in taxes during project negotiations, other parties might not accept the changes.

- Changes in the law

If there is a change in government, the new dispensation may bring a change or amendment to the law. This is important because the host government should ensure that a private partner is protected. In the case of Brazil, according to Grilo, Hardcastle, Akintoye, Silva, Meldho & Edwards (2005:9) there is need for a legal framework to provide judicial security for investors.

### 6.5.2. Regulatory Risk

Regulatory risk refers to consents required from government authorities or an independent regulatory agency. According to Zhang and Kumaraswamy (2001:356), government should establish a regulatory board to protect private investors. The absence of strong regulations often leads to high risk for investors. Regulation frameworks should offer protection for long-term investors and local consumers.

## 7. LESSONS LEARNT

A full understanding of the implications of PPP projects in SSA is essential, particularly for senior officials in government who are charged with designing and negotiating PPP projects. PPPs should be implemented in sectors where there is demand and VFM can be demonstrated. It is crucial for every government to have legislation and a regulatory framework on PPPs. These will encourage and facilitate local and foreign investors to enter into PPP agreements with relative ease. Government officials must also understand the need for close collaboration between the public and private sector. When government does have the finance and expertise to provide new infrastructure, then there no real need for the implementation of PPPs.

One of the key elements that need to be understood by government officials is that PPPs cannot be implemented in the same manner for every project. For example, a set of key deliverables leading to the success of a PPP project in South Africa may not necessarily be the same for a project in the Democratic Republic of Congo. The political, socio-economic and institutional context must be taken into consideration when analysing and implementing PPPs in SSA.

The BOT model comes forth as a viable means through which governments can provide infrastructure without necessarily funding projects. This will place great relief on SSA governments as private parties will in most instances finance the project and carry the larger part of the risk.

## CONCLUSION

The implementation of PPPs on service delivery and infrastructure projects in SSA remains essential. It is even more crucial for Government officials in charge of implementing projects to realise the significance

of PPPs. Risk allocation should be in the most suitable way to both the public and private partner. It is also important to ascertain that a particular project has VFM.

Government officials should realise that the choice of a PPP model will rely solely on its (government) ability to make a determination on the most suitable model. A particular PPP model should not be prescriptive based on its success elsewhere.

As illustrated in this study, there are currently many PPP projects in SSA. This is due to growing demand for improved infrastructure in the sub-region and to address inadequate service delivery. The increase of infrastructure in any country contributes significantly to economic growth and sustainable development. It is without surprise that governments are now seeking alternative solutions to infrastructure provision, especially by way of involving the private sector. As a result they are resorting to PPPs.

The findings of this study indicate that the implementation of projects through PPPs has been critical for the DRC, Zimbabwe and South African governments. Interviewed public officials from these countries hold that PPPs need to focus on a specific project where the state sees a need for a private company to participate. The study also revealed that the application of BOT is a suitable model for many African countries. By facilitating infrastructure development when there is lack of funding to implement the projects, the BOT model relieves pressure from the governments' development budgets. In most cases, the private party finances the project and carry the larger part of the risk.

The subject of PPPs remains critical particularly for top government officials. Governments should therefore, ensure that there is comprehensive legislation as well as institutional and regulatory framework to facilitate the participation of local and foreign investors in PPP projects.

## REFERENCES:

- Amonya, F. 2015. Public Private Partnerships on Moulding States: The Non-Ergodic Africa. Infrastructure Policy, and Policy Science Research, University of London, (Forthcoming paper).
- Arrowsmith, S., (ed.) 2000. Public Private Partnerships and PFI. London, Sweet & Maxwell, p. 7.
- Askar, M.M. & Gab-Allah, A.A. 2002. "Problems Facing Parties Involved in Build-operate, and Transfer Projects in Egypt", *Journal of Management in Engineering*, 18(4) October, pp. 174,176.
- Bennett, E., Peter, G. & Brad. G. 1999. Public-Private Cooperation in the Delivery of Urban Infrastructure Services: Options and Issues. New York, UNDP, pp. 2,3.
- Claire, C, Higson-Smith, C & Kagee A. 2006. Fundamentals of social research methods: An African perspective. Juta and Company Ltd.
- Cossons, A. 1934. The Turnpike Road of Nottinghamshire, Historical Association Leaflet, No.97, London: G. Bell and Son Ltd.
- Brocke, G.J. 2008. Prospects for PPP in Infrastructure (Road Subsector), Ministry of Transportation. Ghana PPP Workshop, Accra, p. 4.
- Budina, N., Brixi, H.P. & Irwin, T. 2007. Public-Private Partnerships in the New EU Member States: Managing Fiscal Risks. World Bank Working Paper No. 114. Washington, DC, p. 10.
- Cartlidge, D.2006. Public Private Partnerships in Construction, London and New York, Taylor & Francis, p. 31.
- Chang, L.M. & Chen., P. 2001. "BOT Financial Model: Taiwan High Speed Rail Case", *Journal of Construction Engineering and Management*, American Society of Civil Engineers, Vol. 127 (3), May/June, pp. 214.
- Cheung, E., Chan, A.P. & Kajewski, S. L. 2009. "Reasons for Implementing Public Private Partnership Projects: Perspectives from Hong Kong", *Journal of Property Investment and Finance*, 27(1), pp. 81-95.
- Clark, G. & Root. A. 1999. "Infrastructure Shortfall in the United Kingdom: The Private Finance Initiative and Government Policy", *Political Geography*, 18(3), pp. 341-365.
- Duffield, C.F. 2004. Public Private Partnerships in Australia. Centre for Public Infrastructure, University of Melbourne, and p. 1.
- Dutz, M. & Harris. C. 2006. Public Private Partnerships Units: Public Policy for the Private Sector, World Bank Group, September, p. 1.
- Emirullah, C. & Azam, M. 2014. Examining Public Private Partnerships in ASEAN countries: The Role of Investment Climate, *Theoretical and Applied Economics*, Vol. XXI (2), p. 69.
- Fuest, V. & Haffner, S. 2007. "PPP-Policies, Practices and Problems in Ghana's Urban Water Supply", *Water Policy*, 9: pp. 183.
- Farlam, P. (2005). Assessing Public Private Partnerships in Africa. *Nepad Policy Focus Series*, South African Institute of International Affairs, Pretoria, pp. ii,2,3,25,28,41.
- Grimsey, D. and Lewis, M.K.2004. Public Private Partnerships. The worldwide revolution in infrastructure provision and project finance. Published by Edward Elgar Publishing Limited. Glensanda House. Montpellier Parade. Cheltenham. United Kingdom, pp. 4,47, 85, 225.
- Grilo, L., Hardcastle, C., Akintoye, A., Silva, S., Meldho, S. & Edwards, P. 2005. Challenges and Opportunities for the Brazilian Public Private Partnerships Program. University of Sao Paulo, Brazil, p. 9.
- Her Majesty's Treasury. 1993. Private Finance Initiative: Breaking New Ground. London, HM Stationery Office.
- Hughes, O. 1998. Public Management and Administration, New York: Palgrave, p. 16.
- Izaguire, A.K. 2000. A Review of Projects with Private Participation, 1990-2000. Public Policy for the Private Sector, No. 215. World Bank Group, Washington, DC, p. 2.
- Izaguire, A.K. 2002. A Review of Projects with Private Participation, 1990-2000. Public Policy for the Private Sector, No. 246. World Bank Group, Washington, DC, p. 3.
- Kumaraswamy, M.M. & Morris, D.A. 2002. "Build-Operate-Transfer-Type Procurement in Asian Megaprojects", *Journal of Construction Engineering and Management*, March/April, pp. 94-101.
- Li, B. & Akintoye, A. 2003. An Overview of Public Private Partnership. *Public Private Partnership: Managing Risks and Opportunities*. London, Blackwell.
- Mak, C.K. & Mo, S. 2005. "Some Aspects of the PPP Approach to Transport Infrastructure Development in Hong Kong", *Proceedings of the Conference on Public Private Partnerships:*

- Opportunities and Challenges, Hong Kong, 22 February, 2005.
27. Muhammad, I. & Low, N. 2006. Sydney Tunnel Background Report, Mega Projects in Transport and Development: Background in Australian Case Studies, GAMUT, Australasian Centre for the Governance and Management of Urban Transport, The University of Melbourne, p. 10.
28. Niekerk, S., Ruiter, G., Mcwabeni, L., Kruger, V. & Grinker, R. 1999. Public Private Partnerships: Lesson and Case Studies from the Eastern Cape. South African Institute of International Affairs, Pretoria, p. 55.
29. Ngowi, H.P. 2006. Public Private Partnership in Service Delivery: Application, Reasons, Procedures, Results and Challenges in Tanzanian Local Government Authorities (LGAS), African Association for Public Administration and Management, 28th AAPAM Annual Roundtable Conference, Arusha, Tanzania, pp. 3,4.
30. Partnerships Kosovo. 2009. Public Private Partnerships, Ministry of Economy and Finance, Kosovo, pp. 3,4.
31. Pantaleo, D., Rwelamila, C.L., Tjiamogale, E. & Manchidi, D. 2003. Public Private Partnership in South Africa: Local Authorities, Risk and Opportunities. London, Blackwell Sciences, p. 313.
32. Prasad N. 2006. Current issues in Private Sector Participation in water Services, Development Policy Review, Vol 24, United Nations Research Institute for Social Development, (6), p.23.
33. Republic of Botswana. 2009. Public Private Partnerships Policy and Implementation Framework, Gaborone, Government, Printer.
34. Republic of South Africa. 2014. Public Private Partnerships Manual. Available at: <http://www.ppp.gov.za/>. Access date: 2/06/2014.
35. Seader, D.L. 2004. The United States Experience with Outsourcing Privatization and Public-Private Partnerships. National Council for Public Private Partnerships, Washington, pp.4, 10-15, 18.
36. SEFI. 2001. New PPP in Infrastructure and Public Facilities. Paris. Association of French International Contractors, p.4.
37. Shalakany, A. 1996. "The Legal Framework of BOT. Project under Egyptian Law", Conference on International Contracts of BOT and their Amicable Solutions. Cairo, p.174.
38. Rao, N.T. & Voldolkova, V. 2006. Public Private Partnerships in Road Partnership in Botswana, pp. 2, 3.
39. Shirley, M. M. 1992. The What, Why, and How of Privatization: A World Bank Perspective, 60 Fordham L. Rev. S23, pp. 59-60. Available at: <http://ir.lawnet.fordham.edu/>
40. Taseska, A. 2008. Overview of Public Private Partnerships in Australia: Financing, Regulation, Auditing and Proposed Improvements, The Journal of Contemporary Issues in Business and Government, Volume 14, Number 2, p. 80.
41. Tiong, R.L.K. 1996. CSFs in Competitive Tendering and Negotiation Model for BOT Projects, Journal of Construction Engineering and Management, 122 (3), October, pp. 205-211.
42. Tiong, R.L.K. 1995. "Impact of Financial Package versus Technical Solution in a BOT tender", Journal of Construction Engineering and Management, 121(3), pp. 304-311.
43. Turner, M & Hulme, D. 1997. Governance, Administration and Development: Making the State Work, New York, Palgrave, 190-191.
44. United Nations. 2011. A Guide Book on Public-Private Partnership in Infrastructure. Economic and Social Commission for Asia and the Pacific. Bangkok, p.8.
45. Vicker, J. 2004. Public Private Partnerships. UK Experiences and Implementation in Brazil. Sao Paulo.
46. Xie, Q. & Stough, R. 2002. Public-Private Partnerships in Urban Economic Development and Prospects of their Application in China. International Conference on Transitions in Public Administration and Governance. Beijing, 15-19 June, p.16.
47. Yates, J. & Sashegyi, B. 2001. Effective Risk Allocation in Major Projects: Rhetoric or Reality? Perth, Institute of Engineering Australia and Chamber of Commerce & Industry of Western Australia, p.10.
48. World Bank. 2016. Public Private Partnerships. World Bank Development Report, World Bank Group, A TO Z, Washington, DC, pp.139, 188, 189.
49. World Bank. 2010. Moving Forward with Public-Private Partnerships in Francophone Africa. Washington, DC.
50. World Bank. 2009a. Public Private Partnerships to Reform Urban Water Utilities in Western and Central Africa, Water P-Notes, Issue 38, May 2009, pp. 3,4.
51. World Bank. 2009b. Attracting Investors to African Public Private Partnerships: A Project Preparation Guide. The Infrastructure Consortium for Africa. World Bank Group, Washington, DC.
52. World Bank. 2009c. Overview of PPP Experience, Toolkit for Public Private Partnerships in Roads & Highways, Performance-Based Contracting for Preservation and Improvement of Road Assets, PPIAF, p.34. Available from, [www.worldbank.org/transport/roads/resource-guide/](http://www.worldbank.org/transport/roads/resource-guide/)
53. World Bank. 2001. Private Participation in Infrastructure: Trends in Developing Countries in 1990-2001. World Bank Group, Washington, DC.
54. Yin, R.K. Case study research: design and research. London. Sage Publication.
55. Yin, R.K. 2003. Case study research: design and research. Third edition. London. Sage Publication.
56. Zayed, T.M. & Chang, L.M. 2002. "Prototype Model for Build-Operate-Transfer Risk Assessment", Journal of Management in Engineering, 18(1) January, pp. 7-8.
57. Zhang, X.Q. & Kumaraswamy, M.M. 2001a. "Procurement Protocol for Public-Private Partnered Project", Journal of Construction Engineering and Management, September/ October, pp. 351-358.
58. Zhang, X.Q. & Kumaraswamy, M.M. 2001b. "Hong Kong Experience in Managing BOT Projects", Journal of Construction Engineering and Management, 172(2), March/April, pp.154-162.

# AN EMPIRICAL STUDY ON THE INFLUENCE OF IFRS AND REGULATIONS ON THE QUALITY OF FINANCIAL REPORTING OF LISTED COMPANIES IN A DEVELOPING COUNTRY

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## Abstract

This research sought to establish if International Accounting Standards (IAS), International Financial Reporting Standards (IFRS) and regulations in Zimbabwe have been associated with increased financial reporting quality for listed companies. The study adopted mixed research approach. Questionnaires and unstructured interviews were used as research instruments to collect primary data. Content analysis was also adopted to triangulate the results. Target population was the listed companies in Zimbabwe. The study found a significant negative relationship between voluntary adoption of IFRS and earnings management of listed companies in Zimbabwe. The negative relationship may indicate that IFRS does not promote earnings management for voluntary adopters, thereby implying an increased financial reporting quality. It is recommended that top management, external auditors and regulators being the key players in standards, should work together and tighten compliance so that impact of IFRS could be felt more.

**Keywords:** Compliance, IAS, IFRS, IASB, Reporting

## 1. INTRODUCTION

The International Accounting Standards (IAS)/IFRS and regulations have been a subject of great interest to policy makers and researchers because of their importance to quality financial reporting. Following the mandatory adoption of IFRS in many regions of the world, much attention is being given to the association between accounting standards and accounting quality (Daske et al, 2009; Bath et al, 2008; Li, 2010). Jeanjean and Stolowy (2008) found that the pervasiveness of earnings management did not decline after the introduction of International Financial Reporting Standards (IFRS) in the UK and Australia and in fact increased in France suggesting that the adoption of IFRSs does not lead to improved information quality. Soderstrom & Sun (2007) concur with Jeanjean arguing that a single set of standards may not be suitable for all settings and thus may not uniformly improve the quality of financial reporting due to differences among countries. While most literature has focused on the impact of the adoption of IFRS, few researchers have examined other factors that relate to the nature of financial regulation processes that also directly and indirectly impact quality of financial reporting. Horton, Sarafeim & Sarafeim (2012) assert that financial regulations improve quality of financial reporting and will continue in the key capital markets. Sun et al (2011) also assert that enforcement of accounting regulations is expected to be associated with the quality of financial reporting because strong

regulations reduce instances of financial reporting and related fraud which in turn increase the reliability of financial reports (Ball, 2001).

Unlike previous studies, this study sought to tie up the two independent variables (accounting standards and regulations) on quality of financial reporting of listed companies specifically in Zimbabwe as Chinamo, chief executive officer of SECZ has expressed a concern that financial statements of listed companies do not do any good because they don't contain sufficient information investors need to know (Financial gazette 29/08/13).

While the number of public companies announcing financial restatements from 2010 through September 2014 rose from 3.7 percent to 6.8 percent, restatement announcements identified grew about 67 percent over this period (financial gazette 2014 29/10/). Industry observers noted that increased restatements were an expected byproduct of the greater focus on the quality of financial reporting by company management, audit committees, external auditors, and regulators. SECZ (2013) also highlighted that poor financial reporting quality is deterring both foreign and local investments. In its 2013 June report to investors, SECZ reported a decrease in investment from 47% in December 2012 to about 40% in March 2013 due to poor financial reporting which fail to restore investors' confidence. The ZSE has also engaged a panel of experts, chaired by Simon Hammond, who is also the managing director of Old Mutual Shared Services, to review the level of disclosure by listed

companies. Hammond told The Financial Gazette (2013) that listed companies would be required to submit their results to the review committee, which would go through the financial reports before they are made available to the public. In 2011, SECZ has also engaged South African and other local experts to look into the status of the half year and full year financial results.

The theme of this research was to identify whether there was less earnings management, as a result of the adoption of International Accounting Standards and perceived compliance to regulatory framework by listed companies in Zimbabwe.

## 2. STATEMENT OF THE PROBLEM

International Accounting Standards were meant to improve the quality of financial reporting. However, despite the uptake of the accounting standards and perceived compliance to regulations by the listed companies on the Zimbabwe stock exchange, over 10 companies have been delisted from the ZSE in the past five years due to failure to make appropriate disclosure in terms of financial reporting. Chinamo, chief executive officer of SECZ has expressed a concern that financial statements of listed companies do not do any good because they don't contain sufficient information investors need to know (Financial gazette 29 August 2013). Therefore, it is a concern that little has been done to understand the causes of persistent poor reporting quality by listed companies.

## 3. OBJECTIVES

- To analyze the relationship between accounting standards and financial reporting quality
- To examine the relationship between regulations and financial reporting quality
- To analyze the relationship between accounting standards, regulations and financial reporting quality

## 4. RESEARCH METHODOLOGY

### 4.1. Research Design

Research designs are systematic plans and procedures for research that span the decisions from broad assumptions to detailed methods of data collections and analysis. In this study correlational case study was adopted.

### *Research Approach*

Mixed approach was adopted and found ideal for this study since it filters out external factors such as incentives that may trigger the relationship between IAS/IFRS and financial reporting. More importantly the use of standard measures like earnings management ensures reliability and validity. Harri (2011) asserts that mixed approach research ensures greater objectivity, accuracy and eliminates bias and the weakness of each is worked out by the other.

### *Study Population and Sampling*

The Zimbabwe Stock Exchange (ZSE)'s 60 companies constitute the universe of the study. In this context,

population refers to Zimbabwe listed firms with annual financial and stock information available on Zimbabwe Stock Exchange (ZSE) for 2012-2014 periods. More importantly the study shall concentrate on only Zimbabwe Stock Exchange excluding other stock exchange where the companies are listed.

### *Sample Size*

The study shall focus on a single country Zimbabwe and this allows the researchers to control institutional, socio-economic and political factors that may affect the firm's financial reporting and capital market participants' investigating behavior and that are thorny to control for international comparative study. A convenient sample of 10 companies constituted the study out of a total population of 60 companies. The companies that constituted the sample were chosen because of their proximity since the study had to be completed within a specified period of time. The companies varied in size; therefore, small companies received 1 questionnaire whilst big companies received 4 questionnaires. There was no formula used to determine the number of questionnaires to be distributed per each company. Initially each company was supposed to receive one questionnaire but however the researchers found that some of the companies were very big hence decided to increase to four the number of questionnaires to be distributed to such big companies.

## 5. SOURCES OF DATA

### *Primary data*

In this research the primary data was gathered through questionnaires and personal interviews. This study utilised primary data collection sources as these sources provide information reliable to the study and the information that met the needs and objectives of the researchers.

### *Secondary data*

Secondary data used comprised of membership documents and reports, budgets, chambers of commerce reports and journals and other documents which were published on capital market. Secondary data was used as it avoids confrontational bias encountered in interviews. It is also cost saving, less time consuming and it is convenient.

## 6. PRESENTATION OF RESULTS

This section of the study set out to deal with data presentation, analysis, interpretation and discussion of the findings collected from the field in an attempt to determine how IAS/IFRS and regulations impact the financial reporting quality of listed companies in Zimbabwe. Data presentation shall be in the form of charts, tables and percentages. STATA 12 was used to compute the coefficient of variation between variables.

### *Response rate*

In a narrower context response rate is defined as the percentage rate of the number of participants who managed to complete research instruments as compared to the number of participants who were

asked (Armstrong et al, 2011). According to (Atwood et al, 2011), response rate is rated as follows: 50% rated adequate, 60% good, 70% very good and 80% and above being excellent. Questionnaires and unstructured interviews were employed in the data

gathering of primary data for this study. The questionnaires were administered to Accounting department personnel and internal audit departments.

**Table 1.** Questionnaire Response Rate

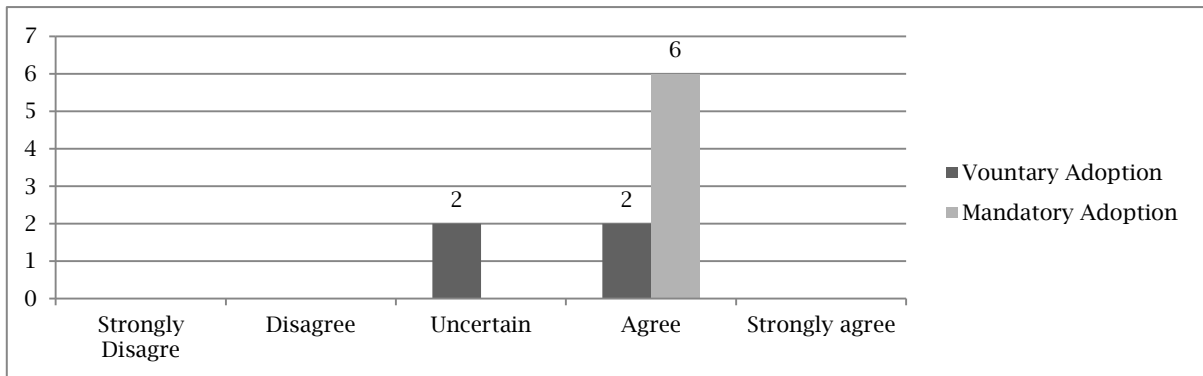
| Category of participants | Questionnaire distributed | Completed & Returned | Response Rate |
|--------------------------|---------------------------|----------------------|---------------|
| Agriculture              | 2                         | 2                    | 100%          |
| Industrial Technology    | 1                         | 1                    | 100%          |
| Conglomerates            | 1                         | 0                    | 0%            |
| Insurance                | 2                         | 2                    | 100%          |
| Retail                   | 4                         | 3                    | 75%           |
| Finance                  | 4                         | 3                    | 75%           |
| Hotel & Leisure          | 1                         | 1                    | 100%          |
| Total                    | 15                        | 12                   | 80%           |

Table 1 above shows that out of 15 questionnaires distributed, 12 were completed and returned and 3 were not completed, representing 80% response rate which is well above 67% recommended by Byard et al (2011). To concur with the above (Chen et al, 2010) also suggest that 75% or more response rate is suitable and can provide validity and reliability to the instruments used.

*Respondents' views on the adoption criteria used by the listed companies*

The respondents were asked to indicate which adoption criterion was used by their companies between voluntary and mandatory adoption. The respondents' answers are expressed in the following graph:

**Figure 1.** Respondents' view on IFRS adoption criteria used by companies



Company A agreed that mandatory adoption of IFRS was used by the company. Company B was not certain on which adoption criterion was used by the company to adopt IFRS. Company C agreed that mandatory adoption was used by his company. Company D agreed that the company used voluntary adoption of IFRS. In summary 60% agreed that mandatory adoption was used, 20% agreed that voluntary adoption was used and 20% were uncertain. The responses above point out different adoption criteria within the selected listed companies. The first explanation for these different results could be lack of effective communication on IFRS implementation within the sector. The second explanation could be lack of knowledge on IFRS among the companies. To concur with the above IFRS (2012) states that IFRS were mandatorily adopted in 1993 and legally put in place in 1996 with the publication of the statutory instrument. In the same line of thought Chamisa (2000) postulates that mandatory adoption criteria were used by Listed Companies in Zimbabwe.

*Accounting Standards and Financial reporting quality*

The following two hypotheses are going to be first tested using both quantitative secondary and primary data obtained from the field.

**H1:** Accounting standards have significant positive relationship with earnings management

**H2:** Accounting standards have significant negative relationship with earnings management

Quality financial reporting is measured by earnings management which is then measured using the ability of firms to meet investors' earnings expectations. Regression model that is used in this study is as follows:

$$Em = a + a(Ma) + b(VO) + c(C)$$

Where Em refers to earnings management, Ma refers to mandatory adoption, VO refers to voluntary adoption and C refers to convergence of IFRS

*Respondents' views on how mandatory adoption of IFRS impact Financial Reporting Quality*

**Table 2.** Regression results for mandatory adoption

| <i>Meet earnings expectations</i> | <i>Coef.</i> | <i>Std. Err.</i> | <i>T</i>             | <i>P&gt;t</i> | <i>[95% Conf.</i> | <i>Interval]</i> |
|-----------------------------------|--------------|------------------|----------------------|---------------|-------------------|------------------|
| Mandatory adoption                | 0.25         | 0.497389         | 2,3                  | 0.629         | -0.89698          | 1.396981         |
| _cons                             | 2.75         | 2.300928         | 1.2                  | 0.266         | -2.55595          | 8.05595          |
|                                   |              |                  | R <sup>2</sup> =0.73 |               |                   |                  |

Source: Stata 12

The above table shows the statistics results computed by STATA 12. The prime motive is to test the hypothesis that there is significant relationship between IFRS /IAS and earnings management. For the above calculation, earnings management is treated as dependent variable and voluntary adoption of IFRS is treated as independent variable. The results show that there is a significant positive relationship between mandatory adoption of IFRS and earnings management. This is indicated by a positive coefficient of variation of 0.25 which is 25% (0.25\*100) and 2,3 T value in accordance to T2 rule of thumb there is significant relationship if the t value is greater than( +-2). To concur with the above results, JeanJean and Stolowy (2008) postulate that

preciseness of earnings management did not decline as a result of mandatory introduction of IFRS. In the same context, Zeghal (2011) examined the impact of mandatory adoption of IAS/IFRS on financial reporting quality in France and found that mandatory adoption of IFRS was linked with increased earnings management and therefore decreased quality of financial reporting. The R2 value is 0.73 which suggest that about 73% of the variation in earnings management is explained by the variable employed in the model which is a good fit.

*Respondents' views on how voluntary adoption of IFRS impact quality of Financial Reporting*

**Table 3.** Regression results for voluntary adoption

| <i>Meet earnings expectations</i> | <i>Coef.</i> | <i>Std. Err.</i> | <i>T</i>         | <i>P&gt;t</i> | <i>[95% Conf.</i> | <i>Interval]</i> |
|-----------------------------------|--------------|------------------|------------------|---------------|-------------------|------------------|
| Voluntary adoption                | -0.666667    | 0.430332         | -2.55            | 0.219         | -2.03617          | 0.70284          |
| _cons                             | 4.333333     | 1.905159         | 2.27             | 0.107         | -1.72973          | 10.3964          |
|                                   |              |                  | R <sup>2</sup> = | 0.75          |                   |                  |

Source: Stata 12

The above results show significant negative relationship between voluntary adoption and earnings management. Earnings management is treated as dependent variable and voluntary adoption is regarded as independent variable. To concur with above results, Christensen (2008) and Gjerde (2008) also found a decrease in earnings management for the firms that voluntarily adopted

IFRS but increase in earnings management for those firms that mandatorily adopted IFRS in Germany. In terms of the adequacy of the model, the results show that about 75% of the variation in earnings management is explained by voluntary adoption.

*Respondents' views on how convergence of IFRS impact quality of Financial Reporting*

**Table 4.** Regression results for convergence of IFRS

| <i>Meet earnings expectations</i> | <i>Coef.</i> | <i>Std. Err.</i> | <i>T</i>                  | <i>P&gt;t</i> | <i>[95% Conf.</i> | <i>Interval]</i> |
|-----------------------------------|--------------|------------------|---------------------------|---------------|-------------------|------------------|
| Convergence of IFRS               | 0.333333     | 0.860663         | 0.39                      | 0.724         | -2.40568          | 3.072347         |
| cons                              | 2.333333     | 3.810317         | 0.61                      | 0.584         | -9.7928           | 14.45946         |
|                                   |              |                  | Adjusted R <sup>2</sup> = | 0.72          |                   |                  |

According to the above results there is a positive relationship as indicated by positive coefficient of variation of 0.33. But the relationship is not significant as indicated by 0.39 t value which is well below the threshold of the t value rule of thumb of 2. This implies that IFRS convergence cannot significantly trigger a change in earnings management. This was also indicated by Goodwin et al (2008) and Hail et al (2010) who found similarities in earnings management before and after IFRS convergence in Germany. The results also show that the model is good given that about 72% of the variation in the dependent variable is explained by the independent variable.

*Relationship between regulatory framework and quality of financial reporting*

The following hypotheses are to be tested to determine the direction and nature of the relationship between regulations that govern listed companies in Zimbabwe and financial reporting quality:

**H3:** *There is significant positive relationship between regulatory framework and financial reporting quality*

**H4:** *There is significant negative relationship between regulatory framework and financial reporting quality.*

The following proxies are used to measure financial reporting quality:

Panel A-relevance, Panel B-reliability, Panel C-comparability and Panel D-understandability



**Table 5. Regression results**

|   | Quality of financial reporting | Significant level |
|---|--------------------------------|-------------------|
| <b>Panel A</b>  |                                |                   |
| Relevance as a measure FRQ Regulatory framework         | 0.69                           | 0.12              |
| Company Act   | 0.543                          | 0.01              |
| Security Act  | 0.321                          | 0.03              |
| PAAB  | 0.623                          | 0                 |
| Audit Office  | 0.024                          | 0.04              |
| <b>Panel B</b>  |                                |                   |
| Reliability as a measure FRQ Regulatory framework       | 0.31                           | 0.01              |
| Company Act   | -0.342                         | -0.88             |
| Security Act  | 0.235                          | -0.38             |
| PAAB  | 0.225                          | -0.05             |
| Audit Office  | 0.421                          | 0.03              |
| <b>Panel C</b>  |                                |                   |
| Comparability as a measure of FRQ Regulatory framework  | 0.56                           | 0.14              |
| Company Act   | 0.447                          | 1.23              |
| Security Act  | 0.555                          | 0.77              |
| PAAB  | 0.547                          | 1.23              |
| Audit Office  | 0.394                          | 0.07              |
| <b>Panel D</b>  |                                |                   |
| Understandability as a measure FRQ Regulatory framework | 0.157                          | 0.27              |
| Company Act   | -0.156                         | 0.07              |
| Security Act  | 0.152                          | -0.73             |
| PAAB  | 0.054                          | 1.23              |
| Audit Office  | 0.123                          | -0.88             |

The above regression results shown in table 5 indicate that there is positive relationship between regulations and financial reporting quality of Zimbabwe listed companies. Panel A results show that there is positive coefficient of 0.69 (69%) between perceived compliance with regulations and financial reporting quality. The significant position is determined by 1% level, therefore the 3<sup>rd</sup> hypothesis which states that there is significant positive relationship between regulations and financial reporting quality is supported. The outcomes of panel A also show that all components of regulatory framework are positively related with reliability of financial statements. The results in

panel B also show that all elements of regulations are positively related with financial reporting quality but the relationship is not significant as shown by a lower coefficient of variation of 0.31(31%). Panel C uses comparability as a proxy for financial reporting quality and the results show that there is significant positive association between regulations and financial reporting quality of 0.56 (56%).

**Interview Response Rate**

In this study structural interview were used and the table below shows the interview response rate:

**Table 7. Interview response rate**

| Interviewees                | Interview Scheduled | Interview conducted | Percentage response |
|-----------------------------|---------------------|---------------------|---------------------|
| Accountants and Accountants | 15                  | 12                  | 80%                 |

From the interviews conducted by the researchers, 12 out of 15 (80%) interviews were conducted which is also above recommended (Monkey 75%).

**Question (a)**

What challenges are faced by firms in implementing IFRS in Zimbabwe?

**Amendment to existing laws**

Company A asserted that amendments to existing laws are a major hindrance to the smooth implementation of country wide. This was also supported by the Financial Controller of company B as she mentioned that IFRS does not recognize the existence of the regulatory framework that govern the accounting practices in Zimbabwe, therefore it is cumbersome to fully comply with IFRS without overriding the provisions of such local laws. The same view was also forwarded by the Accountant of company C, as he highlighted that though the existing local regulations that govern financial

reporting of listed companies have the same objective with IFRS, there is need for continuous assessment as the laws are being amended. This is also supported by Hung et al (2007) who found similar challenges in their study.

**Training resources**

One of the companies, company A’s internal auditors postulated that in Zimbabwe, Professional Accountants (PAAB) has the mandate to ensure successful implementation of IFRS. Accordingly accountants, financial analysts, auditors, regulators, accounting lecturers, government officials and more other require training on IFRS since they are all responsible for the successful implementation of IFRS. The challenge is that in Zimbabwe there are not enough training resources. Financial Accountant at company D supported the view as he said full implantation of IFRS requires back up of the financial resources to enable all the stakeholders to be trained on how it works and it is a challenge to

developing countries to raise those training resources. Kang (2013) also found similar challenges for the listed companies in Nigeria.

#### Level of awareness

Company A's accountant asserts that the transition plan to IFRS and its implications for users of financial statements, regulators; preparers of financial statements, shareholders have not been effectively communicated and coordinated. The Audit Department of company E put forward a similar view as they assert that IFRS is a great move towards the improvement of quality of financial reporting, however there is need to effectively communicate to all the stakeholders. The Financial Manager of company B also mentioned the same challenge as he articulated that the level of awareness to IFRS needs to be improved to ensure full adoption.

#### Question (b)

Do you think IAS/IFRS helps in improving the quality of financial reporting?

Company E agreed that IFRS adoption may improve the quality of financial reporting provided it is successfully implemented. The head of finance department of company F supported the same notion as he mentioned that IFRS is a better move to bring financial reporting to a better level as it enhances comparability of financial statements across countries. The accountant of company G argued that mere adoption of IFRS does not necessarily improve financial reporting. He mentioned that it takes courage and commitment to improve financial reporting. The accountant of company H also mentioned the fact that the provision of incentives is a major factor that determines the quality of reporting. The Financial Manager of company I contended that it depends on IFRS's adoption criteria, with voluntary adoption taking a lead towards the increased quality of reporting. The Financial Manager of company J was uncertain on this issue.

#### Question (c)

Does perceived compliance to regulatory framework improve the quality of financial reporting?

Company E's Finance member agreed with the notion that there is positive relationship between perceived compliance with regulatory framework and financial reporting quality as it limits the options available to management. Company A's financial controller mentioned the fact that not all regulations components improve the based financial quality of reporting, compliance to PAAB, Audit Office act may improve the financial reporting. Company D's representative agreed that compliance improves reporting quality. Company H's finance manager argued that compliance to regulations does not improve the financial reporting quality as management should have enough mandate to decide on any accounting discretion.

## 7. MAJOR RESEARCH FINDING

### Accounting Standards and Financial Reporting Quality

1. Mandatory adoption of IFRS and earnings management:

The study found a significant positive relationship between mandatory adoption of IFRS and earnings management. This implies that mandatory adoption enables firms to manage earnings thereby reducing the quality of financial reporting.

2. Voluntary adoption of IFRS and earnings management:

The study found a significant negative relationship between voluntary adoption of IFRS and earnings management of listed companies in Zimbabwe. The negative relationship may mean that IFRS does not promote earnings management for voluntary adopters, thereby implying an increase on the quality of financial reporting.

3. Convergence of IFRS and earnings management

The study found a positive relationship between IFRS convergence and earnings management; however, the relationship is not significant. This implies that IFRS convergence cannot necessarily trigger a change to the quality of financial reporting.

## 8. REGULATIONS AND FINANCIAL REPORTING QUALITY

The study found a positive relationship between all regulatory frameworks' components and the quality of financial reporting. This implies that perceived compliance to regulatory framework is associated with increased quality of financial reporting.

## 9. CHALLENGES FACED BY FIRMS IN IMPLEMENTING IFRS IN ZIMBABWE

Major challenges that are faced by firms to fully implement IFRS are:

- amendment to existing laws,
- inadequacy of training resources,
- the level of awareness and tax reporting.

## CONCLUSION

Conversely to the expectations, the study was unable to find systematic evidence that mere adoption of IFRS results in improved financial reporting quality for mandatory adopters over the period under study (2012-2014). The study found evidence of increased earnings management for firms that mandatorily adopted IFRS and decreased quality of financial reporting for firms that mandatorily adopted IFRS compared to firms that voluntarily adopted IFRS. The study did not find any change in meeting earnings expectations for firms that converge IFRS with local standards. The results consistently indicate decreased quality of financial reporting over time for firms that mandatorily adopted IFRS and consistent less earnings management for firms that voluntarily adopted IFRS. However it is also possible that a strong regulatory framework compensate for

higher quality of financial reporting. The study also acknowledges that IFRS may not be superior to local standards.

## RECOMMENDATIONS

It is recommended that:

- Top managers, external auditors and regulators being the key players in standards, need to work together and tighten compliance so that impact of IFRS could be felt more
- Regulators and policy makers should consider revising the local regulations that govern financial reporting of listed companies in Zimbabwe in order to be in line with the IFRS.
- Policy makers should also consider communicating the objectives of IFRS to all stakeholders.
- They should also carry out the awareness campaign to ensure that the corporate world fully implement IFRS.
- Raise awareness of professionals, regulators and preparers to improve the knowledge gap.

## REFERENCES:

1. Armstrong, C.S., Barth, M.E., Jagolinzer, A.D. & Riedl, E.J. (2010), "Market Reaction to the Adoption of IFRS in Europe", *The Accounting Review*, 45:34-39
2. Atwood, T.J., Drake, M. S. Myers, J. N. & Myers, L. A. (2011), "Do Earnings Reported Under IFRS Tell Us More About Future Earnings and Cash Flows?", *Journal of Accounting Public Policy*, 30 (4) 2011
3. Ball, R. (2006), "International Financial Reporting Standards (IFRS): Pros and Cons for Investors", *Accounting and Business Research* 36 (sup1):56-65
4. Barth, M.E., Landsman, W.R. & Lang, M.H. (2008), "International Accounting Standards and Accounting Quality", *Journal of Accounting Research*, 46: 467-498
5. Byard, D., Ying, L. & Yu, Y. (2011), "The Effect of Mandatory IFRS Adoption on Financial Analysts' Information Environment", Paper presented at the University of Hong Kong in China
6. Chen, H., Tang, Q., Jiang Y. & Lin, Z. (2010), "The Role of International Financial Reporting Standards in Accounting Quality: Evidence from the European Union", *Journal of International Financial Management and Accounting* 21 (3):56-61
7. Christensen, H.B., Lee, E. & Walker, M. (2013), "Do IFRS Reconciliations Convey Information? The Effect of Debt Contracting", Forth coming *Journal of Accounting Research*
8. Dimitropoulos, E.P, Asteriou, D., Kousenidis, D & Leventis, S. (2013), "The Impact of IFRS on Accounting Quality: Evidence from Greece", *Advances in Accounting*, 29 (1): 108-123
9. Daske, H., Hail, L., Leuz, C. & Verdi, R. (2009), "Mandatory IFRS Reporting Around the World: Early Evidence on the Economic Consequences", *Journal of Accounting Research*, 34:23-30
10. Hung, M. & Subramanyam, K.R. (2007), "Financial Statement Effects of Adopting International Accounting Standards: The Case of Germany", *Review of Accounting Studies*: 12: 623-657
11. Goodwin, J., Cooper, B.J. & Johl, S. (2008), "How Prepared was Australia for International Financial Reporting Standards? The Case of Listed Firms", *Australian Accounting Review*, 18 (1):35-45
12. Hail, L., Leuz, C. & Wysocki, P. (2010), "Global Accounting Convergence and the Potential Adoption of IFRS by the U.S. (Part I): Conceptual Underpinnings and Economic Analysis", *Accounting Horizons*, Paper presented at the University of Miami, School of Business Administration, Feb 2010
13. Hung, M. & Subramanyam, K.R. (2007), "Financial Statement Effects of Adopting International Accounting Standards: The Case of Germany", *Review of Accounting Studies* Forthcoming issue
14. Kang, W. (2013), "The Impact of Mandatory IFRS Adoption on the Earnings-returns Relation", *Applied Financial Economics*
15. Li, S. (2010), "Does Mandatory Adoption of International Financial Reporting Standards in the European Union Reduce the Cost of Equity Capital", *Journal of Law and Economics* 51:111-134
16. Sun, J., Cahan, S.F. & Emanuel, D. (2011), "How Would the Mandatory Adoption of IFRS Affect the Earnings' quality of U.S. Firms? Evidence from Cross-Listed Firms in the U.S.", *Accounting Horizons*, 25(4): 837-860
17. Zéghal, D., Chtourou, S. & Sellami, Y.M. (2011), "An Analysis of the Effect of Mandatory Adoption of IAS/IFRS on Earnings Management", *Journal of International Accounting, Auditing and Taxation*, 20 (2):61-72.

# THE EFFECT OF LIFE STAGES ON NEEDS SATISFIED BY CREDIT USED, ACCORDING TO ALDERFER'S EXISTENCE RELATEDNESS GROWTH THEORY

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## Abstract

The increase in household debt in South Africa over the past decade illustrates the importance of analysing credit usage. This study investigated the individual's financial needs satisfied when using credit and the effect of life stage on the needs satisfied. The financial needs satisfied when using credit were analysed according to life stages using Alderfer's existence relatedness growth (ERG) theory as a framework. The results indicated that credit usage is influenced by an individual's life stage. This study found that individuals across all life stages mainly use credit to satisfy their existence needs. Although individuals in their single life stages used less credit products than individuals in their family life stages, it was worrisome to ascertain that mature couples had the highest average credit product usage. The findings suggest that individuals fall into the debt trap in their early life stage, resulting in them being unable to save income in the high-income-producing years in order to be able to dissave after retirement. It is suggested that educational programmes targeting the early life stages should be introduced to prevent individuals from becoming overindebted.

**Keywords:** Alderfer's ERG Theory, Financial Needs Of Individuals, Life Stages Of Individuals, Credit Product Usage

## 1. INTRODUCTION

Over the past decade, financial institutions have developed numerous financial innovations to make credit usage more attractive to individuals. This has led to an increase of 64.9% in household debt over the past eight years to R1 896 billion, causing much concern (South African Reserve Bank, 2016). Traditionally, an increase in household debt is associated with a simultaneous increase in assets owned and income to service this debt. Various studies have found that this has not been the case in the last few years in South Africa, leading to financial stress, overindebtedness and lower or negative saving rates among South African households (South African Reserve Bank, 2013; MBD Credit Solutions and Unisa Bureau of Market Research, 2013; Momentum and Unisa Bureau of Market Research, 2012).

Although there is evidence of growth in household debt, there is a paucity of research focused on understanding how credit is used by individuals in the household and the factors that influence this. Previous studies indicate that factors such as age, access to credit, life stages, income, employment, material and social needs influence the credit usage of individuals (Botha, 2015; Finscope, 2010; Tippett, 2010; Dickerson, 2008; Lee, Lown & Sharpe, 2007; Prinsloo, 2002). This study makes a new contribution by analysing which individual needs are satisfied when using specific credit

products, and evaluates the impact of life stage on an individual's borrowing behaviour. A better understanding of credit usage throughout different life stages of individuals could help to set policies and provide a framework for education relating to financial matters to enable individuals to make better and more informed choices when managing their financial resources.

In order to achieve the aim of the study, the following research question was formulated:

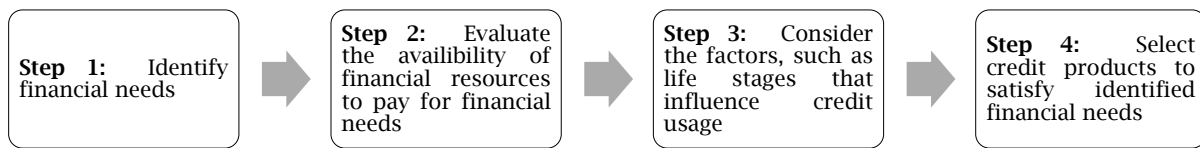
Does the life stage of an individual influence the financial needs satisfied when using credit?

The study was performed in two phases: Firstly, in the literature review, the financial needs of individuals were identified and the different life stages that individuals find themselves in were described. Secondly, empirical data was analysed to determine whether life stages have an effect on credit usage.

## 2. FINANCIAL NEEDS OF INDIVIDUALS

The reasons for credit usage are grounded on the financial needs of individuals (Goodall, Rossini, Botha & Geach, 2014; Maslow, 1943). Credit is often used if an individual does not have the necessary financial resources to satisfy his or her human needs. The decision to use credit to satisfy financial needs can be described as a process comprising four steps (see figure 1).

**Figure 1.** The process of satisfying financial needs



Source: Adapted from Venter & Botha, 2014

The first step in the process of satisfying financial needs is driven by the development of a human need (Maslow, 1943) such as food or housing. Human needs develop into financial needs. For example, the human need for shelter becomes a financial need when an individual needs money to buy a house (Goodall et al., 2014; Maslow, 1943). Once a financial need has been identified, the next step is for the individual to evaluate his or her financial position to decide how financial resources will be obtained to satisfy the financial need (Swart, 2012; Barba & Pivetti, 2009). If the individual has enough assets (cash or savings), these can be used to satisfy financial needs. However, if the individual does not have enough assets, he or she should decide whether or not to incur liabilities to satisfy his or her need, otherwise the need remains unsatisfied (Mashigo, 2006; Botha, Du Preez, Geach, Goodall & Rossini, 2009). This study evaluated the type of needs satisfied by using credit products.

The next step in the process entails determining whether or not an individual has access to credit products and the factors that influence credit usage. Numerous studies have identified the fact that physical and regulatory factors including income, race, gender, life stages and employment status influence access to credit (Botha, 2015; Finscope, 2010; Tippett, 2010; Schooley & Worden, 2010; Brown, Garino & Taylor, 2008; Thums, Newman & Xiao, 2008; Lee et al., 2007; Venter & Stedall, 2010; Yilmazer & DeVaney, 2005). This study focused on individuals who qualify to use and decide to use credit to satisfy their financial needs, and the effect of life stages on the type of need that is satisfied was investigated.

The final step is for the individual to decide which credit product is appropriate to use when satisfying a specific financial need - for example, a property mortgage loan should be used when purchasing a house.

In order to gain a better understanding of the financial needs of individuals, the study of human needs provided a useful theoretical framework. All individuals are unique and therefore have different needs and wants. Some needs are necessary for survival, for example, water, food, shelter and clothing (Garman & Forgue, 1988), while others make individuals more comfortable and satisfied, depending on their interests, tastes, lifestyle and financial resources. Some needs are satisfied through consumption and others through physical, cultural and social interactions with other individuals (Seeley, 1992).

Maslow (1943) developed the ground-breaking theory of human motivation, which focuses on human needs. Over the decades, several authors have investigated and confirmed or expanded Maslow's theory (Venter & Botha, 2012; Oleson, 2004; Seeley, 1992). Even though Maslow's theory had a major impact, some practical application problems led Alderfer (1969) to propose some modifications to Maslow's theory in his ERG theory.

Alderfer (1969) used the five levels of Maslow's theory of human motivation to develop his three categories, namely existence, relatedness and growth. The three levels of needs can be summarised as follows:

- Existence needs consist of material and physiological needs. Examples of existence needs include water, food, clothing, shelter, safety, physical love and affection needs (Ball, 2012; Venter & Botha, 2014).
- Relatedness needs consist of needs pertaining to the desire to be recognised, a feeling of security and being part of relationships with others (Alderfer, 1969; Venter & Botha, 2014).
- Growth needs consist of needs to develop oneself to become more creative or productive (Alderfer, 1969; Venter & Botha, 2014).

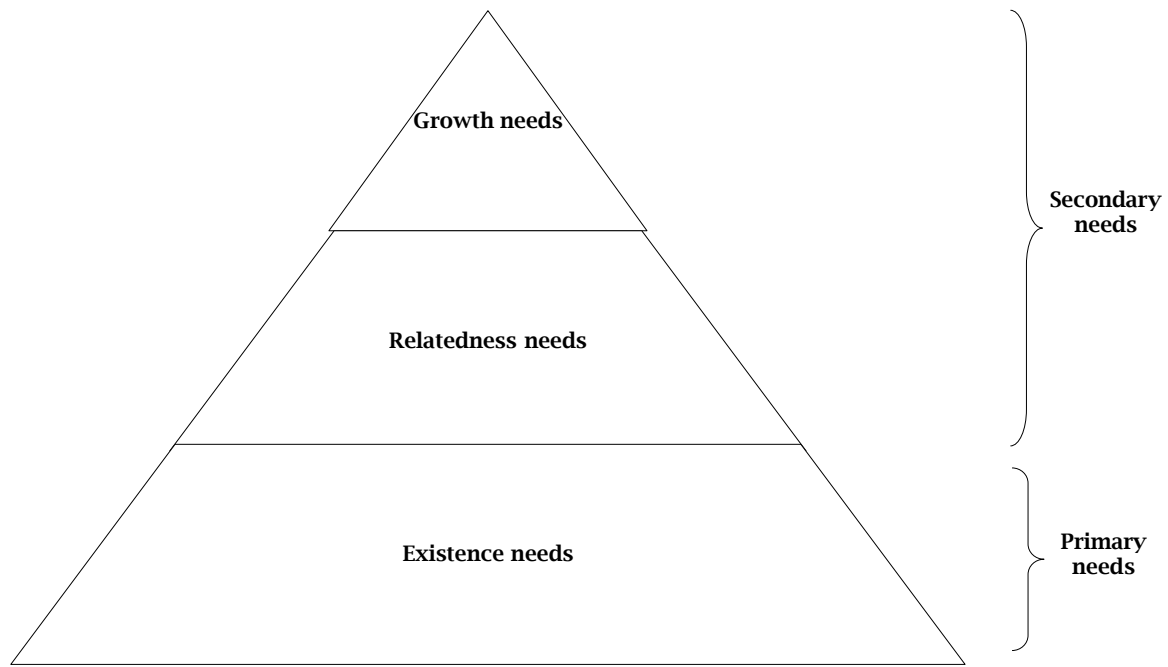
Alderfer's levels of needs, like Maslow's (1943) theory of human motivation, can be arranged in a hierarchical order (figure 2). However, unlike Maslow's theory, fulfilment of these needs does not follow a strict hierarchical order - hence the fact that an upper level need can be satisfied without all the lower levels of needs first being fulfilled.

Some authors refer to existence needs, which comprise basic human needs, as primary needs. The other two levels, namely relatedness and growth needs, are also known as secondary needs.

Alderfer's ERG theory can provide insight into the credit usage patterns of individuals (Venter & Botha, 2014). For example, when an individual intends satisfying his or her primary needs (existence needs), he or she uses money to buy food, clothing or shelter. Secondary needs such as relatedness needs can be satisfied by forming part of social memberships and paying, say, a monthly church contribution. Lastly, for self-development, growth needs can be satisfied by paying for education.

Using a household expenditure list, the financial needs of individuals can be classified according to Alderfer's three levels of needs (see table 1).

**Figure 2.** Alderfer’s ERG theory as a hierarchy



Source: Adapted from Alderfer, 1969.

This classification framework was used to classify the needs satisfied by respondents who used credit products.

**Table 1.** A framework of financial needs

| Alderfer’s ERG theory | Different needs for each category of Alderfer’s ERG theory  |
|-----------------------|---|
| Existence needs       | Food<br>Utilities (water)<br>Clothes<br>Shelter (house)<br>Transportation (including buying a motor vehicle)<br>Utilities (electricity)<br>Medical insurance<br>Life insurance<br>Disability insurance<br>Funeral expenses<br>Emergencies<br>Personal care (beauty or barbershop, cosmetics)<br>Household furnishings |
| Relatedness needs     | Utilities (telephone, television, internet)<br>Entertainment (movies, hobbies, sports club)<br>Family and friends<br>Contributions (gifts, school, church)<br>Accessories (designer jewellery, shoes, handbags)   |
| Growth needs          | Education<br>Going on vacations   |

Source: Venter & Botha, 2014.

**3. LIFE STAGES OF INDIVIDUALS**

The life-cycle hypothesis developed by Ando and Modigliani (1963) provides insight into the saving and consumption behaviour of individuals over their lifetime. The life-cycle hypothesis assumes that individuals consume a constant percentage of their income over their lifetime and suggests that younger individuals save during their working careers to be able to support consumption later in their retirement years. The results of a number of

international studies investigating credit usage across the different life stages of individuals have confirmed that the likelihood of holding credit with the amount decreasing as individuals move towards their retirement years (Yilmazer & DeVaney, 2005; Tippett, 2010; Gourinchas & Parker, 2002; Schooley & Worden, 2010; Thums et al., 2008; Kempson & Collard, 2004; Weinberg, 2006; Girouard, Kennedy & André, 2007; Brown et al., 2008). However, some studies have contradicted these results and reported that credit usage among older individuals, especially those earning a lower income, is in fact on the rise (Lee et al., 2007; Employee Benefit Research Institute, 2009).

Various authors define life stages differently by using the individual’s personal circumstances, such as age and family status (Botha et al., 2009; South African Advertising Research Foundation, 2011; Finscope, 2010; Venter & Stedall, 2010). In South Africa, many studies tend to use the life stage definition of the South African Advertising Research Foundation’s All Media and Products Survey (2011) which consists of eight different life stages (see table 2). This classification was also used in this study.

Life stages start from the at-home single years and culminate in the mature years of individuals. Most studies investigating human needs agree that human and the corresponding financial needs differ between the different life stages (Tippett, 2010; Schooley & Worden, 2010; Weinberg, 2006; Van der Walt & Prinsloo, 1993). For example, single-parent or younger families might have the financial need to pay for their children’s education whereas individuals in other life stages might focus on purchasing furniture for their homes for the first time. Other needs, such as the need to pay for food, water, clothing and shelter, however, remain constant during an individual’s life stages. Using the life stages identified in table 2, credit usage was analysed to determine whether life stages do influence the needs satisfied by credit usage.

**Table 2.** Life stages of individuals

| Life stage                      | Characteristics  |
|---------------------------------|--|
| At-home singles (AHS)           | <ul style="list-style-type: none"> <li>Up to 34 years old</li> <li>Living with parents</li> <li>Not married/not living together</li> <li>Do not have any dependent children in the household (own or other children [up to the age of 21]) that the respondent is responsible for</li> </ul> |
| Young independent singles (YIS) | <ul style="list-style-type: none"> <li>Up to 34 years old</li> <li>Not living with parents</li> <li>Not married/not living together</li> <li>Do not have any dependent children in the household that the respondent is responsible for</li> </ul>   |
| Mature singles (MS)             | <ul style="list-style-type: none"> <li>35+ years old</li> <li>Not married/not living together</li> <li>Do not have any dependent children in the household that the respondent is responsible for</li> </ul>   |
| Young couples (YC)              | <ul style="list-style-type: none"> <li>Up to 49 years old</li> <li>Married/living together</li> <li>No dependent children in the household that they are responsible for</li> </ul>  |
| Young families (YF)             | <ul style="list-style-type: none"> <li>Married/living together</li> <li>With at least one dependent child under 13 years in the household that they are responsible for</li> </ul>   |
| Single-parent families (SPF)    | <ul style="list-style-type: none"> <li>Not married/not living together</li> <li>With dependent children in the household that they are responsible for</li> </ul>  |
| Mature families (MF)            | <ul style="list-style-type: none"> <li>Married/living together</li> <li>With no dependent children under 13 years in the household that they are responsible for, but with dependent children over the age of 13 years in the household</li> </ul>   |
| Mature couples (MC)             | <ul style="list-style-type: none"> <li>50+ years old</li> <li>Married/living together</li> <li>No dependent children in the household that they are responsible for</li> </ul>   |

Source: South African Advertising Research Foundation, 2011.

**4. METHODOLOGY**

The literature review conducted in the first part of this study provided the theoretical framework for the financial needs and life stages used in this study. The study applied a quantitative research approach to achieve the research objective.

Data obtained during the Finsope 2010 South Africa survey was used in the study, because this dataset contained the most recent data available for academic research at the time of the study. A total of 3 900 randomly selected respondents (16 years and older) were interviewed in the data collection process. The data was collected by 278 trained interviewers performing face-to-face interviews with the assistance of a semi-structured questionnaire.

Regional supervisors verified the responses before a panel of experts captured and coded the data. Permission to use the data was obtained and the relevant ethical codes of conduct were followed during subsequent analysis and interpretation of the data. A total of 1 729 individuals (44.3%) of the realised sample of (3 900) indicated that they currently or had previously made use of credit products. In order to achieve the research objective, this study further focused on the respondents who indicated that they were credit users. The demographic profiles of respondents who indicated that they made use of credit (research sample) are indicated in table 3.

**Table 3.** Demographic profiles of respondents in the sample

| Demographic variable*          | Sample size N | Distribution **(%) |
|--------------------------------|---------------|--------------------|
| <b>Province</b>                |               |                    |
| Eastern Cape                   | 217           | 12.55%             |
| Free State                     | 132           | 7.63%              |
| Gauteng                        | 354           | 20.49%             |
| KwaZulu-Natal                  | 295           | 17.06%             |
| Limpopo                        | 92            | 5.32%              |
| Mpumalanga                     | 95            | 5.49%              |
| Northern Cape                  | 123           | 7.11%              |
| North West                     | 114           | 6.59%              |
| Western Cape                   | 307           | 17.76%             |
| <b>Monthly personal income</b> |               |                    |
| No income                      | 155           | 8.96%              |
| Irregular monthly income       | 148           | 8.56%              |
| R1 - R999                      | 204           | 11.80%             |
| R1 000 - R1 999                | 269           | 15.56%             |
| R2 000 - R3 999                | 161           | 9.31%              |
| R4 000 - R6 999                | 157           | 9.08%              |
| R7 000 - R9 999                | 117           | 6.77%              |
| R10 000 - R14 499              | 88            | 5.09%              |
| R14 500 - R19 499              | 32            | 1.85%              |
| R19 500+                       | 54            | 3.12%              |

Table 3 Continued

| Age ***                       |     |        |
|-------------------------------|-----|--------|
| 16 - 17                       | 20  | 1.16%  |
| 18 - 29                       | 444 | 25.68% |
| 30 - 44                       | 632 | 36.88% |
| 45 - 59                       | 402 | 23.37% |
| 60+                           | 222 | 12.91% |
| Marital status                |     |        |
| Married civil/religious       | 578 | 33.45% |
| Married traditional/customary | 158 | 9.14%  |
| Living together               | 125 | 7.23%  |
| Single/never married          | 614 | 35.54% |
| Widower/widow                 | 158 | 9.14%  |
| Separated                     | 42  | 2.43%  |
| Divorced                      | 53  | 3.07%  |
| Life stage                    |     |        |
| At-home singles               | 18  | 1.04%  |
| Young independent singles     | 134 | 7.75%  |
| Mature singles                | 166 | 9.60%  |
| Young couples                 | 180 | 10.41% |
| Young families                | 440 | 25.45% |
| Single-parent families        | 97  | 5.61%  |
| Mature families               | 464 | 26.84% |
| Mature couples                | 230 | 13.30% |

Note:\* Excluding refusals/uncertainties; \*\* % calculated based on the number of credit users; \*\*\* Continuous variable categorised for reporting purposes.

5. DISCUSSION OF THE RESULTS

During the investigation of credit usage, the respondents were required to indicate the number of credit products they used as well as the financial needs satisfied when using each of the different credit products. The 1 729 respondents used 3 428 different credit products and also identified 3 428 financial needs satisfied by using these credit products. The reason for this high number of financial needs satisfied was that several individuals made use of more than one credit product, with one individual stating that he or she used 10 different credit products (see table 4).

Table 4. Number of credit products used and financial needs satisfied

| Credit products used (N) | Individuals using credit (N) | Total number of financial needs satisfied (N) <sup>1</sup> |
|--------------------------|------------------------------|--|
| 1 (one)                  | 915                          | 915  |
| 2 (two)                  | 386                          | 772  |
| 3 (three)                | 184                          | 552  |
| 4 (four)                 | 114                          | 456  |
| 5 (five)                 | 75                           | 375  |
| 6 (six)                  | 37                           | 222  |
| 7 (seven)                | 11                           | 77   |
| 8 (eight)                | 5                            | 40   |
| 9 (nine)                 | 1                            | 9  |
| 10 (ten)                 | 1                            | 10   |
| <b>Total</b>             | <b>1 729</b>                 | <b>3 428</b>   |

Note:<sup>1</sup>Number of credit products used multiplied by the number of individuals using credit.

To gain a better understanding of the usage of credit across different life stages, the average number of credit products used by respondents in the different life stages groups are indicated in table 5.

The results indicate that the number of individuals in the household had an influence on the average number of credit products used by the

household. A single adult household, on average, used less than two credit products compared to a household with two adults who used more than two credit products.

Table 5. Average number of credit products used per life stage

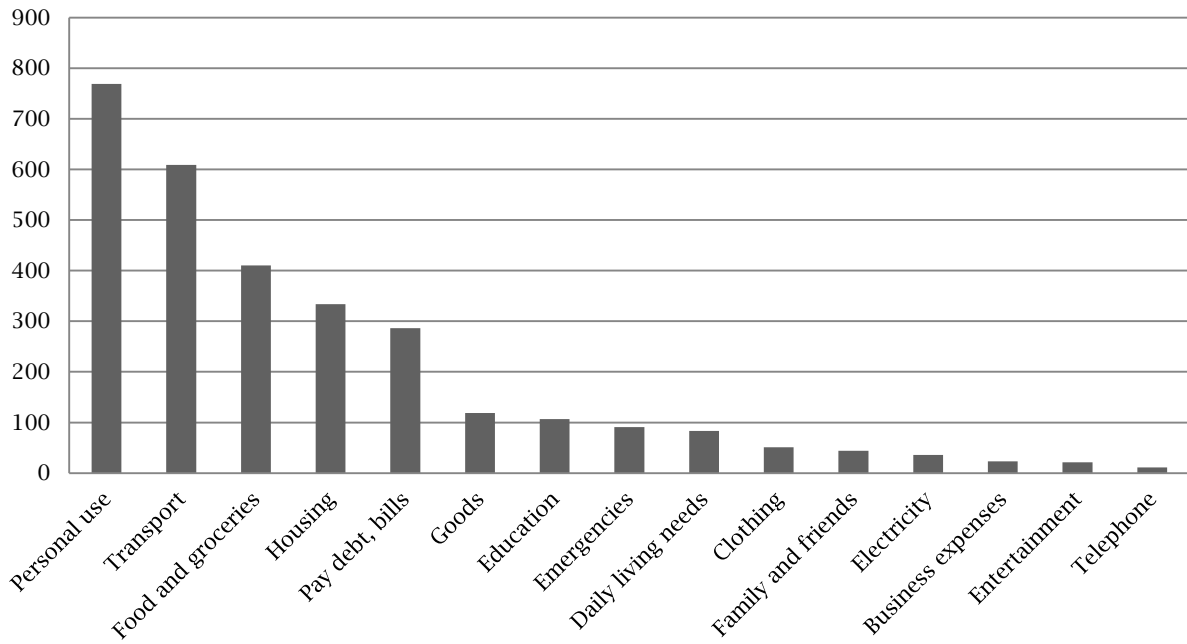
| Life stages               | Number of respondents (N) | Average credit products used (N) |
|---------------------------|---------------------------|----------------------------------|
| At-home singles           | 18                        | 1.72                             |
| Young independent singles | 134                       | 1.66                             |
| Mature singles            | 166                       | 1.98                             |
| Young couples             | 180                       | 2.12                             |
| Young families            | 440                       | 2.19                             |
| Single-parent families    | 97                        | 1.74                             |
| Mature families           | 464                       | 2.24                             |
| Mature couples            | 230                       | 2.25                             |

An analysis of the data indicated that the age of the respondent also had an influence on the average number of products used by households. The average number of products increased as the age of the respondents increased.

Based on the results of previous studies and the advice of the Finscope expert panel, the answers provided by respondents were classified as 41 different financial needs satisfied when using credit products. To facilitate presentation and analysis, similar financial needs were combined. Respondents who indicated miscellaneous financial needs or that they were unsure were excluded from further analysis. After applying these analysis rules, 15 financial need groups consisting of 2 994 individual financial needs identified by respondents remained. These new groups formed the basis for the analysis conducted in this study. Figure 3 provides a summary of the main financial needs satisfied when using credit, as provided by the respondents.



**Figure 3.** Financial needs satisfied when using credit



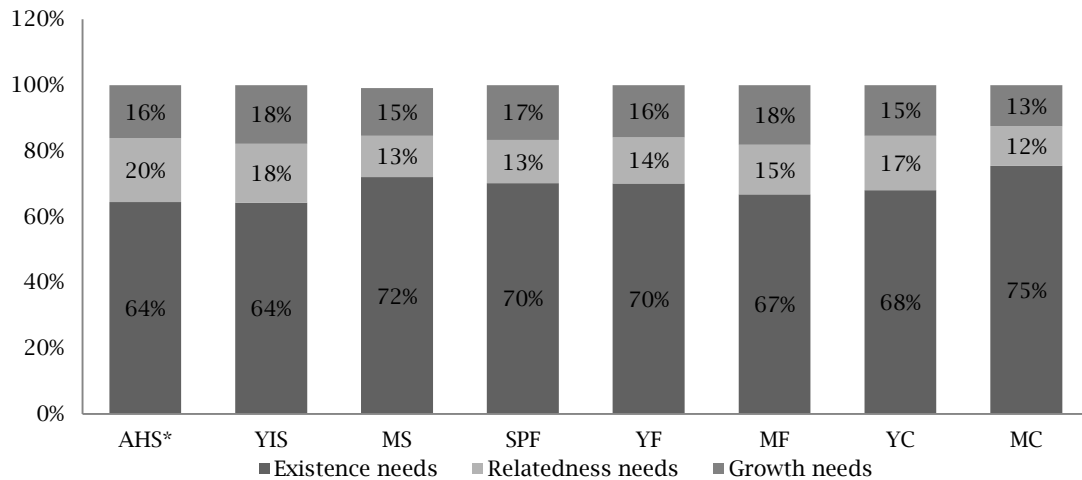
Analysis of the financial needs satisfied by respondents when using credit products revealed that the two main financial needs satisfied were personal use items (comprising basic survival items such as toiletries) and transport. To determine if life stages had an effect on financial needs satisfied when using credit products, Alderfer's ERG theory was used for analysis purposes.

The 15 groups of financial needs identified previously were further categorised into Alderfer's three levels of his ERG theory. Where a specific need could be allocated to more than one need level, the responses were divided equally between the groups. The findings indicated that respondents mainly fulfilled existence needs when using credit (2 084 respondents), followed by growth needs (481

respondents) and relatedness needs (427 respondents), which suggest that individuals do not necessarily satisfy their needs in a hierarchical order.

The objective of this study was to determine whether credit usage is influenced by the life stage that an individual finds himself or herself in. The first step in analysis was therefore to determine how the eight different life stages, namely at-home singles (AHS), young independent singles (YIS), mature singles (MS), young couples (YC), young families (YF), single-parent families (SPF), mature families (MF) and mature couples (MC) (South African Advertising Research Foundation, 2011) used credit to fulfil their needs.

**Figure 4.** Alderfer's levels of needs by life stage



Note: \* The at-home singles group were excluded from further analyses since no meaningful conclusion could be made as a result of the low response rate ( $N < 20$ ).

As expected per Aldefer’s ERG theory, the existence needs had the highest number of responses followed by relatedness needs and growth needs. The results indicated a similar credit usage pattern to satisfy existence, relatedness and growth needs across most life stage groups. Of concern is the fact that mature couples (individuals aged 50 years and older) had the highest credit usage to fulfil their existence needs, which mainly consisted of basic needs and food. This contradicts the life stage theory that individuals save during their younger years in order to provide for retirement, and indicates a lack of financial planning for retirement, which results in older people making use of credit products to fulfil their basic needs (Republic of South Africa, 2012). The levels of poverty in South Africa could contribute to these results. The effect of this is that any savings accumulated during a person’s lifetime intended to benefit his or her children (say, a house), would have to be sold to settle outstanding debt or the debt would be transferred to the children.

For most groups, the second highest needs group satisfied was growth needs, which could be ascribed to educational needs, which form part of this group. The only group that followed a strictly hierarchical order when fulfilling needs was the

young couples group. The characteristics of this group indicated that because individuals in this group do not have dependent children, these dual-income earners possibly do not spend as much credit on educational needs, which forms part of the growth need level.

For a better understanding of how the different life stages spend their credit, each level in Alderfer’s ERG theory was analysed in more detail. Note that the remainder of the analysis did not include the at-home singles group, as the low response rate in this group might have resulted in inaccurate analysis and interpretation.

**5.1. Existence needs: life stage**

As indicated in figure 4, respondents in all life stage groups indicated that they mostly used credit products to fulfil their existence needs. However, analysis of the different needs in this need level might provide a clearer indication whether or not needs gratification differs between the different life stage groups. The subneeds satisfied when using credit in the existence need level are indicated in table 6.

**Table 6.** Credit usage by life stage: existence needs

| Needs fulfilled when using credit | Life stage groups |             |             |             |             |             |             |
|-----------------------------------|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                   | YIS               | MS          | SPF         | YF          | MF          | YC          | MC          |
| Housing                           | 12%               | 18%**       | 8%          | 17%***      | 21%**       | 17%**       | 27%**       |
| Transport                         | 31%*              | 27%*        | 26%**       | 29%*        | 30%*        | 35%*        | 34%*        |
| Daily living/basic needs          | 6%                | 5%          | 4%          | 4%          | 4%          | 3%          | 2%          |
| Emergencies                       | 6%                | 5%          | 4%          | 4%          | 3%          | 2%          | 4%          |
| Food and groceries                | 13%***            | 16%***      | 31%*        | 20%**       | 15%***      | 13%         | 11%***      |
| Goods                             | 6%                | 9%          | 4%          | 6%          | 4%          | 8%          | 5%          |
| Personal use                      | 18%**             | 12%         | 12%***      | 11%         | 13%         | 15%***      | 10%         |
| Clothing                          | 4%                | 3%          | 2%          | 2%          | 3%          | 3%          | 2%          |
| Pay debt, bills                   | 4%                | 3%          | 5%          | 5%          | 6%          | 4%          | 4%          |
| Electricity                       | -                 | 2%          | 4%          | 2%          | 1%          | -           | 1%          |
| <b>Total</b>                      | <b>100%</b>       | <b>100%</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> |

Note: \* - highest credit usage; \*\* - second highest credit usage; \*\*\* - third highest credit usage

Some of the credit usage patterns across the different life stage groups seem to be similar, but there are some clear differences between the groups (table 6). One of the groups that had a notably different credit usage pattern in comparison with the others was the single-parent families group, which indicated that they used most of their credit to fulfil food and grocery needs. The characteristics of this group indicated that this group consisted of a single parent with children in the household, which might indicate that these families would struggle to fulfil their families’ basic needs as they only receive a single income, which apparently was not sufficient to completely fulfil all their needs. Most of the other life stage groups indicated that they had a much lower credit usage to fulfil their food and grocery needs and tended to spend more on transport and housing needs. This is in line with the expectation that credit usage tends to be higher when acquiring assets such as motor vehicles and houses (Swart, 2012). Even if respondents did not necessarily acquire motor vehicles, the high credit usage for transportation can generally also be explained by South Africa’s previous policy of segregated

development, which resulted in individuals living far from their working places and therefore being required to incur a lot more travel expenses to transport them to and from work. Of interest here is the fact that mature couples had such a high credit usage to satisfy their transportation needs. One would expect these individuals to start scaling down on transportation expenses as they move into their retirement years.

With the exception of single-parent families, the second highest existence need fulfilled when using credit was housing. Mature couples had the highest credit usage when fulfilling housing needs. A possible explanation for this might be that individuals in this group did not sufficiently plan financially during their younger working careers and still had outstanding mortgage payments. Another explanation might be that as the mature couples moved towards their retirement years, they decided to downscale to smaller houses in retirement villages, which are expensive because many of these properties require owners to pay a special levy, which includes the cost of medical treatment available on the premises.

Another interesting fact is that respondents in the different life stages indicated that they used credit when paying for some of their emergency needs. Preferably, individuals should have enough savings to provide for their emergency expenses when these arise, especially those in the mature life stages because medical expenses are often associated with older people.

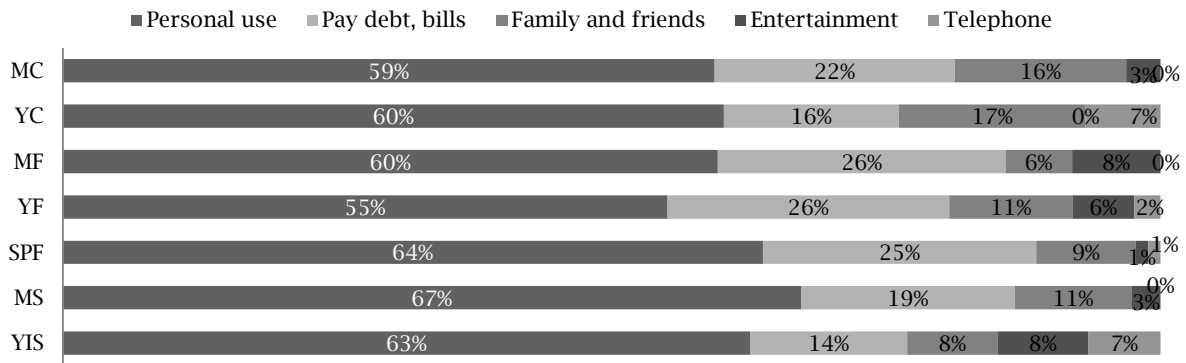
Lastly, single-parent families had the highest credit usage when paying for electricity needs,

possibly because these single-income earners did not have enough cash available and did not make the necessary provision for the tight increases in electricity over the years.

**5.2. Relatedness needs: life stage**

The relatedness needs satisfied by respondents when using credit are indicated in figure 4.

**Figure 4.** Credit usage by life stage for relatedness needs



When satisfying relatedness needs, respondents across all life stage groups indicated that they mostly used credit to satisfy their personal needs, followed by paying for existing debt and bills. Interestingly, the family life stage groups had the highest credit usage when paying for existing debt and bills. These groups had dependent children in the household, and possibly therefore experienced the most financial strain, thus finding it necessary to supplement their income with credit in order to fulfil their needs. This finding is in line with the expectation that individuals have a constant consumption of income over their lifetime (Keynes, 1936) and therefore use liabilities in their earlier years when their income is low and repay loans as soon as their income increases (Modigliani & Brumberg, 1954). However, during the higher income years, individuals should also save to provide for their retirement years. Contradicting this

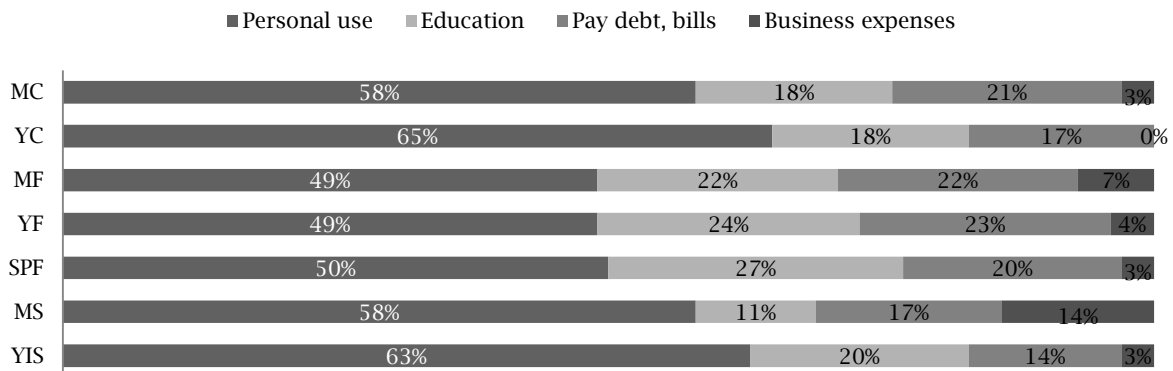
expectation, it would seem that older individuals in the mature-couples group still had a high credit usage to pay for existing debt and bills which indicates that they had not saved enough during their earlier careers.

Another interesting finding was that mature life stages did not make use of any credit to support their telecommunication expenses, possibly attributable to the fact that these individuals were older and had not adjusted to the latest telecommunication technology trends in comparison with younger individuals.

**5.3. Growth needs: life stage**

In Alderfer's last level of needs, namely growth needs, the subneeds satisfied when using credit are indicated in figure 5.

**Figure 5.** Credit usage by life stage for growth needs



With some exceptions, it would seem that the credit usage to satisfy growth needs was markedly

similar across the different life stage groups. Interestingly, the family life stages had the highest

credit usage when satisfying educational needs, possibly because these groups still had dependent children in the household, where this would be expected to be one of these groups' most important needs. Another interesting fact was that the mature single group had the highest credit usage by far when satisfying business expenses. Individuals in this group, are not married and do not have any dependent children and therefore could easily, without any consequences for others, take the chance of becoming self-employed by developing their own businesses.

## 6. CONCLUDING REMARKS

Various studies have confirmed the life stage theory stating that individuals have different needs in each life stage. In his ERG theory, Alderfer identified three different types of needs, namely existence, relatedness and growth needs. Individuals who often do not have sufficient cash or assets, sometimes satisfy their needs through credit usage. This study investigated whether the different life stages of individuals had an influence on their credit usage in order to identify possible educational needs to prevent South Africans entering the so-called "debt trap" and becoming overindebted.

The analysis of data in this study indicated that individuals in their single life stages use less credit products than individuals in the other life stages. This is possibly attributable to the fact that single individuals receive a single income, which might not be sufficient to access additional credit products. Another interesting fact is that individuals in all life stages mainly use credit products to fulfil their primary needs. This might indicate that individuals do not receive sufficient income or do not have enough savings to satisfy these basic needs, which influences the high unemployment and poverty levels in South Africa. This continued use of credit for primary needs explains the increase in overindebtedness, and education should be provided to explain the risks of using debt for instant gratification.

Another worrisome finding is the fact that mature couples in this study (individuals of 50 years and older) had the highest average credit product use of all of the life stage groups. Individuals in this life stage group also indicated that they used most of their credit to satisfy their basic needs and also had an extremely high credit usage to repay existing debt and bills. This is cause for concern and indicates a lack of financial planning for retirement age as these individuals do not seem to have enough cash or savings to withdraw from to satisfy their needs. Systems such as compulsory retirement saving preservation should be implemented as soon as possible by the South African government to encourage younger individuals to save for their old age.

The analysis and findings of this study indicated that the life stage of an individual does have an influence on his or her credit usage. Further research should focus on the effect of other demographic factors on needs satisfied by credit used. The effect of different education programmes on credit usage should be evaluated to ensure that people do not fall into the debt trap during their

early life stages, leaving them dependent on government for the remainder of their lives.

## REFERENCES:

1. Alderfer, C.P. (1969), An empirical test of a new theory of human needs. *Organizational Behavior and Human Performance*, Vol. 4, pp.142-175.
2. Ando, A. & Modigliani, F. (1963), The "life cycle" hypothesis of saving: Aggregate implications and tests. *The American Economic Review*, Vol. 53, No.1, pp. 55-84.
3. Ball, B. (2012), A summary of motivation theories. From <http://www.yourcoach.be/blog/wp-content/uploads/2012/03/A-summary-of-motivation-theories1.pdf>. [Accessed on 16 November 2012].
4. Barba, A. & Pivetti, M. (2009), Rising household debt: Its causes and macroeconomic implications - a long period analysis. *Cambridge Journal of Economics*, Vol. 33, pp. 113-137.
5. Botha, A. (2015), Analysing South African individuals' behaviour regarding liability usages. Unpublished master's dissertation from the College of Accounting Sciences at the University of South Africa.
6. Botha, M., Du Preez, L., Geach, W.D., Goodall, B., Rossini, L. (2009), *Financial Advisors Development Series 2009*. LexisNexis, Durban.
7. Brown, S., Garino, G. & Taylor, K. (2008), Mortgages and financial expectations: A household-level analysis. *Southern Economic Journal*, Vol. 74, No.3, pp. 857-878.
8. Employee Benefit Research Institute. (2009), Debt of the elderly and near-elderly, 1992-2007. *Employee Benefit Research Institute Notes*, Vol. 30, No. 10. Washington DC: Employee Benefit Research Institute.
9. Dickerson, A.M. (2008), Consumer over-indebtedness: A U.S. perspective. *Texas International Law Journal*, Vol. 43, pp. 135-160.
10. Finscope. (2010), From a livelihood approach towards a Finscope Sustainability model. Results of a national survey on demand usage and access to financial services in South Africa. *Finscope South Africa 2010 Report*. Johannesburg.
11. Garman, E.T. & Fogue, R.E. (1988), *Personal finance*. Second edition. Boston: Houghton Mifflin.
12. Girouard, N., Kennedy, M. & André, C. (2007), Has the rise in debt made households more vulnerable? *Housing Finance International*, Vol. 22, No. 1, pp. 21-40.
13. Goodall, B., Rossini, L., Botha, M. & Geach, W. (2014), *The South African Financial Planning Handbook 2014*. Durban: Lexis Nexis.
14. Gourinchas, P. & Parker, J.A. (2002), Consumption over the life cycle. *Econometrica*, Vol. 70, No.1, pp. 47-89.
15. Kempson, E. & Collard, S. (2004), Managing multiple debts: experiences of county court administration orders among debtors, creditors and advisors. *Department for Constitutional Affairs Research series 1/04*. London: Department of Constitutional Affairs.
16. Keynes, J.M. (1936), *The general theory of employment, interest and money*. New York: Harcourt, Brace.
17. Lee, Y.G., Lown, J.M. & Sharpe, D.L. (2007), Predictors of holding consumer and mortgage debt among older Americans. *Journal of Family and Economic Issues*, Vol. 28, pp. 305-320.
18. Mashigo, P. (2006), The debt spiral in the poor households in South Africa. *The International*

- Indigenous Journal of Entrepreneurship, Advancement, Strategy and Education, Vol. 2, No. 1.
19. Maslow, A.H. (1943), Theory of human motivation. *Psychological Review*, Vol. 50, No. 4, pp. 370-396.
  20. MBD Credit Solutions and Unisa Bureau of Market Research. (2013), Consumer Financial Vulnerability Index Quarter 4 2013. From: <http://www.unisa.ac.za/contents/faculties/ems/docs/CFVI%20Q4%202013%20Brochure.pdf> [Accessed on 6 May 2014].
  21. Modigliani, F. & Brumberg, R. (1954), Utility analysis and the consumption function: An interpretation of cross-section data, in *Post Keynesian economics*, edited by K.K. Kurihara. New Brunswick, NJ: Rutgers University Press.
  22. Momentum and Unisa. (2014), South African household wealth index quarter 2 2014. Momentum & Unisa: Pretoria.
  23. Oleson, M. (2004), Exploring the relationship between money attitudes and Maslow's hierarchy of needs. *International Journal of Consumer Studies*, Vol. 28, No. 1, pp. 83-92.
  24. Prinsloo, J. W. (2002), Household debt, wealth and saving. *South African Reserve Bank Quarterly Bulletin*, December. Pretoria: South African Reserve Bank.
  25. Republic of South Africa. National Treasury. (2012), Strengthening retirement savings: An overview of proposals announced in the 2012 budget. Pretoria: National Treasury.
  26. Schooley, D.K. & Worden, D.D. (2010), Fueling the credit crisis: Who uses consumer credit and what drives debt burden? *Business Economics*, Vol. 45, No. 4, pp. 266-276.
  27. Seeley, E. (1992), Human needs and consumer economics: The implications of Maslow's theory of motivation for consumer expenditure patterns. *The Journal of Socio-Economics*, Vol. 21, No. 4, pp. 303-324.
  28. South African Advertising Research Foundation. (2011). Definitions of terms. From: <http://www.saarf.co.za/Definition%20of%20Terms> /AMPS%20Definition%20of%20Terms.pdf [Accessed on 8 September 2011].
  29. South African Reserve Bank. (2014), South African Reserve Bank Quarterly Bulletin December 2014. South African Reserve Bank: Pretoria.
  30. South African Reserve Bank. (2016), South African Reserve Bank Quarterly Bulletin January 2016. South African Reserve Bank: Pretoria.
  31. Swart, N. (2012), *Personal financial management*. Third edition. Cape Town: Juta.
  32. Thums, S.L., Newman, B.M., & Xiao, J.J. (2008), Credit card debt reduction and developmental stages of the lifespan. *Journal of Personal Finance*, Vol. 2008, No. 6, pp. 86-107.
  33. Tippett, R.M. (2010), Household debt across the life course: An analysis of the late Baby Boomers. Unpublished PHD from the Department of Sociology at the Graduate School of Duke University.
  34. Van der Walt, B.E. & Prinsloo, J.W. (1993), Consumer credit in South Africa. *South African Reserve Bank Quarterly Bulletin*, September. Pretoria: South African Reserve Bank.
  35. Venter, J.M.P. & Botha, A. (2012), Effect of life stage on debt usage motives. *Personal Finance and Taxation Conference*, 21 September, Pretoria.
  36. Venter, J.M.P. & Botha, A. (2014), Analysing the financial needs addressed by South African consumers when using credit products. *Risk Governance and Control: Financial Markets and Institutions*, Vol. 4, No 2, pp. 101-109.
  37. Venter, J.M.P. & Stedall, C. (2010), The influence of life stages on the usage of financial products by South African households. *South African Accounting Association 2010 North Gauteng Regional Conference*. Pretoria.
  38. Weinberg, J.A. (2006), Borrowing by U.S. households. *Federal Reserve Bank of Richmond, Economic Quarterly*, Vol. 92, No. 3, pp.177-194.
  39. Yilmazer, T. & DeVaney, S.A. (2005), Household debt over the life cycle. *Financial Services Review*, Vol. 14, No 4, pp. 285-304.

# AUDITOR REPORT AND EARNINGS MANAGEMENT: EVIDENCE FROM FTSE 350 COMPANIES IN THE UK

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## Abstract

This paper examines the relationship between audit report and real-based and accrual-based earnings management based on a UK sample. Prior research has mostly focused on US data and examined the relationship between auditor report (qualified vs. non-qualified) and earnings management (proxied by discretionary accruals), and found evidence that qualified audit report is positively associated with the level of discretionary accruals. Despite the importance of the role of audit firms to constrain the use of earnings management, there is no research to date has examined the relationship between auditor reports and real earnings management activities based on UK sample. This paper therefore fills this gap in the literature by providing the first evidence for UK FTSE 350 companies that auditor report is positively associated with real and accrual earnings management. The paper also provide evidence that firms received qualified audit report share different characteristics as compared to firms received un-qualified audit report.

**Keywords:** Auditor Report, Real Earnings Management, Accrual Earnings Management, UK FTSE 350

## 1. INTRODUCTION

Prior research has shown evidence that the presence of high quality audit firms (Big N audit firms) is associated with a lower level of real and accrual earnings management (e.g., Becker et al., 1998; Balsam et al., 2003), suggesting that high quality audit firms constrain the use of earnings management to protect their reputation and avoid any potential litigation risk (e.g., DeAngelo, 1981; Francis and Krishnan, 1999). Given the importance of audit firms to ensure the integrity of financial reporting quality, prior research has examined several proxy of audit quality such as auditor report and found evidence that the issuance of qualified audit report is positively associated with the level of accrual earnings management (the level of discretionary accruals) e.g., Francis and Krishnan, 1999; Bartov et al., 2000; Bradshaw et al., 2001; Johl et al., 2007. This research has argued that firms with high levels of accrual earnings management and audited by high quality audit firms (Big N audit firms) are likely to receive qualified audit opinion, notably these reputable audit firms are more concerned about their reputation and therefore they lower their threshold to issue a qualified audit report.

However, prior research has mainly focused on examining US data and used discretionary accruals as a proxy of earnings management when the relationship between audit report and earnings management is analyzed. Recent research has presented new evidence that managers use real earnings management activities as well to manipulate reported earnings upwards (Roychowdhury, 2006; Cohen and Zarowin, 2010; Alhadab et al., 2015). For example, managers can manage earnings through the use of sales-based

manipulation (abnormal cash flows from operations) which can be conducted by offering more price discount and/or relaxing the credit terms. While other activities of real earning management can be conducted via production cost manipulation (abnormal production cost) which aims to reduce the cost of goods sold by producing more units (see Roychowdhury, 2006 for more details on this). Further, recent research also has shown that audit quality is associated with the use of real earnings management activities (e.g., Cohen and Zarowin, 2010), suggesting that any future research on audit quality and earnings management should consider real activities in the analysis.

Thus, the current paper aims to explore further the relationship between audit report and the level of earnings manipulation through using real earnings management activities as a proxy of earnings manipulation and examining UK data. Using a non-financial UK sample that consists of FTSE 350 firms (1,865 firm-year observations) over the period 2010-2015, this paper fills an important gap in the literature by providing the following evidence.

First, this paper provides the first evidence based on UK data for the post-credit crisis period that audit report is associated with both accrual and real earnings management activities. Particularly, the results show that receiving qualified audit opinion is positively associated with the levels of discretionary accruals and abnormal cash flows from operations (sales-based manipulation). Second, this paper provides new evidence that UK firms which received qualified audit opinion share different characteristics as compared to UK firms that received un-qualified audit report. Third, this paper provides new evidence to the literature that audit report is associated with real earnings

management activities, not with just accrual earnings management. Prior research just focuses on accrual earnings management. This evidence indeed provides new avenue for future research that real earnings management activities should be taken into account. Finally, this paper has examined the UK FTSE 350 which consists of the largest 350 firms that listed on the London Stock Exchange – one of the most attractive capital markets in the world.

This paper is organized as follows. Section 2 provides literature review and hypothesis development. Section 3 presents research methodology. Section 4 discusses the results. Section 5 provides the conclusions.

## 2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### 2.1. Auditor Report and Earnings Management

The primary objective of this paper is to examine the association between audit report (qualified vs. non-qualified) and the use of accrual and real earnings management. Prior research finds evidence that managers use real and accrual earnings management to manage reported earnings either upwards or downwards to meet different incentives e.g., to meet the targeted performance for executives' compensations (Bergstresser and Philippon, 2006), avoid violating the debt agreement (DeFond and Jambalvo, 1994), around equity offerings to increase the offer proceeds or share prices (Rangan, 1998; Teoh et al., 1998), meeting earnings benchmarks such as prior year earnings or analysts' forecasts (Osma, 2008, Burgstahler and Dichev, 1997; Dechow and Dichev, 2002), etc.

Thus, and given the fact that earnings management practices are widely used by managers to manipulate reporting income, a new strand of research has emerged focusing on factors that help to prevent the use of earnings management such as the role of corporate governance (Klein, 2002), the role of institutional investors (Bushee, 1998), the role of regulators and accounting standards setters (Ewert and Wagenhofer, 2005; Alhadab et al. 2016). Further, one of the most important mitigating roles to constrain the use of accrual and real earnings management is found to be played by high quality audit firms. Thus, prior research has intensively examined the role of audit firms and mainly focused on the use of audit firms' size as a proxy of audit quality (Big 4 audit firms vs. non-Big 4 audit firms) (e.g., Becker et al., 1998; Balsam et al., 2003). Despite the extensive line of research, a very few studies have examined other proxies of audit quality such as audit firm industry specialisation (Krishnan, 2003), the total hours of auditing the client firm (Caramanis and Lennox, 2008), audit report (Francis and Krishnan, 1999), audit and non-audit services fees (Frankel et al., 2002; Alhadab 2015).

This paper therefore attempts to contribute to this strand of research by examining the relationship between audit quality and earnings management, but by using a new proxy of audit quality (audit report) and a new proxy of earnings management (real earnings management activities) that both have received very limited attention in prior literature

Francis and Krishnan (1999) for example have examined the association between auditor report (through the issuance of modified audit report) and the level of accrual earnings management (proxied by the level of discretionary accruals). Their argument was that audit firms in the US will try to avoid the risk exposure by lowering their threshold to issue the modified audit report when their clients exhibit a higher level of accrual earnings management. Francis and Krishnan (1999) have found evidence consistent with their hypothesis that Big N audit firms are likely to issue a modified audit report when their clients engage in a higher level of income-increasing accrual earnings management.

Further, Bartov et al. (2000) has also examined the relationship between issuing modified audit report and the level of discretionary accruals using US data and found similar evidence to Francis and Krishnan (1999). They find US firms with high levels of discretionary accruals are likely to receive modified audit report. Bradshaw et al. (2001) meanwhile has examined US sample and found no evidence that the issuance of modified audit report is associated with the level of discretionary accruals. The findings of Bradshaw et al. (2001) are in contrast with the findings of Francis and Krishnan (1999) and Bartov et al. (2000), indicating that the results of prior research based on US data are mixed.

While prior research has mainly focused on examining US data, Johl et al. (2007) have investigated the relationship between audit report and accrual earnings management using Malaysian data. Johl et al. (2007) have presented evidence that Big 5 audit firms in Malaysia issue more qualified audit opinion when their clients exhibit a higher level of discretionary accruals. However, when they examine this relationship for audit firm industry specialists they find no evidence that audit report is associated with accrual earnings management. They have examined a Malaysian sample consists of 1,512 firm-year observations over the period 1994-1999.

Despite the fact that prior research has mainly focused on US data and a very few studies have examined other context such as the Malaysian context, there is no research to date has explored this relationship based on UK data. Further, whole most of prior research has examined discretionary accrual as a proxy of earnings manipulation, managers may use real earnings management activities to manipulate earnings. Thus, this paper aims to fill this gap in the literature by examining the association between audit report and earnings management practices that take place via the use of both discretionary accruals and real activities, and by using a different context that prior research – UK sample. The main hypothesis of this study therefore is as follows:

**H1:** *Receiving qualified audit report is positively associated with level of accrual and/or real earnings management, ceteris paribus.*

## 3. RESEARCH METHODOLOGY

### 3.1 Sample construction

The sample of this study consists of UK FTSE 350 over the period from 2010 to 2015. All financial and insurance firms have been excluded from the

sample due to the differences in financial reporting process as compared to other regulated firms (e.g., Roychowdhury, 2006; Athanasakou et al., 2009). The sample period covers the post credit crisis period to avoid its effect on the analysis. For this purpose, the credit crisis period is defined as the period from 2007 to 2009 (see e.g., Alhadab and Tahat 2016). All data concerning the financial variables to estimate earnings management and auditors' opinion are collected from DataStream. This process has led to a final sample consists 1,865 firm-year observations over the sample period 2010-2015.

### 3.2. Empirical models

#### 3.2.1. Accrual earnings management

To estimate discretionary accrual I follow Ball and Shivakumar (2008) and use the piecewise linear variant of the Jones (1991) model by running a cross sectional regression for each year and 2-digit SIC industry category, with at least 6 observations (e.g., Athanasakou et al., 2009), and as follows:

$$TA_{it} = \alpha_0 + \beta_1 \Delta SALES_{it} + \beta_2 PPE_{it} + \beta_3 CFO_{it} + \beta_4 DCFO_{it} + \beta_5 CFO_{it} * DCFO_{it} + \varepsilon_{it} \quad (1)$$

Where  $TA_{it}$  represents total accruals defined as earnings before extraordinary items minus cash flows from operations;  $\Delta SALES_{it}$  represents changes in sales during a year;  $PPE_{it}$  represents the gross value of property, plant and equipment;  $CFO_{it}$  represents cash flows from operations;  $DCFO_{it}$  represents a dummy variable that equals 1 if a firm report negative CFO and zero otherwise. To avoid issues related to heteroscedasticity all variable are

scaled by lagged total assets. The residual ( $\varepsilon_{it}$ ) from the above regression is the measure represents discretionary accruals.

For robustness I also use the modified Jones model of Dechow et al. (1995) to estimate discretionary accruals for each industry-year group with at least 6 observations, and as follows:

$$TA_{it} = \alpha_0 + \beta_1 1/ASSETS_{it-1} + \beta_2 \Delta SALES_{it} + \beta_3 PPE_{it} + \varepsilon_{it} \quad (2)$$

Where  $ASSETS_{it-1}$  represents total assets at the end of last year, and all variable are scaled by lagged total assets. As similar to the previous model, the residual ( $\varepsilon_{it}$ ) from the above regression represents discretionary accruals (*DisAcc*).

Due to data limitation, just two of real earnings management activities are examined by this paper, namely sales-based manipulation (proxied by abnormal cash flows from operations) and production cost-based manipulation (proxied by abnormal production cost). To estimate the abnormal level of cash flows from operation I follow Roychowdhury (2006) and run the following cross sectional regression for each industry-year group with at least 6 observations:

#### 3.2.2 Real earnings management

##### 3.2.2.1 Sales-based estimation

$$CFO_{it} = \alpha_0 + \beta_1 1/ASSETS_{it-1} + \beta_2 SALES_{it} + \beta_3 \Delta SALES_{it} + \varepsilon_{it} \quad (3)$$

Where  $SALES_{it}$  represents sales at the end of the year, and all variable are scaled by lagged total assets. The residual ( $\varepsilon_{it}$ ) from the above regression represents abnormal cash flows from operation (*AbnCfo*). Abnormal cash flows from operations (sales-based manipulation) are multiplied by -1, so

the proxy of accrual-based and real activities-based have the same interpretation.

##### 3.2.2.2. Production costs estimation

To estimate the abnormal level of production cost I follow Roychowdhury (2006) and run the following cross sectional regression for each industry-year group with at least 6 observations:

$$PRODCST_{it} = \alpha_0 + \beta_1 1/ASSETS_{it-1} + \beta_2 SALES_{it} + \beta_3 \Delta SALES_{it} + \beta_4 \Delta SALES_{it-1} + \varepsilon_{it} \quad (4)$$

Where  $PRODCST_{it}$  represents the sum of cost of goods sold and change in inventories for firm i at year,  $\Delta SALES_{it-1}$  represents changes in sales during the last year, and all variable are scaled by lagged total assets. The residual ( $\varepsilon_{it}$ ) from the above regression represents abnormal production cost (*AbnProd*).

Another activity of real earnings management can be conducted by cutting Research and Development (R&D) expense and Selling, General and Administrative (SG&A) expense to increase reported earnings. However, data concerning R&D expenses are available just for less %50 of the total sample. Therefore, to avoid any bias on the analysis this study does not examine real activities manipulation that occurs via reducing discretionary expenses.

Following prior research (e.g., Cohen et al., 2008; Zang, 2012) I construct an aggregated measure of real earnings management (*RemTotal*) by combining the abnormal cash flows from operation (*AbnCfo* and *AbnProd*). This is to examine the total effect of real earnings management and its association with auditors' pinion.

#### 3.2.3. Logit regression- auditor report and real and accrual earnings management



To examine whether audit opinion is associated with real and accrual earnings management, the following logit models have been estimated where the dependent variable (*AudOpin*) is a dummy variable that equals 1 if the firms received qualified audit opinion, and zero otherwise, while the main dependent variables of interest are proxies of accrual and real earnings management (*DisAcc*, *AbnCfo*, *AbnProd*, and *RemTotal*). Following prior research (e.g., Francis and Krishnan, 1999; Bartov et al., 2000; Bradshaw et al., 2001) a number of control variables are added into the models. The models control for the size effect by adding natural logarithm of market capitalisation (*LnMK*), while growth opportunities are controlled by adding book to market ratio (*BM*) and profitability is controlled by adding loss dummy (*Loss*) and return on assets (*ROA*). Further, to be consistent with prior research (e.g., Johl et al., 2007) the models control for the firms' risk profile by adding (*Lev*), prior year report (*QualLag*) which is a dummy variable that equals 1 if firms received qualified audit report in the prior year and zero otherwise, natural logarithm of total

assets (*LnAssets*), the level of total inventory to total assets (*InvAssets*), and the level of receivable to totals assets (*ReceiAssets*). Finally, industry (*IND*) and year (*Year*) dummies are added to control for industry and time effects

It worth noting that prior research (e.g., Francis and Krishnan, 1999; Bartov et al., 2000; Bradshaw et al., 2001; Johl et al., 2007) controls for the quality of audit firms (Big N vs. non-Big N). Unfortunately, data concerning the name of audit firms are not available from DataStream. Specifically, DataStream provides the data for this variable (Big N) just for the current year, but not for the prior years. However, as robustness test the analysis is repeated by adding audit fees as control variable into the models and the results are qualitatively similar. Prior research has indicated that audit fees can be used as proxy of audit quality (e.g., Frankel et al., 2002; Antle et al., 2006), notably that Big N audit firms charge their clients higher audit fees as compared to non-Big N audit firms.

The logit models are therefore as follows:

$$\text{AudOpin}_{it} = \alpha_0 + \beta_1 \text{DisAcc}_{it} + \beta_2 \text{LnMK}_{it} + \beta_3 \text{BM}_{it} + \beta_4 \text{Loss}_{it} + \beta_5 \text{ROA}_{it} + \beta_6 \text{Lev}_{it} + \beta_7 \text{QualLag}_{it} + \beta_8 \text{LnAssets}_{it} + \beta_9 \text{InvAssets}_{it} + \beta_{10} \text{ReceiAssets}_{it} + \text{IND}_{it} + \text{Year}_{it} + \varepsilon_{it} \quad (5)$$

$$\text{AudOpin}_{it} = \alpha_0 + \beta_1 \text{AbnCfo}_{it} + \beta_2 \text{LnMK}_{it} + \beta_3 \text{BM}_{it} + \beta_4 \text{Loss}_{it} + \beta_5 \text{ROA}_{it} + \beta_6 \text{Lev}_{it} + \beta_7 \text{QualLag}_{it} + \beta_8 \text{LnAssets}_{it} + \beta_9 \text{InvAssets}_{it} + \beta_{10} \text{ReceiAssets}_{it} + \text{IND}_{it} + \text{Year}_{it} + \varepsilon_{it} \quad (6)$$

$$\text{AudOpin}_{it} = \alpha_0 + \beta_1 \text{AbnProd}_{it} + \beta_2 \text{LnMK}_{it} + \beta_3 \text{BM}_{it} + \beta_4 \text{Loss}_{it} + \beta_5 \text{ROA}_{it} + \beta_6 \text{Lev}_{it} + \beta_7 \text{QualLag}_{it} + \beta_8 \text{LnAssets}_{it} + \beta_9 \text{InvAssets}_{it} + \beta_{10} \text{ReceiAssets}_{it} + \text{IND}_{it} + \text{Year}_{it} + \varepsilon_{it} \quad (7)$$

$$\text{AudOpin}_{it} = \alpha_0 + \beta_1 \text{RemTotal}_{it} + \beta_2 \text{LnMK}_{it} + \beta_3 \text{BM}_{it} + \beta_4 \text{Loss}_{it} + \beta_5 \text{ROA}_{it} + \beta_6 \text{Lev}_{it} + \beta_7 \text{QualLag}_{it} + \beta_8 \text{LnAssets}_{it} + \beta_9 \text{InvAssets}_{it} + \beta_{10} \text{ReceiAssets}_{it} + \text{IND}_{it} + \text{Year}_{it} + \varepsilon_{it} \quad (8)$$

Where

*AudOpin<sub>it</sub>* = is a dummy variable that equals 1 if the firms received qualified audit opinion, and zero otherwise, at the end of year *t* for firm *i*,

*DisAcc<sub>it</sub>* = discretionary accruals at the end of year *t* for firm *i*,

*AbnCfo<sub>it</sub>* = abnormal cash flows from operation at the end of year *t* for firm *i*, multiplies by minuses one,

*AbnProd<sub>it</sub>* = abnormal production cost at the end of year *t* for firm *i*,

*RemTotal<sub>it</sub>* = the aggregate measure of real earnings management (*AbnCfo* + *AbnProd*) at the end of year *t* for firm *i*,

*LnMK<sub>it</sub>* = natural logarithm of market capitalisation at the end of year *t* for firm *i*,

*BM<sub>it</sub>* = book to market ratio that is calculated by dividing book value of equity by market value of equity at the end of year *t* for firm *i*,

*Loss<sub>it</sub>* = a dummy variable that equals 1 if firms reported losses, and zero otherwise, at the end of year *t* for firm *i*,

*ROA<sub>it</sub>* = return on assets at the end of year *t* for firm *i*,

*Lev<sub>it</sub>* = total debt divided by total assets at the end of year *t* for firm *i*,

*QualLag<sub>it</sub>* = is a dummy variable that equals 1 if the firms received qualified audit opinion in the

prior year, and zero otherwise, at the end of year *t* for firm *i*,

*LnAssets<sub>it</sub>* = natural logarithm of total assets at the end of year *t* for firm *i*,

*InvAssets<sub>it</sub>* = total inventories divided by total assets at the end of year *t* for firm *i*,

*ReceiAssets<sub>it</sub>* = net trade receivable divided by total assets at the end of year *t* for firm *i*,

*IND* = industry dummies,

*Year* = time dummies,

*ε<sub>it</sub>* = a random error term.

## 5. THE RESULTS

### 5.1. Descriptive and Correlation Statistics

Table 1 provides descriptive statistics for all variables that are used in the analysis and shows that the mean (median) values of discretionary accruals (*DisAcc*), abnormal cash flows from operations (*AbnCfo*), abnormal production cost (*AbnProd*), and the aggregated measure of real earnings management (*RemTotal*) are 0.000 (0.001), 0.000 (0.005), 0.000 (0.007), and 0.001 (0.013), respectively. This preliminary evidence suggests that the level of accrual and real earnings management that are used by FTSE350 firms to

manipulate earnings are almost zero. In other words, these FTSE firms are effectively monitored and followed by very large sophisticated investors, high quality audit firms, and professional analysts which overall makes manipulating earnings is very hard task to be achieved. Table 1 also shows that the mean of *AudOpin* is approximately %1, suggesting that a very few firms have received

qualified audit opinion over the study period from 2010 to 2015. This evidence confirms the view that FTSE 350 firms provide a very high quality financial reporting to meet the needs of information users, and confirms the previous evidence that these FTSE firms exhibit a very low level of accrual and real earnings management.

**Table 1.** Descriptive statistics for the whole sample over the period 2010-2015

|                    | <i>N</i> | <i>Mean</i> | <i>Median</i> | <i>Std. Dev.</i> | <i>Min</i> | <i>Max</i> |
|--------------------|----------|-------------|---------------|------------------|------------|------------|
| <i>DisAcc</i>      | 1955     | 0.000       | 0.001         | 0.059            | -0.438     | 0.687      |
| <i>AbnCfo</i>      | 1955     | 0.000       | 0.005         | 0.111            | -2.295     | 0.941      |
| <i>AbnProd</i>     | 2100     | 0.000       | 0.007         | 0.257            | -2.651     | 2.154      |
| <i>RemTotal</i>    | 1882     | 0.001       | 0.013         | 0.307            | -3.947     | 2.931      |
| <i>AudOpin</i>     | 2370     | 0.013       | 0.000         | 0.112            | 0.000      | 1.000      |
| <i>LnMK</i>        | 2029     | 13.800      | 13.692        | 1.745            | 8.923      | 19.450     |
| <i>BM</i>          | 2026     | 613.213     | 416.481       | 1189.667         | -9962.500  | 26602.810  |
| <i>Loss</i>        | 2471     | 0.132       | 0.000         | 0.338            | 0.000      | 1.000      |
| <i>ROA</i>         | 2298     | 7.406       | 6.440         | 14.539           | -58.300    | 269.110    |
| <i>Lev</i>         | 2164     | 35.426      | 31.565        | 109.649          | -2780.390  | 2394.020   |
| <i>Quallag</i>     | 2334     | 0.016       | 0.000         | 0.125            | 0.000      | 1.000      |
| <i>LnAssets</i>    | 2166     | 13.849      | 13.684        | 1.714            | 9.172      | 19.485     |
| <i>InvAssets</i>   | 2162     | 0.109       | 0.061         | 0.151            | 0.000      | 0.938      |
| <i>ReceiAssets</i> | 2073     | 0.154       | 0.129         | 0.128            | 0.000      | 1.496      |

Table 1 provides descriptive statistics for the whole sample over the period 2010-2015. All variables are previously defined.

Table 2 provides descriptive statistics for the FTSE 350 sample based on auditor report (qualified vs. non-qualified audit report). Table 2 shows evidence that firms that received qualified audit report exhibit a higher level of abnormal cash flows from operations and aggregated measure of real earning management as compared to firms received un-qualified audit report. Specifically, for firms received qualified audit report the mean values of abnormal cash flows (*AbnCfo*) and aggregated measure of real earnings management (*RemTotal*) are 0.032 and 0.023, respectively. While for firms received un-qualified audit report the mean values of *AbnCfo* and *RemTotal* are -0.001 and 0.000, respectively. Further, Table 2 shows evidence (based

on the mean values) that firms received qualified audit report are smaller in size (*LnMK*), report more losses (*Loss*), have a lower profitability ratio (*ROA*), have a higher debt/assets ratio (*Lev*), received qualified audit report more frequently in prior year (*Quallag*), and have a higher percentages of inventory/assets (*InvAssets*) and receivable/assets (*ReceiAssets*).

Overall, Tables 1 and 2 present evidence that firms received qualified audit report share different characteristics as compared to firms that received un-qualified audit report, especially the level of earnings management. This in turn suggests these characteristics should be taking into accounting in the analysis before any conclusions can be reached

**Table 2.** Descriptive statistics for the whole sample based on audit report over the period 2010-2015

|                    | Firms sample received qualified audit report |             |               | Firms sample received un-qualified audit report |             |               |
|--------------------|--|-------------|---------------|---|-------------|---------------|
|                    | <i>N</i>                                     | <i>Mean</i> | <i>Median</i> | <i>N</i>  | <i>Mean</i> | <i>Median</i> |
| <i>DisAcc</i>      | 30   | -0.008      | 0.000         | 1924  | 0.000       | 0.001         |
| <i>AbnCfo</i>      | 30   | 0.032       | 0.033         | 1924  | -0.001      | 0.005         |
| <i>AbnProd</i>     | 27   | -0.001      | -0.006        | 2070  | 0.000       | 0.007         |
| <i>RemTotal</i>    | 27   | 0.023       | -0.003        | 1854  | 0.000       | 0.012         |
| <i>LnMK</i>        | 29   | 12.230      | 12.276        | 1997  | 13.823      | 13.721        |
| <i>BM</i>          | 29   | 706.847     | 545.209       | 1995  | 612.221     | 415.745       |
| <i>Loss</i>        | 30   | 0.267       | 0.000         | 2340  | 0.135       | 0.000         |
| <i>ROA</i>         | 30   | 3.558       | 4.310         | 2265  | 7.452       | 6.460         |
| <i>Lev</i>         | 30   | 40.171      | 29.425        | 2132  | 35.363      | 31.565        |
| <i>Quallag</i>     | 29   | 0.483       | 0.000         | 2293  | 0.010       | 0.000         |
| <i>LnAssets</i>    | 30   | 12.915      | 12.586        | 2133  | 13.862      | 13.692        |
| <i>InvAssets</i>   | 30   | 0.131       | 0.056         | 2130  | 0.109       | 0.061         |
| <i>ReceiAssets</i> | 29   | 0.174       | 0.121         | 2043  | 0.154       | 0.129         |

Table 2 provides descriptive statistics for the whole sample based on audit opinion (qualified vs. non-qualified). All variables are previously defined.

Table 3 reports Pearson correlation coefficients for all variables and reveals that abnormal cash flows from operations (*AbnCfo*) are positively correlated with abnormal production cost (*AbnProd*). This evidence indicates that FTSE firms uses these two activities of real earnings management simultaneously to manage earnings upwards, and

also this evidence is consistent with prior research (e.g., Zang, 2012; Cohen and Zarwain, 2010) on the complementary use of real earnings management activities. Table 3 also reveals that qualified audit opinion (*AudOpin*) is negatively associated with size (*LnMK*) and positively associated with profitability (*Loss*).

**Table 3.** Correlations matrix for all variables

|                    | <i>DisAcc</i> | <i>AbnCfo</i> | <i>AbnProd</i> | <i>RemTotal</i> | <i>AudOpin</i> | <i>LnMK</i> | <i>BM</i> | <i>Loss</i> | <i>ROA</i> | <i>Lev</i> | <i>QualLag</i> | <i>LnAssets</i> | <i>InvAssets</i> | <i>ReceiAssets</i> |
|--------------------|---------------|---------------|----------------|-----------------|----------------|-------------|-----------|-------------|------------|------------|----------------|-----------------|------------------|--------------------|
| <i>DisAcc</i>      | 1             |               |                |                 |                |             |           |             |            |            |                |                 |                  |                    |
| <i>AbnCfo</i>      | 0.044         | 1             |                |                 |                |             |           |             |            |            |                |                 |                  |                    |
| <i>AbnProd</i>     | -0.027        | 0.432***      | 1              |                 |                |             |           |             |            |            |                |                 |                  |                    |
| <i>RemTotal</i>    | -0.007        | 0.684***      | 0.953***       | 1               |                |             |           |             |            |            |                |                 |                  |                    |
| <i>AudOpin</i>     | -0.020        | 0.028         | -0.001         | 0.008           | 1              |             |           |             |            |            |                |                 |                  |                    |
| <i>LnMK</i>        | 0.115***      | -0.158***     | -0.053*        | -0.096***       | -0.105***      | 1           |           |             |            |            |                |                 |                  |                    |
| <i>BM</i>          | -0.034        | 0.079***      | 0.031          | 0.052*          | 0.021          | 0.082***    | 1         |             |            |            |                |                 |                  |                    |
| <i>Loss</i>        | -0.342***     | 0.090***      | 0.047*         | 0.069**         | 0.064**        | -0.192***   | 0.139***  | 1           |            |            |                |                 |                  |                    |
| <i>ROA</i>         | 0.394***      | -0.549***     | -0.264***      | -0.397***       | -0.039         | 0.159***    | -0.149*** | -0.421***   | 1          |            |                |                 |                  |                    |
| <i>Lev</i>         | -0.032        | -0.042        | 0.041          | 0.019           | -0.007         | -0.000      | -0.084*** | 0.060*      | -0.033     | 1          |                |                 |                  |                    |
| <i>QualLag</i>     | -0.072**      | -0.011        | -0.011         | -0.012          | 0.407***       | -0.105***   | 0.028     | 0.042       | -0.020     | -0.002     | 1              |                 |                  |                    |
| <i>LnAssets</i>    | 0.037         | -0.019        | 0.042          | 0.027           | -0.073**       | 0.881***    | 0.212***  | -0.051*     | -0.071**   | 0.051*     | -0.070**       | 1               |                  |                    |
| <i>InvAssets</i>   | 0.063**       | 0.054*        | 0.022          | 0.036           | 0.002          | -0.092***   | 0.049*    | -0.033      | 0.003      | -0.092***  | -0.006         | 0.079***        | 1                |                    |
| <i>ReceiAssets</i> | 0.008         | 0.065**       | 0.017          | 0.036           | 0.0142         | -0.180***   | -0.122*** | -0.049*     | 0.071**    | -0.001     | -0.006         | 0.230***        | -0.055*          | 1                  |

Table 3 presents Pearson correlation matrix for all the variables. All variables are previously defined.

\*, \*\*, \*\*\* Denote 0.1, 0.05, and 0.01 significance levels, respectively.

**5.2. The Results of Logit Regressions**

Table 4 reports the results of examining the association between audit report and accrual earnings management (*DisAcc*). The results are interpreted based on the output of Model 6 where all the control variables are added into the analysis, while the results of Model 1 to Model 5 are just reported to show the impact of adding more control variables into the analysis. Table 4 (Model 6) shows a positive coefficient on *DisAcc* of 4.386, but is statistically insignificant. Thus, even though the

relationship is statistically insignificant, the positive sign of the coefficient suggests that firms with qualified audit opinion exhibit a higher level of accrual earnings management. In other word, engaging in a higher level of earnings manipulation via the use of discretionary accruals was positively associated with receiving qualified audit report by the auditors. This in part is consistent with the main hypothesis that firms with high level of accrual earnings management are likely to receive qualified audit report.

**Table 4.** The relationship between audit report and accrual earnings management for FTSE350 sample over the period 2010-2015

|                                  | Logit Model 1         | Logit Model 2         | Logit Model 3         | Logit Model 4        | Logit Model 5        | Logit Model 6       |
|----------------------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|---------------------|
|                                  | <i>AudOpin</i> =1     | <i>AudOpin</i> =1     | <i>AudOpin</i> =1     | <i>AudOpin</i> =1    | <i>AudOpin</i> =1    | <i>AudOpin</i> =1   |
| <b>Constant</b>                  | 4.316***<br>(2.587)   | 3.929**<br>(2.198)    | 3.987**<br>(2.211)    | 2.376<br>(1.075)     | 1.967<br>(0.822)     | 1.818<br>(0.626)    |
| <b>DisAcc</b>                    | -0.425<br>(-0.131)    | 0.348<br>(0.101)      | 0.453<br>(0.126)      | 3.533<br>(0.966)     | 3.439<br>(0.946)     | 4.386<br>(1.207)    |
| <b>LnMK</b>                      | -0.653***<br>(-4.845) | -0.628***<br>(-4.458) | -0.629***<br>(-4.390) | -0.541**<br>(-2.095) | -0.534**<br>(-2.016) | -0.636*<br>(-1.706) |
| <b>BM</b>                        |                       | 0.000<br>(0.314)      | 0.000<br>(0.239)      | -0.000<br>(-0.237)   | -0.000<br>(-0.200)   | -0.000<br>(-0.710)  |
| <b>Loss</b>                      |                       | 0.269<br>(0.544)      | 0.220<br>(0.389)      | 0.377<br>(0.583)     | 0.445<br>(0.678)     | 0.371<br>(0.512)    |
| <b>ROA</b>                       |                       |                       | -0.003<br>(-0.130)    | -0.019<br>(-0.739)   | -0.018<br>(-0.705)   | -0.033<br>(-0.918)  |
| <b>Lev</b>                       |                       |                       | -0.000<br>(-0.043)    | -0.000<br>(-0.235)   | -0.000<br>(-0.230)   | -0.001<br>(-0.253)  |
| <b>QuallLag</b>                  |                       |                       |                       | 4.034***<br>(8.875)  | 4.034***<br>(8.813)  | 3.690***<br>(6.649) |
| <b>LnAssets</b>                  |                       |                       |                       | -0.002<br>(-0.007)   | 0.009<br>(0.035)     | 0.178<br>(0.455)    |
| <b>InvAssets</b>                 |                       |                       |                       |                      | 0.391<br>(0.279)     | 1.241<br>(0.675)    |
| <b>ReceiAssets</b>               |                       |                       |                       |                      | 0.640<br>(0.389)     | 1.900<br>(1.011)    |
| <b>Industry and year dummies</b> |                       |                       |                       |                      |                      | Yes                 |
| <b>N</b>                         | 1,865                 | 1,860                 | 1,837                 | 1,835                | 1,821                | 972                 |
| <b>Log-likelihood</b>            | -135.84               | -135.55               | -135.10               | -102.42              | -102.09              | -82.42              |
| <b>Pseudo R<sup>2</sup></b>      | 0.0914                | 0.0929                | 0.0938                | 0.3128               | 0.3140               | 0.3680              |
| <b>chi<sup>2</sup></b>           | 27.35                 | 27.78                 | 27.95                 | 93.25                | 93.45                | 95.97               |
| <b>Prob &gt; chi<sup>2</sup></b> | 0.0000                | 0.0000                | 0.0001                | 0.0000               | 0.0000               | 0.0000              |

Table 4 reports the results of Logistic regressions of audit opinion and earnings management for whole sample over the period 2010-2015. The dependent variable (*AudOpin*) is a dummy variable equals to 1 if the firms received qualified audit report and zero otherwise. The main independent variable of interest is discretionary accruals (*DisAcc*). All other variables are as previously defined. Significant at: \*10, \*\*5 and \*\*\*1 percent levels

Table 5 reports the results of examining the association between audit report and real earnings management that occurs via sales-based manipulation, namely abnormal cash flows from operations (*AbnCfo*). Table 5 Model 6 presents evidence that firms with qualified audit report (*AudOpin*) exhibit a higher level of sales manipulation [abnormal cash flows from operation (*AbnCfo*)]. Specifically, I find positive coefficients on (*AbnCfo*) of 5.945 (P <0.10) in Table 5 Model 6. This evidence suggests that manipulating reported income via the use of sales-based manipulation (abnormal cash flows from operation) would lead to increase the probability of receiving qualified audit opinion. This in turn confirms the main hypothesis that receiving qualified audit report is positively associated with the level of real earnings management.

Table 6 meanwhile reports the results of examining the association between audit report and real earnings management that occurs via production cost manipulation, namely abnormal production cost (*AbnProd*). Table 6 shows no evidence that audit report is associated with abnormal production cost. Particularly, Table 6 (Model 6) shows a negative coefficient on *AbnProd* of -0.408 and statistically insignificant, while for Model 1 over Model 5 the coefficients are still negative but are smaller in terms of their size as compared to Model 6. It seems that FTSE 350 firms do not manage earnings through the use of production cost. Further, this evidence is consistent with the reported results of Table 2 that there is no significant differences of the level of abnormal production cost (*AbnProd*) between firms received qualified audit report and firms received un-qualified audit report.

**Table 5.** The relationship between audit opinion and real earnings management (*AbnCfo*) for FTSE350 sample over the period 2010-2015

|                                  | Logit Model 1         | Logit Model 2         | Logit Model 3         | Logit Model 4       | Logit Model 5       | Logit Model 6                   |
|----------------------------------|-----------------------|-----------------------|-----------------------|---------------------|---------------------|---------------------------------|
|                                  | <i>AudOpin =1</i>     | <i>AudOpin=1</i>      | <i>AudOpin=1</i>      | <i>AudOpin=1</i>    | <i>AudOpin=1</i>    | <i>AudOpin=1</i>                |
| <b>Constant</b>                  | 4.085**<br>(2.413)    | 3.681**<br>(2.017)    | 3.746**<br>(2.035)    | 2.053<br>(0.913)    | 1.836<br>(0.761)    | 1.503<br>(0.525)                |
| <b>AbnCfo</b>                    | 1.395<br>(0.789)      | 1.364<br>(0.749)      | 1.345<br>(0.734)      | 2.224<br>(1.155)    | 2.107<br>(1.051)    | <b>5.945*</b><br><b>(1.813)</b> |
| <b>LnMK</b>                      | -0.637***<br>(-4.675) | -0.610***<br>(-4.260) | -0.615***<br>(-4.237) | -0.516*<br>(-1.932) | -0.512*<br>(-1.879) | -0.557<br>(-1.433)              |
| <b>BM</b>                        |                       | 0.000<br>(0.243)      | 0.000<br>(0.225)      | -0.000<br>(-0.218)  | -0.000<br>(-0.196)  | -0.000<br>(-0.630)              |
| <b>Loss</b>                      |                       | 0.247<br>(0.538)      | 0.247<br>(0.434)      | 0.295<br>(0.452)    | 0.344<br>(0.519)    | 0.295<br>(0.411)                |
| <b>ROA</b>                       |                       |                       | 0.001<br>(0.048)      | -0.012<br>(-0.423)  | -0.012<br>(-0.410)  | -0.009<br>(-0.246)              |
| <b>Lev</b>                       |                       |                       | 0.000<br>(0.017)      | -0.000<br>(-0.159)  | -0.000<br>(-0.154)  | -0.002<br>(-0.293)              |
| <b>QualLag</b>                   |                       |                       |                       | 4.013***<br>(8.863) | 4.004***<br>(8.811) | 3.788***<br>(6.594)             |
| <b>LnAssets</b>                  |                       |                       |                       | -0.008<br>(-0.031)  | -0.003<br>(-0.010)  | 0.112<br>(0.279)                |
| <b>InvAssets</b>                 |                       |                       |                       |                     | 0.353<br>(0.253)    | 0.854<br>(0.451)                |
| <b>ReceiAssets</b>               |                       |                       |                       |                     | 0.287<br>(0.169)    | 1.293<br>(0.622)                |
| <b>Industry and year dummies</b> |                       |                       |                       |                     |                     |                                 |
| <b>N</b>                         | 1,865                 | 1,860                 | 1,837                 | 1,835               | 1,821               | 972                             |
| <b>Log-likelihood</b>            | -135.56               | -135.30               | -134.86               | -102.33             | -102.07             | -81.48                          |
| <b>Pseudo R<sup>2</sup></b>      | 0.0933                | 0.0946                | 0.0953                | 0.3134              | 0.3141              | 0.3752                          |
| <b>chi<sup>2</sup></b>           | 27.90                 | 28.28                 | 28.42                 | 93.43               | 93.50               | 97.86                           |
| <b>Prob &gt; chi<sup>2</sup></b> | 0.0000                | 0.0000                | 0.0001                | 0.0000              | 0.0000              | 0.0000                          |

Table 5 reports the results of Logistic regressions of audit report and real earnings management (*AbnCfo*) for whole sample over the period 2010-2015. The dependent variable (*AudOpin*) is a dummy variable equals to 1 if the firms received qualified audit report and zero otherwise. The main independent variable of interest is abnormal cash flows from operations (*AbnCfo*). All other variables are as previously defined. Significant at: \*10, \*5 and \*\*1 percent levels

Table 7 reports the results when the aggregated measure (*RemTotal*) are used as the proxy of real earnings management. Table 6 Model 6 shows a positive coefficients on (*RemTotal*) of 0.593 but is statistically insignificant, indicating that receiving qualified audit opinion is positively associated with the total level of real earnings management. This insignificant relationship may be attributed to the fact that the aggregated measure is a combination of abnormal cash flows from operations (*AbnCfo*) and abnormal production cost (*AbnProd*), and these two real earnings management activities have different associations with audit

option (*AudOpin*). While Table 8 reports the results for examining the association between audit report and earnings management where all the proxies of accrual and real earnings management activities are added into the same model.

Table 8 Model 3 reports the results and shows similar evidence that receiving qualified audit report is positively associated with the level of iscretionary accrual and abnormal cash flows from operations. Specifically, Table 8 Model 3 shows that the coefficients on *DisAcc* and *AbnCfo* are positive even though they are statistically insignificant.

**Table 6.** The relationship between audit report and real earnings management (*AbnProd*) for FTSE350 sample over the period 2010-2015

|                 | Logit Model 1         | Logit Model 2         | Logit Model 3         | Logit Model 4       | Logit Model 5       | Logit Model 6        |
|-----------------|-----------------------|-----------------------|-----------------------|---------------------|---------------------|----------------------|
|                 | <i>AudOpin =1</i>     | <i>AudOpin=1</i>      | <i>AudOpin=1</i>      | <i>AudOpin=1</i>    | <i>AudOpin=1</i>    | <i>AudOpin=1</i>     |
| <b>Constant</b> | 4.040**<br>(2.295)    | 3.280*<br>(1.751)     | 3.381*<br>(1.786)     | 1.772<br>(0.773)    | 1.556<br>(0.624)    | 2.244<br>(0.739)     |
| <b>AbnProd</b>  | -0.335<br>(-0.471)    | -0.375<br>(-0.511)    | -0.364<br>(-0.489)    | -0.184<br>(-0.190)  | -0.222<br>(-0.233)  | -0.408<br>(-0.299)   |
| <b>LnMK</b>     | -0.634***<br>(-4.486) | -0.587***<br>(-4.006) | -0.593***<br>(-3.971) | -0.525*<br>(-1.864) | -0.528*<br>(-1.845) | -0.815**<br>(-1.983) |
| <b>BM</b>       |                       | 0.000<br>(0.774)      | 0.000<br>(0.707)      | 0.000<br>(0.096)    | 0.000<br>(0.140)    | -0.000<br>(-0.501)   |
| <b>Loss</b>     |                       | 0.466<br>(1.006)      | 0.480<br>(0.890)      | 0.440<br>(0.665)    | 0.489<br>(0.730)    | 0.592<br>(0.805)     |

Table 6 Continued

|                                  |         |         |          |          |          |          |
|----------------------------------|---------|---------|----------|----------|----------|----------|
| <b>ROA</b>                       |         |         | 0.001    | -0.013   | -0.012   | -0.011   |
|                                  |         |         | (0.064)  | (-0.448) | (-0.410) | (-0.314) |
| <b>Lev</b>                       |         |         | -0.000   | -0.001   | -0.001   | -0.003   |
|                                  |         |         | (-0.307) | (-0.434) | (-0.435) | (-0.623) |
| <b>QualLag</b>                   |         |         |          | 3.947*** | 3.947*** | 3.551*** |
|                                  |         |         |          | (8.612)  | (8.580)  | (6.437)  |
| <b>LnAssets</b>                  |         |         |          | 0.018    | 0.029    | 0.332    |
|                                  |         |         |          | (0.066)  | (0.104)  | (0.818)  |
| <b>InvAssets</b>                 |         |         |          |          | -0.275   | 0.972    |
|                                  |         |         |          |          | (-0.173) | (0.497)  |
| <b>ReceiAssets</b>               |         |         |          |          | 0.791    | 1.724    |
|                                  |         |         |          |          | (0.471)  | (0.810)  |
| <b>Industry and year dummies</b> |         |         |          |          |          | Yes      |
| <b>N</b>                         | 1,866   | 1,862   | 1,840    | 1,838    | 1,824    | 947      |
| <b>Log-likelihood</b>            | -129.67 | -128.75 | -128.32  | -98.29   | -97.99   | -79.24   |
| <b>Pseudo R<sup>2</sup></b>      | 0.0814  | 0.0876  | 0.0885   | 0.3017   | 0.3027   | 0.3539   |
| <b>chi<sup>2</sup></b>           | 22.99   | 24.71   | 24.92    | 84.92    | 85.10    | 86.83    |
| <b>Prob &gt; chi<sup>2</sup></b> | 0.0000  | 0.0001  | 0.0004   | 0.0000   | 0.0000   | 0.0000   |

Table 6 reports the results of Logistic regressions of audit opinion and real earnings management (*AbnProd*) for whole sample over the period 2010-2015. The dependent variable (*AudOpin*) is a dummy variable equals to 1 if the firms received qualified audit report and zero otherwise. The main independent variable of interest is abnormal production cost (*AbnProd*). All other variables are as previously defined. Significant at: \*10, \*\*5 and \*\*\*1 percent levels.

Overall, the reported results in Tables 4 to 8 confirms the main hypothesis of this study that the use of accrual and real earning management activities to manage the reported earnings is positively associated with the probability of receiving qualified audit report. Audit firms are

more concerned about their reputation and work hard to avoid any potential litigation risk by issuing a qualified audit report for firms that exhibit higher level of accrual and real earnings management (e.g., DeAngelo, 1981; Francis and Krishnan, 1999).

Table 7. The relationship between audit report and real earnings management (*RemTotal*) for FTSE350 sample over the period 2010-2015

|                                  | Logit Model 1<br><i>AudOpin =1</i> | Logit Model 2<br><i>AudOpin=1</i> | Logit Model 3<br><i>AudOpin=1</i> | Logit Model 4<br><i>AudOpin=1</i> | Logit Model 5<br><i>AudOpin=1</i> | Logit Model 6<br><i>AudOpin=1</i> |
|----------------------------------|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| <b>Constant</b>                  | 4.006**                            | 3.256*                            | 3.374*                            | 1.696                             | 1.564                             | 2.036                             |
|                                  | (2.275)                            | (1.739)                           | (1.780)                           | (0.739)                           | (0.630)                           | (0.679)                           |
| <b>RemTotal</b>                  | -0.159                             | -0.206                            | -0.199                            | 0.119                             | 0.064                             | 0.593                             |
|                                  | (-0.254)                           | (-0.317)                          | (-0.296)                          | (0.142)                           | (0.075)                           | (0.465)                           |
| <b>LnMK</b>                      | -0.629***                          | -0.583***                         | -0.590***                         | -0.512*                           | -0.521*                           | -0.755*                           |
|                                  | (-4.460)                           | (-3.986)                          | (-3.957)                          | (-1.799)                          | (-1.804)                          | (-1.840)                          |
| <b>BM</b>                        |                                    | 0.000                             | 0.000                             | 0.000                             | 0.000                             | -0.000                            |
|                                  |                                    | (0.774)                           | (0.672)                           | (0.090)                           | (0.126)                           | (-0.484)                          |
| <b>Loss</b>                      |                                    | 0.471                             | 0.484                             | 0.471                             | 0.511                             | 0.638                             |
|                                  |                                    | (1.014)                           | (0.894)                           | (0.710)                           | (0.762)                           | (0.873)                           |
| <b>ROA</b>                       |                                    |                                   | 0.001                             | -0.012                            | -0.011                            | -0.008                            |
|                                  |                                    |                                   | (0.044)                           | (-0.413)                          | (-0.378)                          | (-0.240)                          |
| <b>Lev</b>                       |                                    |                                   | -0.001                            | -0.001                            | -0.001                            | -0.003                            |
|                                  |                                    |                                   | (-0.429)                          | (-0.571)                          | (-0.577)                          | (-0.628)                          |
| <b>QualLag</b>                   |                                    |                                   |                                   | 3.943***                          | 3.938***                          | 3.603***                          |
|                                  |                                    |                                   |                                   | (8.547)                           | (8.525)                           | (6.403)                           |
| <b>LnAssets</b>                  |                                    |                                   |                                   | 0.012                             | 0.024                             | 0.289                             |
|                                  |                                    |                                   |                                   | (0.045)                           | (0.087)                           | (0.716)                           |
| <b>InvAssets</b>                 |                                    |                                   |                                   |                                   | -0.339                            | 0.867                             |
|                                  |                                    |                                   |                                   |                                   | (-0.214)                          | (0.435)                           |
| <b>ReceiAssets</b>               |                                    |                                   |                                   |                                   | 0.708                             | 1.531                             |
|                                  |                                    |                                   |                                   |                                   | (0.417)                           | (0.707)                           |
| <b>Industry and year dummies</b> |                                    |                                   |                                   |                                   |                                   | Yes                               |
| <b>N</b>                         | 1,833                              | 1,829                             | 1,807                             | 1,805                             | 1,793                             | 947                               |

Table 7 Continued

|                                  |         |         |         |        |        |        |
|----------------------------------|---------|---------|---------|--------|--------|--------|
| <b>Log-likelihood</b>            | -129.28 | -128.35 | -127.88 | -97.99 | -97.72 | -79.18 |
| <b>Pseudo R<sup>2</sup></b>      | 22.79   | 0.0872  | 0.0885  | 0.3014 | 0.3024 | 0.3545 |
| <b>chi<sup>2</sup></b>           | 0.0810  | 24.53   | 24.82   | 84.54  | 84.72  | 86.96  |
| <b>Prob &gt; chi<sup>2</sup></b> | 0.0000  | 0.0001  | 0.0004  | 0.0000 | 0.0000 | 0.0000 |

Table 7 reports the results of Logistic regressions of audit opinion and real earnings management (RemTotal) for whole sample over the period 2010-2015. The dependent variable (AudOpin) is a dummy variable equals to 1 if the firms received qualified audit opinion and zero otherwise. The main independent variable of interest is the aggregated measure of real earnings management (RemTotal). All other variables are as previously defined. Significant at: \*10, \*\*5 and \*\*\*1 percent levels.

Table 8. The relationship between audit report and accrual and real earnings management for FTSE350 sample over the period 2010-2015

|                                  | Logit Model 1      | Logit Model 2      | Logit Model 3      |
|----------------------------------|--------------------|--------------------|--------------------|
|                                  | <b>AudOpin = 1</b> | <b>AudOpin = 1</b> | <b>AudOpin = 1</b> |
| <b>Constant</b>                  | 3.788**            | 3.244*             | 2.557              |
|                                  | (2.092)            | (1.691)            | (0.832)            |
| <b>DisAcc</b>                    | -0.848             | 0.427              | 2.802              |
|                                  | (-0.255)           | (0.116)            | (0.699)            |
| <b>AbnCfo</b>                    | 1.282              | 1.063              | 5.751              |
|                                  | (0.614)            | (0.468)            | (1.489)            |
| <b>AbnProd</b>                   | -0.462             | -0.454             | -0.921             |
|                                  | (-0.677)           | (-0.629)           | (-0.649)           |
| <b>LnMK</b>                      | -0.614***          | -0.583***          | -0.849*            |
|                                  | (-4.256)           | (-3.873)           | (-1.922)           |
| <b>BM</b>                        |                    | 0.000              | -0.000             |
|                                  |                    | (0.664)            | (-0.733)           |
| <b>Loss</b>                      |                    | 0.543              | 0.698              |
|                                  |                    | (0.956)            | (0.989)            |
| <b>ROA</b>                       |                    | 0.004              | -0.006             |
|                                  |                    | (0.155)            | (-0.165)           |
| <b>Lev</b>                       |                    | -0.001             | -0.003             |
|                                  |                    | (-0.367)           | (-0.607)           |
| <b>QualLag</b>                   |                    |                    | 3.799***           |
|                                  |                    |                    | (6.379)            |
| <b>LnAssets</b>                  |                    |                    | 0.348              |
|                                  |                    |                    | (0.825)            |
| <b>InvAssets</b>                 |                    |                    | 0.811              |
|                                  |                    |                    | (0.408)            |
| <b>ReceiAssets</b>               |                    |                    | 0.740              |
|                                  |                    |                    | (0.307)            |
| <b>Industry and year dummies</b> |                    |                    | Yes                |
| <b>N</b>                         | 1,833              | 1,807              | 947                |
| <b>Log-likelihood</b>            | -129.01            | -127.69            | -77.17             |
| <b>Pseudo R<sup>2</sup></b>      | 0.0830             | 0.0898             | 0.3708             |
| <b>chi<sup>2</sup></b>           | 23.34              | 25.19              | 90.97              |
| <b>Prob &gt; chi<sup>2</sup></b> | 0.0001             | 0.0014             | 0.0000             |

Table 8 reports the results of Logistic regressions of audit opinion and accrual and real earnings management for whole sample over the period 2010-2015. The dependent variable (AudOpin) is a dummy variable equals to 1 if the firms received qualified audit opinion and zero otherwise. All other variables are as previously defined. Significant at: \*10, \*\*5 and \*\*\*1 percent levels.

## 6. CONCLUSION

The main objective of this study is to explore the relationship between receiving qualified audit report and manipulating the reported income via the use of accrual and real earnings management activities. While prior research has focused on the examining the impact of audit quality (proxied by the presence of high quality audit firm [Big N]) on accrual earnings management (e.g., Becker et al., 1998; Balsam et al., 2003), and a very few research has investigated the relationship between audit report

(qualified vs. un-qualified) and accrual earnings management (e.g., Francis and Krishnan, 1999; Bartov et al., 2000; Bradshaw et al., 2001; Johl et al., 2007), there is no research to date has examined the relationship between audit report and real earnings management based on UK data.

This paper therefore contributes to the current literature by examining the relationship between audit report and real earnings management using UK sample. Indeed, the sample of this study consists for firms listed on one of the most active, attractive and largest capital markets throughout the world, the

FTSE 350. Thus, the study adds to current research by providing the following evidence.

First, this paper provides the first evidence on the relationship between audit report and real earnings management based on UK sample for the period post-credit crisis (2010-2015). It shows that firms who received qualified audit report exhibit a higher level of real earnings management (via the use of abnormal cash flows from operations, *AbnCfo*). Second, the findings of this paper show as well that the level of accrual earnings management is positively associated with receiving qualified audit report, confirming prior research. Third, this paper shows that firms with qualified audit report share different characteristics as compared to firms received un-qualified audit report. Finally, this paper examines a very recent period (2010-2015) that follows the credit crisis period (2007-2009) to make sure that global credit crisis has no impact on the analysis, and also examine a very large dataset that consist of the largest 350 firms that listed on the London Stock ExchangeIt is worth noting that the findings of this paper can be of interest to abroad audience e.g., investors, audit firms, regulators, policy makers, standards setters, etc. For example, regulators can use audit report as proxy for the financial reporting quality of auditees and, therefore, fix the regulation to constrain the use of accrual and real earnings management activities.

#### REFERENCES:

- Alhadab, M. 2015. Do Nonaudit Fees Associate with Accrual Earnings Management During the IPO. *Corporate Ownership & Control*, 12: 441-453
- Alhadab, M., Clacher, I. & Keasey, K. 2015. Real and accrual earnings management and IPO failure risk. *Accounting and Business Research*, 45, 55-92.
- Alhadab, M., Clacher, I. & Keasey, K. 2016. A Comparative Analysis of Real and Accrual Earnings Management around Initial Public Offerings under Different. *Journal of Business Finance and Accounting*, Forthcoming.
- Alhadab, M. and Tahat, Y. 2016. The Value Relevance of Unrealized Gains and Losses around the Financial Credit Crisis: Evidence from the UK. *Corporate Ownership & Control*, Forthcoming.
- Antle, R., Gordon, E., Narayanamoorthy, G. & Zhou, L. 2006. The Joint Determination of Audit Fees, Non-Audit Fees, and Abnormal Accruals. *Review of Quantitative Finance and Accounting*, 27, 235-266.
- Athanasakou, V. E., Strong, N. C. & Walker, M. 2009. Earnings management or forecast guidance to meet analyst expectations? *Accounting & Business Research*, 39, 3-35.
- Balsam, S., Krishnan, J. & Yang, J. S. 2003. Auditor Industry Specialization and Earnings Quality. *Auditing: A Journal of Practice & Theory*, 22, 71-97.
- Bartov, E., Gul, F.A. & Tsui, J.S. 2000. Discretionary-Accruals Models and Audit Qualification. *Journal of Accounting and Economics*, 30, 421-52.
- Bradshaw, M.T., Richardson, S.A. & Sloan, R.G. 2001. Do Analysts and Auditors Use Information in Accruals?. *Journal of Accounting Research*, 39, 45-73.
- Becker, C. L., Defond, M. L., Jiambalvo, J. & Subramanyam, K. R. 1998. The Effect of Audit Quality on Earnings Management. *Contemporary Accounting Research*, 15, 1-24.
- Bergstresser, D. & Philippon, T. 2006. CEO Incentives and Earnings Management. *Journal of Financial Economics*, 80, 511-529.
- Bushee, B. J. 1998. The Influence of Institutional Investors on Myopic R&D Investment Behavior. *The Accounting Review*, 73, 305-333.
- Burgstahler, D. & Dichev, I. 1997. Earnings Management to Avoid Earnings Decreases and Losses. *Journal of Accounting and Economics*, 24, 99-126.
- Caramanis, C. & Lennox, C. 2008. Audit Effort and Earnings Management. *Journal of Accounting and Economics*, 45, 116-138.
- Cohen, D. A., Dey, A. & Lys, T. Z. 2008. Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods. *The Accounting Review*, 83, 757-787.
- Cohen, D. A. & Zarowin, P. 2010. Accrual-Based and Real Earnings Management Activities around Seasoned Equity Offerings. *Journal of Accounting and Economics*, 50, 2-19.
- Deangelo, L. E. 1981. Auditor Size and Audit Quality. *Journal of Accounting and Economics*, 3, 183-199.
- Dechow, P. M., Sloan, R. G. & Sweeney, A. P. 1995. Detecting Earnings Management. *The Accounting Review*, 70, 193-225.
- Dechow, P. M. & Dichev, I. D. 2002. The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors. *The Accounting Review*, 77, 35-59.
- Defond, M. L. & Jiambalvo, J. 1994. Debt Covenant Violation and Manipulation of Accruals. *Journal of Accounting and Economics*, 17, 145-176.
- Ewert, R. & Wagenhofer, A. 2005. Economic Effects of Tightening Accounting Standards to Restrict Earnings Management. *The Accounting Review*, 80, 1101-1124.
- Francis, J. R. & Krishnan, J. 1999. Accounting Accruals and Auditor Reporting Conservatism. *Contemporary Accounting Research*, 16, 135-165.
- Frankel, R. M., Johnson, M. F. & Nelson, K. K. 2002. The Relation between Auditors' Fees for Nonaudit Services and Earnings Management. *The Accounting Review*, 77, 71-105.
- Jones, J. J. 1991. Earnings Management during Import Relief Investigations. *Journal of Accounting Research*, 29, 193-228.
- Klein, A. 2002. Audit Committee, Board of Director Characteristics, and Earnings Management. *Journal of Accounting and Economics*, 33, 375-400.
- Osma, B. G. 2008. Board Independence and Real Earnings Management: The Case of R&D Expenditure. *Corporate Governance: An International Review*, 16, 116-131.
- Rangan, S. 1998. Earnings Management and the Performance of Seasoned Equity Offerings. *Journal of Financial Economics*, 50, 101-122.
- Roychowdhury, S. 2006. Earnings management through real activities manipulation. *Journal of Accounting and Economics*, 42, 335-370.
- Johl, S., Jubb, C. A., & Houghton, K. A. 2007. Earnings Management and the Audit Opinion: Evidence from Malaysia". *Managerial Auditing Journal*, 22, 688-715.
- Teoh, S. H., Welch, I. & Wong, T. J. 1998. Earnings Management and the Long-Run Market Performance of Initial Public Offerings. *The Journal of Finance*, 53, 1935-1974.
- Zang, A. Y. 2012. Evidence on the Trade-Off between Real Activities Manipulation and Accrual-Based Earnings Management. *The Accounting Review*, 87, 675-703.



# THE INFLUENCE OF CSR, INNOVATION AND SUPPLY CHAIN PARTNERSHIP ON FIRM COMPETITIVENESS

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## Abstract

Corporate social responsibility (CSR) is crucial for competitive advantage and survival of firms globally. In the pursuit of excellence, many firms have embarked on CSR programs, considering that it is not a financial burden but a strategic roadmap to increase and maintain their brand reputation, to overcome competitive pressures successfully and to efficiently and effectively lower operating cost with profit maximisation through innovation and supply chain partnership. However, in the process of becoming good players of CSR to society, innovative dimension for sustainability as well as an organisation's supply chain partnership may be essential determinants to enhance good firm business processes and performance activities. In other words, to realise CSR, firms should have a strong environmental measure and well-integrated supply chain practices closely related to their business objectives and structures. The purpose of this paper, therefore, is to examine the influence of CSR on innovation, supply chain partnership and firm competitiveness on firms around Vanderbijlpark, South Africa. Through a quantitative method using smart PLS, this study tested the relationships among the four variables, which are CSR, innovation, supply chain partnership and firm competitiveness. The results showed that there is a positive relationship between the four proposed hypotheses. H1: There is a positive relationship between CSR and innovation; H2: There is a positive relationship between CSR and supply chain partnership; H3: There is a positive relationship between innovation and firm competitiveness; H4: There is a positive relationship between supply chain partnership and firm competitiveness. The proposed study is expected to have practical and theoretical implications to policy makers and managers. In addition, it will provide added insights and new knowledge to the existing body of literature hitherto not studied extensively in South African firms.

**Keywords:** Corporate Social Responsibility, Innovation, Supply Chain Partnership, Firm Competitiveness, Vanderbijlpark

## 1. INTRODUCTION

Corporate Social Responsibility (CSR) is a common key concept used by many if not all business owners, economists, government officials and researchers alike to report that they are socially responsible or indicate that they care about the environment (Hisjam, Guritno, Supriyatno & Tandjung, 2015; Bohas & Poussing, 2016; Kim, Song & Lee, 2016; Quarshie, Salmi, & Leuschner, 2016). This is because, in order to be successful and coupled with the effort to improve both public image and operation efficiency, firms are going green with a major push towards CSR. CSR is an efficient control mechanism in any firm for realising the importance of moral practices and to avoid financial risk as well as damage to reputation in business (Shnayder, Van Rijnsoever & Hekkert 2016). Being socially responsible means firms should be more innovative in initiating an effort to eliminate pollutants, reduce carbon footprints and at the same time, maximise profit.

Therefore, given the importance of CSR, it is important to discuss its influence on firm's innovativeness and supply chain partnership. For this study, CSR is defined as "corporate activities

that proactively seek to contribute to sustainability equilibria, including the economic, environmental and social dimension of today, as well as their inter-relations within and throughout the time dimension (the short, long and longer term), while addressing the company's systems (operations and production, management and strategy, organisational system, procurement and marketing and assessment and communication) as well as with its stakeholders" (Lozano, Nummert & Ceulemans 2016).

It is believed that due to the increasing awareness coupled with pressures/expectations from firm stakeholders and shareholders as well as current and potential regulatory pressures on environmental impact, firms are intensifying their actions in favour of sustainable environment (Hisjam *et al.*, 2015). Furthermore, to be socially responsible, firms are still searching and have further increased their actions from introducing social and environmental concerns in their business operations to integrating sustainability as a priority in their overall strategic business plan (Asongu 2007).

This paper is organised as follows: First, the problem statement and objectives are clearly stated, thereafter, the literature for each of the research

constructs is reviewed and hypotheses are formulated. What follows is an account of the study's methodology as well as a discussion on findings. Finally, a presentation on the managerial implications, limitations and recommendations for future research will be provided.

## 2. PROBLEM STATEMENT

Few studies have focused on a detailed model showing the mediating variables of CSR such as supply chain partnership and innovation capability to firm competitiveness in Vanderbijlpark. The growth and survival of companies in Vanderbijlpark are threatened by impediments that may exist in the operations and management functional areas of the business. Lack of innovation research skills, poor CSR and weak supply chain partnerships have been identified as the one main impediments hindering the success of firms (Chimucheka & Mandipaka, 2015). South African firms are inhibited by other factors such as poor marketing skills, poor supply chain practices, lack of marketing research skills, poor analysis of the market, failure to understand and forecast future customer trends and needs and the inability to prepare marketing plans (Maloka, 2013). Lekhanya (2010) stated that the problems experienced by firm's owners in conducting a successful business are market-related issues such as marketing, locality, lack of knowledge of the market, product demand and competition, which are associated with the industry in which the enterprise operates since most of the firms fall under small and medium enterprises (SMEs). Maloka (2013) concurs that the market-related problems that affect firms include issues such as marketing locality, lack of knowledge of the market, product demand and competition, which are associated with the industry in which the enterprise operates. In addition, Lekhanya (2010) adds that the management style in small firms often means there is little or no marketing planning and many small business failures result from deficiencies in marketing, poor CSR, inadequate innovation and poor or weak supply chain partnerships. Moreover, Nickel, McHugh and McHugh (2007) together with Walsh and Anurit (2008) assert that lack of innovation and poor CSR are the major reasons for companies' failure.

### Primary Objective of the Study

The main or primary objective of this study is to investigate the influence of CSR, innovation and supply chain partnership on firm competitiveness in companies around Vanderbijlpark, South Africa.

### Secondary Objectives

#### Theoretical objectives

- To conduct a literature review on CSR
- To review literature on innovation
- To conduct a literature review on supply chain partnership
- To review literature on firm competitiveness.

#### Empirical objectives

- To investigate the influence of CSR on innovation

- To determine the influence of CSR on supply chain partnership
- To evaluate the influence of innovation on firm competitiveness
- To ascertain the influence of supply chain partnership on firm competitiveness.

## 3. LITERATURE REVIEW

### Corporate Social Responsibility

Almost every firm has a CSR policy as well as strategic activities to attain CSR. CSR is concerned with the relationship between a firm, the local society in which it operates and its stakeholders (D'Amato & Room, 2009; Hsueh, 2014; Bohas & Poussing, 2016). According to the European Union Commission (2002:5), "CSR is a concept whereby firms integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis." Ordinarily, no firm, whether profit or non-profit, would incur an additional increased cost to be socially responsible without any return on investment. Hetherington (1973:37) states, "there is no reason to think that shareholders are willing to tolerate an amount of corporate non-profit activity which appreciably reduces either dividends or the market performance of the stock." Nevertheless, along with pressure from government, stakeholders and society, firms need to initiate an effort to be socially responsible. Firms soon found that being socially responsible is not only about reducing their negative impact on the environment but a strategic means to innovatively make more profit and reduce operating cost (Midttun, 2007; Cruz & Wakolbinger, 2008; Übius, Alas & Vanhala, 2009; Mattera & Baena, 2015). Thus, CSR triggers innovation and is a source of innovation.

### Innovation

Innovation means tapping into the potential for new products, or changing to new products, procedures or systems to meet customer demands (Wu & Lin, 2014). O'Dwyer, Gilmore and Carson (2009) explain that innovation involves doing something new with ideas, products, service, or technology and refining these ideas to a market opportunity to meet the market demand in a new way. Gottlichova and Soukalova (2015:337) point out that innovation is perceived as introducing new methods supporting product sales, improvement in the areas of packaging, advertisement and promotion of products and services. According to Sula and Banyar (2015), innovation is used when all other possibilities of traditional vertical marketing are exhausted. Therefore, the principle of innovation requires a company or a business to constantly search for the real improvements of their products and marketing (Sula & Banyar, 2015). On the other hand, according to D'Amato and Room (2009:35), "innovation is the invention and implementation of a new management practice, process, structure and technique to the state of the art and intended to further firm's goals". For this study, innovation is the identification of strategic methods that occurred to a firm as a result of CSR initiatives. Asongu (2007), Gallego-Alvarez, Prado-Lorenzo and Garcia-

Sanchez (2011), state that, most firms', in their quest for CSR, have developed strategic innovative products and services that are beneficial to the firm's profitability.

**Firm Competitiveness**

It is widely believed that firms cannot do everything alone and need to strategically focus on their core-competence and seek supply chain for the efficient and effective business execution, thereby making significant contribution to the end product (Chen & Paulraj, 2004; Maheshwari, Kumar & Kumar, 2006; Kim, Kumar & Kumar, 2010; Su, Fang & Young, 2013). A firm's competitive advantage is the ability to consolidate technological advantages, innovative designs, business-wide models and production skills into competencies that allow the firm to adapt quality to changing opportunities, which is possible through access to both local and global networking (Bhaumik, Driffield & Zhou, 2016). This is due to the changing customer demands, high competitive pressure, uncertainty and rapid technological changes that hinder a firm's competitive position (Knoppen & Christiaanse, 2007; Ryu, So & Koo, 2009). For this reason, in today's business world, competition is no longer between firms, but between supply chains to enhance competitive advantage (Teipal, Garg & Sachdeva, 2013).

**Supply Chain Partnership**

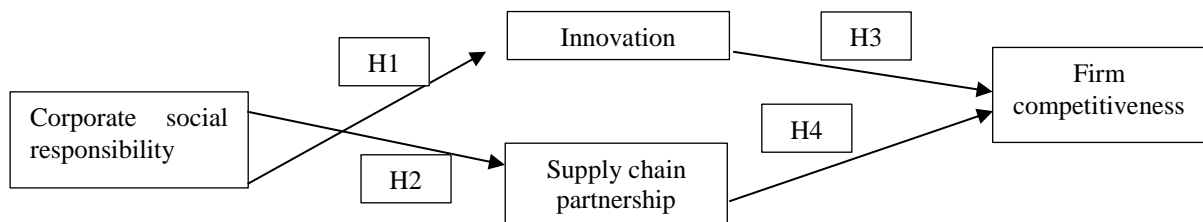
A supply chain partnership can be defined as an approach with an attitude of openness, effective communication, close collaboration and co-operation, trust, honesty, transparency, sharing and mutual benefit towards selected suppliers (CIPS, 2013). Supply chain partnership is referred to as "person-to-person or firm-to-firm joint tactics, operations and strategies that can improve supply chains. It requires firms to work together and trust each other in addressing challenges and issues that are obstacles to improvements for success" (Coyle *et*

*al.*, 2011:505). Kim *et al.* (2010), also define supply chain partnership as a strategic alliance of participants in a supply chain to encourage joint effort and collaboration in core values based on trust, openness, shared risk and rewards to create business competitive advantage This means that firms in supply chain have more advantage in terms of utilising the intellectual capital, information in collaboration and visibility, more concentration on core competencies, as well as knowledge resource for competitive advantage (Ryu *et al.*, 2009; Su *et al.*, 2013; He, Ghobadian & Gallea, 2013). Agan, Kuzey, Acar and Acikgoz (2016), argue that most CSR initiatives by suppliers are possible through collaborative effort. Coyle, Novack, Gibson and Bardi (2011), give an example of the Smart Way Transport Partnership. With the emergence of CSR and sustainability issues, supply chain partnership gives firms the opportunity to leverage each other to perform better than they would be acting alone (Kogg & Mont, 2012). Therefore, partnership within the supply chain will quickly allow firms to improve on social responsibility initiative activities and enhance more sustainable approaches to development while strategically creating value (Ciliberti, Pontranzolfo & Scozzi, 2008). Supply chain partnership is a strategic road map for CSR, which requires individual firm commitment and action for a collaborative creation of both firm and social change (D'Amato & Room, 2009).

**Conceptualised Framework and Hypotheses Formulation**

Based on the literature review, the framework illustrated in Figure 1 was conceptualised. In this framework, CSR is the predictor, innovation and supply chain partnership are the mediators, whilst firm competitiveness is the outcome variable. Figure 1 illustrates the framework of the study. Hypothesised relationships between research constructs are developed thereafter.

Figure 1. Conceptual framework



**Hypothesis Development**

**Corporate social responsibility and innovation**

It is with CSR that firms try to improve their innovation (Alafeef 2015). Numerous empirical studies have found that CSR is associated closely with innovation (Gunnar & Stefansson 2009; Gunday & Ulusoy 2011; Mukhamad & Kiminami 2011). Among the studies that support the positive relationship between innovation and CSR is the one conducted by Haghhighinasab, Sattari, Ebrahimi & Roghanian (2013). The study provides extra evidence

to the previous literature that CSR has a positive effect on innovation and business performance. Hassan, Shaukat, Nawaz, and Naz's (2013) study has a strong linkage between CSR and innovation. These authors emphasised that CSR brings innovation that allow firms to be more efficient and effective in their business operation, thereby improving on sustained value-added products/services that are environmentally safe. In the light of the above, the paper posits the following:

**H1:** *There is a positive relationship between corporate social responsibility and innovation.*

### Corporate social responsibility and supply chain partnership

To be alert in this modern and global competitive business environment, firms need an effective supply chain collaboration or partnership vast competency in all aspects of CSR (Kogg & Mont, 2012). This is because sustainable supply chains can be seen as successful mechanisms that allow the majority of firms to easily redesign sustainable products and services throughout their product life cycle (Klassen & Vereecke, 2012; Tidy, Wang & Hall, 2016). To be socially responsible, firms now seek sustainable advance materials management, implementation of new distribution model and environmental purchasing, new manufacturing techniques and technology as well as innovative packaging strategies within their supply chain (Quarshie, *et al.*, 2016). During this process, both manufacturers and suppliers are developed and trained through supplier engagement programmes (SEPs) for the purpose of CSR performance and sustainable supply chain management (Agan *et al.*, 2016). According to Cruz and Wakolbinger (2008), and Kogg and Mont (2012), the most notable changes in the way firms work with CSR issues and are socially responsible is the shift of the focus from their own operations to improving the overall performance of supply chains, customer satisfaction and loyalty. Hence, this paper hypothesises that:

*H2: There is a positive relationship between corporate social responsibility and supply chain partnership.*

### Innovation and firm competitiveness

Scholars and business leaders alike have acknowledged the importance of innovation as a major source of competitive advantage, business success and enhanced sustainable growth (Back, Partoteeah & Nam, 2014, Gao & Chou, 2015, Kalmuk & Acar, 2015, Ross, 2016). Innovation is what makes firms outperform competitive rivals and become a leaders in the market with sustained high profit, for example Walmart is performing very well globally in terms of innovation. (Karabulut, 2015). Hartono (2015) defines innovation as generation, conversion and exploitation of new ideas that is combined with firm capability through a systematic process for producing outcome to be perceived as new that has economic values for customers and firms. Therefore, a firm's competitive performance depends on its capability to innovate and continuously develop as well as readjust products and service that promotes competitive advantages. New product innovation, new process innovation, management innovation and technological innovation have been found to have a positive influence on economic development and growth as well as firm competitive advantages (Drumea & Mirela, 2015, Walker, Chen & Aravind, 2015, Aziz & Samad, 2016, Coad, Segarra & Teruel, 2016, Diaz-Chao, Sainz-Gonzalez & Torrent-Sellens, 2016; Husain, Dayan & Di Benedetto, 2016). Innovation is a prerequisite for increased competitiveness and creating long-lasting advantages (Sener & Saridogan, 2011, Ross, 2016). In the present monopolistic environment where similar products exist across many potential sellers and buyers, firms that do not seek to invest in

innovation and maximise their competitive priority may run out of business in no time (Aziz & Samad, 2016). Competition compels firms to maximise profit. Therefore, this paper posits that:

*H3: There is a positive relationship between innovation and firm competitiveness.*

### Supply chain partnership and firm competitiveness

Supply chain partnerships that are very strong can lead to firm competitiveness through royalty and just in time principles (JIT). This means that firms in supply chains have more advantage in terms of utilising the intellectual capital, information in collaboration and visibility, more concentration on core competencies, as well as knowledge resource for competitive advantage (Ryu *et al.*, 2009; He, Ghobadian & Gallear, 2013; Su *et al.*, 2013). Other benefits of supply chain partnership include: value added products (Mirmajlesi & Shafaei, 2016); improve market access (Wong, Lai & Bernroider, 2015); add technological strength (Lui, Wei, Ke, Wei & Hua, 2016); enhance strategic growth (Youn, Yang, Hong & Park, 2013); enhance firm's skills (Youn *et al.*, 2013) and build financial strength (Chang, Ellinger, Kim & Franke, 2016). Therefore, to compete effectively, rapidly respond to global competitive challenges and technologies as well as enhance the effectiveness of supply chain, it is almost important for firms to work collaboratively together in a mutually beneficial relationship. Therefore,

*H4: There is a positive relationship between supply chain partnership and firm competitiveness*

## 4. RESEARCH METHODOLOGY

A quantitative cross-sectional survey design was used to describe the influence of CSR on innovation, supply chain partnership and firm competitiveness. The study population was employees working in companies based in Vanderbijlpark, South Africa. Only those who are permanent employees and have been working there for a year were included in this study population. One year was the target inclusion period; it was assumed that after a year, one generally has an idea of the company's performance and CSR. As such, the inclusion/exclusion criteria determined that all those on internship and contract employees be excluded from this study.

### Measurement Instruments

Research scales were designed on the basis of previous work. Proper modifications were made in order to fit the current research context and purpose. CSR was measured using six-item scales adapted from Montiel (2008). Innovation used a four-item scale measure adapted from Karabulut (2015). Supply chain partnership used a four-item scale measure adapted from Li, Ragu-Nathan, Ragu-Nathan and Subba Rao (2006). Firm competitiveness was measured using a four-item scale, from Al-alak and Tarabieh (2011). Measurement scales were configured on a five-point Likert-type scale that was anchored by one (strongly disagree) to five (strongly agree) in order to express the degree of agreement.

**Sample Description**

300 questionnaires were distributed to different companies in Vanderbijlpark, South Africa. 300 were used because Smart PLS works very well with small and large data samples unlike structural equation

modelling (SEM), which works well with large data samples only. 280 questionnaires were returned of which only 250 were usable. This yielded a valid response rate of 83 percent. Descriptive statistics in Table 1 show the gender, marital status and age of higher education professional employees.

**Table 1.** Sample demographic characteristics

| Gender         | Frequency  | Percentage  |
|----------------|------------|-------------|
| Male           | 190        | 76%         |
| Female         | 60         | 24%         |
| <b>Total</b>   | <b>250</b> | <b>100%</b> |
| Age            | Frequency  | Percentage  |
| ≤30            | 110        | 44%         |
| 31-60          | 100        | 40%         |
| ≥ 60           | 40         | 16%         |
| <b>Total</b>   | <b>250</b> | <b>100%</b> |
| Marital status | Frequency  | Percentage  |
| Married        | 85         | 34%         |
| Single         | 165        | 66%         |
| <b>Total</b>   | <b>250</b> | <b>100%</b> |

As indicated in Table 1, more males participated in the study. They constituted 76 percent of the total population. This study shows that females only constituted 24 percent of the total respondents. In terms of the age groups of respondents, individuals who were less than 30 years of age were the greatest number (44%) in the study, followed by those aged between 31 and 60 (40%), lastly those above 60 years are the minority (16%). Respondents who are married constituted 34 percent of the sample while those who were single constituted 66 percent of the sample.

**5. DATA ANALYSIS RESULTS**

**Psychometric Properties of the Measurement Scale**

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

**Table 2.** Measurement accuracy assessment and descriptive statistics

| Research constructs  | Descriptive statistics* |       | Cronbach's test |         | CR    | AVE   | Item Loadings |
|--|-------------------------|-------|-----------------|---------|-------|-------|---------------|
|  | Mean                    | SD    | Item-total      | α Value |       |       |               |
| <b>Corporate social responsibility (CR)</b>  |                         |       |                 |         |       |       |               |
| CR 1   |                         |       | 0.501           | 0.749   | 0.749 | 0.602 | 0.533         |
| CR 2   |                         |       | 0.633           |         |       |       | 0.668         |
| CR 3   | 2.64                    | 1.710 | 0.708           |         |       |       | 0.736         |
| CR 4   |                         |       | 0.605           |         |       |       | 0.647         |
| CR 5   |                         |       | 0.688           |         |       |       | 0.720         |
| CR 6   |                         |       | 0.606           |         |       |       | 0.637         |
| <b>Innovation (IN)</b>   |                         |       |                 |         |       |       |               |
| IN 1   |                         |       | 0.513           |         |       |       | 0.659         |
| IN 2   |                         |       | 0.764           |         |       |       | 0.829         |
| IN 3   | 3.08                    | 1.001 | 0.738           | 0.769   | 0.769 | 0.634 | 0.776         |
| IN 4   |                         |       | 0.759           |         |       |       | 0.827         |
| <b>Supply chain partnership (SP)</b>   |                         |       |                 |         |       |       |               |
| SP 1   |                         |       | 0.505           |         |       |       | 0.567         |
| SP 2   |                         |       | 0.673           |         |       |       | 0.727         |
| SP 3   | 3.00                    | 1.325 | 0.689           | 0.658   | 0.658 | 0.602 | 0.733         |
| SP 4   |                         |       | 0.699           |         |       |       | 0.788         |
| <b>Firm competitiveness (FC)</b>   |                         |       |                 |         |       |       |               |
| FC 1   |                         |       | 0.676           |         |       |       | 0.751         |
| FC 2   |                         |       | 0.622           |         |       |       | 0.715         |
| FC 3   | 2.18                    | 1.703 | 0.596           | 0.715   | 0.715 | 0.669 | 0.665         |
| FC 4   |                         |       | 0.705           |         |       |       | 0.811         |
| <i>CR=Corporate Social Responsibility; IN=Innovation; SP=Supply Chain Partnership; FC=Firm Competitiveness</i> |                         |       |                 |         |       |       |               |

The lowest item-to-total loading observed was CR 1 with 0.501 and the highest was IN 2 with 0.764. The lowest factor loading observed was CR 1 with

0.533 and the highest is IN 2 with 0.829. This shows that the measurement instruments are valid. The lowest Cronbach alpha was 0.658 and the highest

was 0.769, which shows that the constructs were internally consistent or reliable and explained more than 60 percent of the variance. All composite reliability values were above the recommended minimum of 0.6 (Bagozzi & Yi, 1988), which further attests to the reliability of the measurement instrument used in the study.

Composite reliabilities (CR) and average variance extracted (AVE) for each construct were also computed using the formulae proposed by Fornell and Lacker (1981):

$$CR_{\eta} = (\sum \lambda_{yi})^2 / [(\sum \lambda_{yi})^2 + (\sum \epsilon_i)], \text{ where}$$

$CR_{\eta}$  = composite reliability,  $(\sum \lambda_{yi})^2$  = square of the summation of the factor loadings;  $(\sum \epsilon_i)$  = summation of error variances.

$$V_{\eta} = \sum \lambda_{yi}^2 / (\sum \lambda_{yi}^2 + \sum \epsilon_i), \text{ where}$$

$V_{\eta}$  = average variance extracted (AVE);  $\sum \lambda_{yi}^2$  = summation of the squared of factor loadings;  $\sum \epsilon_i$  = summation of error variances.

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 | CR           | IN           | SP           | FC           |
|-----------|--------------|--------------|--------------|--------------|
| <b>CR</b> | <b>0.542</b> |              |              |              |
| <b>IN</b> | 0.499        | <b>0.588</b> |              |              |
| <b>SP</b> | 0.491        | 0.564        | <b>0.457</b> |              |
| <b>FC</b> | 0.472        | 0.499        | 0.443        | <b>0.501</b> |

*CR=Corporate Social Responsibility; IN=Innovation; SP=Supply Chain Partnership; FC=Firm Competitiveness*

A correlation value between constructs of less than 0.60 is recommended in the empirical literature to confirm the existence of discriminant validity (Bagozzi & Yi, 1988). As can be observed from Table 3, all the correlations were below the acceptable level of 0.60, which confirms the existence of

discriminant validity. 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 tables 2 and 3, the results further confirm the existence of discriminant validity. To ascertain convergent validity, the factor loadings were considered in order to assess if they were above the recommended minimum value of 0.5 (Nunnally & Bernstein, 1994). The factor loadings for scale items (Table 2) were above the recommended 0.5, which indicated that the instruments were valid and converging well on the constructs that they were expected to measure.

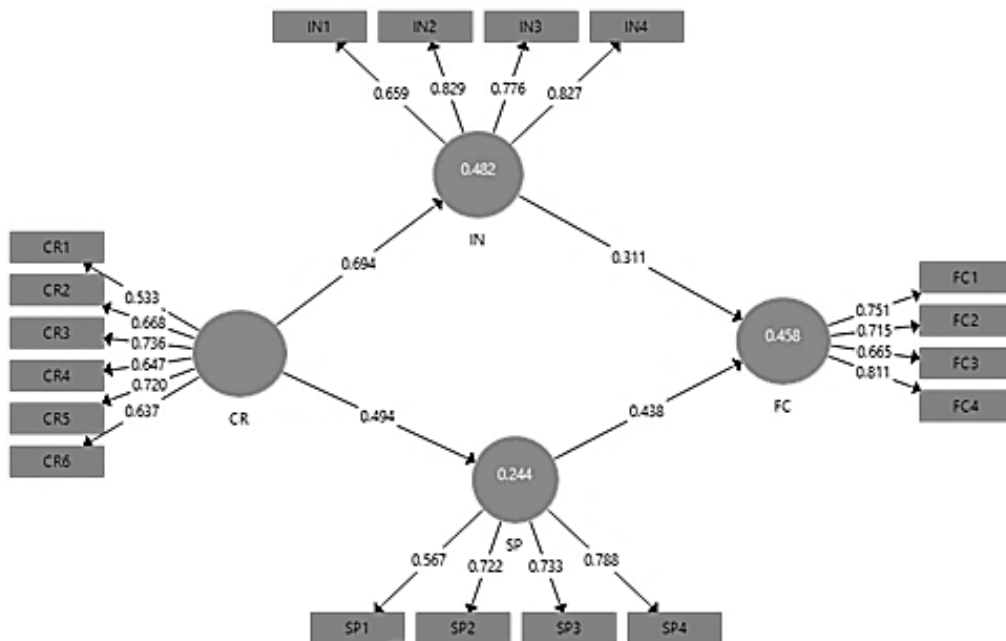
**Path Modelling Results**

After confirming the reliability and validity of the measurement instruments (reported in Table 2), the study proceeded to test the proposed hypotheses. In total, there are four hypotheses that are tested. In the path model, CR is the independent variable, IN and SP are the mediators and FC is the outcome/dependent variable. Figure 2 provides the proposed hypotheses and the respective path coefficients. The same results of the path coefficients are tabulated in Table 2 depicting the item to total correlations, average variance extracted (AVE), composite reliability (CR) and factor loadings.

**Path Model Results and Factor Loadings**

Figure 2 indicates the path modelling results and as well as the item loadings for the research constructs. In the figure, CR stands for Corporate Social Responsibility; IN is the acronym for innovation; SP stands for supply chain partnership and FC is the acronym for firm competitiveness.

**Figure 2.** Path modelling and factor loading results





**Table 4.** Results of structural equation model analysis

| Path   | Hypothesis | Path coefficients ( $\beta$ ) | T-statistics | Decision on hypotheses |
|--|------------|-------------------------------|--------------|------------------------|
| Corporate social responsibility (CR) → Innovation (IN)               | H1         | 0.694 <sup>a</sup>            | 10.483       | Accept/ Significant    |
| Corporate social responsibility (CR) → Supply chain partnership (SP) | H2         | 0.494 <sup>a</sup>            | 8.906        | Accept/ Significant    |
| Innovation (IN) → Firm competitiveness (FC)                          | H3         | 0.311 <sup>a</sup>            | 3.100        | Accept/ Significant    |
| Supply chain partnership (SP) → Firm competitiveness (FC)            | H4         | 0.438 <sup>a</sup>            | 7.989        | Accept/ Significant    |

<sup>a</sup>Significance level  $p < .10$ ; <sup>b</sup>Significance level  $p < .05$ ; <sup>c</sup>Significance level  $p < .01$ .

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

**6. DISCUSSION OF THE RESULTS**

The purpose of this paper was to examine the influence of CSR on innovation, supply chain partnership and firm competitiveness on companies in Vanderbijlpark, South Africa. CSR influences firms' financial performance, risk appetite or earnings in a positive way. The first hypothesis stated that CSR has a positive influence on innovation. In this study, this hypothesis was supported. It can be observed in Figure 2 and Table 4 that CSR exerted a positive influence ( $r = 0.694$ ) and was statistically significant ( $t = 10.483$ ) in predicting innovation in the companies. This result implies that CSR directly influences innovation in a positive and significant fashion. The higher the level of CSR, the higher the level of innovation at the workplaces.

The second hypothesis suggested that CSR has a positive influence on supply chain partnership. This hypothesis was supported in this study. Figure 1 and Table 4 indicate that supply chain partnership H2 was supported. CSR exerted a positive influence ( $r = 0.494$ ) on supply chain partnership and was statistically significant ( $t = 8.906$ ). This result denotes that CSR is positively and significantly related to supply chain partnership. Thus, higher levels of CSR will lead to higher levels of supply chain partnership.

The third hypothesis, which advanced that innovation exerts a positive influence on firm competitiveness was supported and accepted in this study. It is reported in Figure 1 and Table 4 that H3 innovation exerts a positive ( $r = 0.311$ ) influence on firm competitiveness and that this influence is statistically significant ( $t = 3.100$ ). This result suggests that innovation has a direct positive effect on firm competitiveness. Thus, the more effective the innovation, the greater the positive firm competitiveness.

The final hypothesis, H4, postulated that supply chain partnership exert a positive influence on firm competitiveness. In this study, this hypothesis was supported and accepted. As can be deduced from Figure 1 and Table 4, supply chain

partnership exerted a positive and significant influence ( $r=0.438$ ;  $t=7.989$ ) on firm competitiveness. This result depicts that supply chain partnership is associated with higher firm competitiveness.

Hypothesis one, CSR ( $r = 0.694$ ) emerged as the highest scoring construct amongst the three factors influencing innovation. Perhaps this result could be attributed to the fact that CSR is at its peak when innovation is very effective and efficient, which makes theoretical sense. If the company has employees who are prone to innovation, it means CSR will also be high in that firm. Thus, in order to enhance high innovation, greater emphasis should be placed on CSR.

**LIMITATIONS AND FUTURE RESEARCH DIRECTION**

A number of limitations were observed during this research. First, the study was restricted to four factors only, namely CSR, innovation, supply chain partnership and firm competitiveness. Future research could also include other factors such as organisational citizenship behaviours and organisational politics, which can have an impact on firm competitiveness. Secondly, the results are based on a small sample of 250 respondents, which makes it difficult to generalise the results to other contexts of firms in South Africa. Future studies could make use of amplified sample sizes in order to get views that are more representative. Since this study used a quantitative approach, future studies could also use a mixed method approach so that in-depth views of employees in the firms can also be captured.

**CONCLUSIONS AND MANAGERIAL IMPLICATIONS**

The study validates that factors such as CSR, innovation and supply chain partnership are instrumental in stimulating firm competitiveness. The study further validates that CSR is good when innovation, supply chain partnership and firm competitiveness are good. The study has both theoretical and managerial implications. Theoretically, this study makes a noteworthy progression in marketing theory by methodically examining the interplay between CSR, innovation and supply chain partnership and firm competitiveness. In this manner, the study is an important contributor to the existing literature on this subject. The study also underwrites a new direction in the research on consumer behaviour by opening up a discussion on the importance of marketing practices in the development and

improvement of firm competitiveness in Vanderbijlpark, South Africa.

On the practical front, since all four hypotheses have a positive influence on each other, improvements in each of these three factors could stimulate higher firm competitiveness in Vanderbijlpark, South Africa. CSR can be improved by being sensitive to the environment and emphasising on going green. On innovation, the firms should aim to improve the technological aspect and employing employees who are adept in technology. Supply chain partnership could be improved by working well with all stakeholders involved in companies like suppliers and even banks. Firm competitiveness can be improved through learning the benefits of organisational citizenship behaviours and workplace spirituality. Firms in Vanderbijlpark should aim to compete with other firms globally for efficacy reasons.

## REFERENCES:

1. Agan, Y., Kuzey, C., Acar, M.F., and Acikgoz, A. (2016). The relationships between corporate social responsibility, environmental supplier development, and firm performance. *Journal of Cleaner Production*, Vol. 112, pp. 1872-1881.
2. Al-alak, B. A., and Tarabieh, S. A. (2011). Gaining competitive advantage and organizational performance through customer orientation, innovation differentiation and market differentiation. *International Journal of Economic and Management Sciences*, Vol. 1 No 5, pp. 80-91.
3. Alafeef, M.A.M.I (2015). The Impact of Innovation Marketing Orientation in Achieving the Competitive Advantage in Hotel Establishments in Saudi Arabia "Case Study-Al Baha City-KSA". *International journal of scientific & technology research*, Vol. 4 No 3, pp. 193-198.
4. Asongu, J.J. (2007). Innovation as an argument for corporate social responsibility. *Journal of Business and Public Policy*, Vol. 3 No 1, pp.1-21.
5. Aziz, N.N.A., and Samad, S. (2016). Innovation and competitive advantage: moderating effects of firm age in foods manufacturing SMEs in Malaysia. *Procedia Economics and Finance*, Vol. 3 No 35, pp. 256-266.
6. Back, Y., Partoteeah, K.P., and Nam, D. (2014). Innovation in Emerging Markets: The Role of Management Consulting Firms. *Journal of International Management*, Vol.20, pp. 390-405.
7. Bagozzi, R. P., and Yi, Y. (1988). On the Evaluation of Structural Equation Models. *Journal of Academy of Marketing Science*, Vol. 16 No 1, pp. 74-94.
8. Bhaumik, S.k., Driffield, N., and Zhou, Y. (2016). Country specific advantage, firm specific advantage and multinationality - sources of competitive advantage in emerging markets: evidence from the electronics industry in China. *International Business Review*, Vol. 25, pp. 165-176.
9. Bohas, A., and Poussing, N. (2016). An empirical exploration of the role of strategic and responsive corporate social responsibility in the adoption of different Green IT strategies. *Journal of Cleaner Production*, Vol. 122, pp. 240-251.
10. Chang, W., Ellinger, A.E., Kim, K.K., and Franke, G.R. (2016). Supply chain integration and firm financial performance: a meta-analysis of positional advantage mediation and moderating factors. *European Management Journal*, Vol. 34 No 3, pp. 282-295.
11. Chen, I. J., and Paulraj, A. (2004). Towards a theory of Supply Chain Management: the constructs and measurements. *Journal of Operations Management*, Vol. 22, pp. 119-150.
12. Chimucheka, T. and Mandipaka, F., (2015). Challenges Faced By Small, Medium and Micro Enterprises in the Nkonkobe Municipality. *The International Business & Economics Research Journal*, Vol.14 No 2, pp. 309 -316.
13. Ciliberti, F., Pontrandolfo, P., and Scozzi, B. (2008). Investigating corporate social responsibility in supply chains: a SME perspective. *Journal of Cleaner production*, Vol.16, pp. 1579-1588.
14. Chartered Institute of Purchasing and Supply (CIPS). (2013). Partnering: CIPS position on practice. CIPS knowledge - leading global excellent in procurement and supply.
15. Coad, A., Segarra, A., and Teruel, M. (2016). Innovation and firm growth: does firm age play a role? *Research Policy*, Vol.45, pp. 387-400.
16. Coyle, J.J., Novack, R.A., Gibson, B.J., and Bardi, E.J. (2011). *Management of Transportation*. 7ed. South-Western Cengage Learning: Canada.
17. Cruz, J.M., and Wakolbinger, T. (2008). Multi-period effect of corporate social responsibility on supply chain networks, transaction costs, emissions and risk. *International Journal of Production Economics*, Vol. 116, pp. 61-74.
18. D'Amato, A., and Room, N. (2009). Leadership of organizational change toward an integrated model of leadership for corporate responsibility and sustainable development: a process model of corporate responsibility beyond management innovation. *Corporate Governance*, Vol. 9 No 4, pp. 241-434.
19. Diaz-Chao, A., Sainz-Gonzalez, J., and Torrent-Sellens, J. (2016). The competitiveness of small network-firm: A practical tool. *Journal of Business Research*, Vol. 69, pp. 1769-1774.
20. Drumea, C., and Mirela, B.C. (2015). Competitiveness through innovation for the Romanian Economy. Allocations correlated with outputs. Patent applications and their effect on competitiveness. *Procedia Economics and Finance*, Vol. 32, pp. 1541-1549.
21. Fornell, C., and Larcker, D. (1981). Structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, Vol. 18 No.1, pp. 39-50.
22. Gallego-Alvarez, I., Prado-Lorenzo, J.M., and Garcia-Sanchez, I.M. (2011). Corporate social responsibility and innovation: a resource-based theory. *Management Decision*, Vol. 49 No 10, pp. 1709-1727.
23. Gao, W., and Chou, J. (2015). Innovation efficiency, global diversification and firm value. *Journal of Corporate Finance*, Vol. 30, pp. 278-298.
24. Gottlichova, M and Soukalova, R. (2015). Options for innovation of marketing approaches to the market in the non- profit sector. *Procedia - Social and Behavioral Sciences*, Vol. 17 No 5, pp. 334 - 341.
25. Gunday, G & Ulusoy, G. (2011). Effects of innovation types on Firm performance. *International journal of production economics*, Vol. 133 No 2, pp. 662-676.
26. Gunnar, K & Stefansson, L. (2009). Performance issues of smart transportation management systems. *International Journal of productivity and performance management*, Vol. 8 No 1, pp.58-68.
27. Haghghinasab, M., Sattari, B., Ebrahimi, M & Roghanian, P. (2013). Identification of Innovative Marketing Strategies to Increase the Performance of SMEs in Iran. *International Journal of*



- Fundamental Psychology & Social Sciences, Vol. 3 No 2, pp. 26-30
28. Hartono, A. (2015). Developing new ideas & capability-based framework for innovation process: firm analysis for Indonesia. *Procedia - Social & Behavioral Sciences*, Vol.169, pp. 161-169.
  29. Hassan, M.U, Shaukat, S, Nawaz, M.S & Naz, S. (2013). Effects of Innovation Types on Firm Performance: an Empirical Study on Pakistan's Manufacturing Sector. *Pakistan Journal of Commerce and Social Sciences*, Vol. 7 No 2, pp. 243-262.
  30. He, Q., Ghobadian, A., and Gallear, D. (2013). Knowledge acquisition in supply chain partnerships: The role of power. *International Journal of Production Economics*, Vol.141, pp. 605-618.
  31. Hetherington J. A. C. (1973). *Corporate Social Responsibility Audit: A Management Tool for Survival*; London; the Foundation for Business Responsibilities.
  32. Hisjam, M., Guritno, A.D., Supriyatno, N., and Tandjung, S.D. (2015). A Sustainable Partnership Model among Supply Chain Players in Wooden Furniture Industry Using Goal Programming. *Agriculture and Agricultural Science Procedia*, Vol. 3, pp. 154-158.
  33. Hsueh, C.F. (2014). Improving corporate social responsibility in a supply chain through a new revenue sharing contract. *International Journal of Production Economics*, Vol. 151, pp. 214-222.
  34. Husain, Z., Dayan, M., and Di Benedetto, C.A. (2016). The impact of networking on competitiveness via organizational learning, employee innovativeness, and innovation process: A mediation model. *Journal of Engineering and Technology Management*, Vol. 40, pp. 15-28.
  35. Kalmuk, G., and Acar, A.Z. (2015). The mediating role of organizational learning capability on the relationship between innovation and firm's performance: a conceptual framework. *Procedia - Social and Behavioral Sciences*, Vol. 210, pp. 164-169.
  36. Karabulut, A.T. (2015). Effects of innovation strategy on firm performance: a study conducted on manufacturing firms in Turkey. *Procedia - Social and Behavioral Sciences*, Vol. 195, pp. 1338-1347.
  37. Kim, D-Y., Kumar, V., and Kumar, U. (2010). Performance assessment framework for supply chain partnership. *Supply Chain Management: An International Journal*, Vol. 15 No 3, pp. 187-195
  38. Kim, J.S., Song, H.J., and Lee, C.K. (2016). Effect of corporate social responsibility and internal marketing on organizational commitment. *International Journal of Hospitality Management*, Vol. 55, pp. 25-32.
  39. Klassen, R.D., and Vereecke, A. (2012). Social issues in supply chains: capabilities link responsibility, risk (opportunity) and performance. *International Journal of Production Economics*, Vol. 140, pp. 103-115.
  40. Knoppen, D., and Christiaanse, E. (2007). Supply chain partnering: a temporal multidisciplinary approach. *Supply Chain Management: An International Journal*, Vol. 12 No 2, pp. 164-171.
  41. Kogg, B., and Mont, O. (2012). Environmental and social responsibility in supply chains: the practice of choice and inter-organisational management. *Ecological Economics*, Vol. 83, pp. 154-163.
  42. Lekhanya, L.M, (2010). *The Use of Marketing Strategies by Small, Medium and Micro Enterprises in Rural KwaZulu-Natal*. Doctor of Technology in marketing dissertation. Durban. Durban University of Technology.
  43. Li, S., Ragu-Nathan, B., Ragu-Nathan, T. S., and Subba Rao, S. (2006). Impact of Supply Chain Management Practices on Competitive Advantage and organizational performance. *Omega*, Vol 34, pp. 107-124.
  44. Lozano, R., Nummert, B., and Ceulemans, K. (2016). Elucidating the relationship between sustainability reporting and organizational change management for sustainability. *Journal of Cleaner Production*, Vol. 125 No 1, pp. 168-188.
  45. Lui, H., Wei, S., Ke, W., Wei, K.K., and Hua, Z. (2016). The configuration between supply chain integration and information technology competency: a resource orchestration perspective. *Journal of Operations Management*, Vol. 44, pp. 13-29.
  46. Maloka, C.M. (2013). The Contribution of Small, Medium and Micro Enterprises towards Local Economic Development in Mankweng Township, Limpopo Province. Master of Administration in Development, University of Limpopo. Limpopo Turloop.
  47. Maheshwari, B., Kumar, V., and Kumar, U. (2006). Optimizing success in supply chain partnerships. *Journal of Enterprise Information Management*, Vol. 19 No 3, pp. 277-291.
  48. Mattera, M., and Baena, V. (2015). The key to carving out a high corporate reputation based on innovation: corporate social responsibility. *Social Responsibility Journal*, Vol. 3, pp. 221-241.
  49. Midttun, A. (2007). Corporate responsibility from a resource and knowledge perspective towards a dynamic reinterpretation of CSR: are corporate responsibility and innovation compatible or contradictory? *Corporate Governance*, Vol. 7 No 4, pp. 401-413.
  50. Mirmajlesi, S.R., and Shafaei, R. (2016). An integrated approach to solve a robust forward/reverse supply chain for short lifetime products. *Computers & Industrial Engineering*, Vol. 97, pp. 222-239.
  51. Montiel, E. (2008). Corporate Social Responsibility and Corporate Sustainability. *Separate Pasts, Common Futures. Organization and Environment*, Vol. 21 No 3, pp. 245-269.
  52. Mukhamad, N & Kiminami, A. (2011). Innovation, Cooperation, and Business Performance. *Journal of agribusiness in developing and emerging economies*, Vol. 1 No 1, pp. 75-96.
  53. Nickel, W. G., McHugh, J. M. & McHugh, S. M. (2007). *Understanding business*. 8th edition. Boston: McGraw-Hill.
  54. Nunnally, J., and Bernstein I. (1994). *Psychometric theory*. (3<sup>rd</sup> Edition). New York: McGraw-Hill.
  55. O'Dwyer, M., Gilmore, A & Carson, D. (2009). Innovative marketing in SMEs: an empirical study. *Journal of Strategic Marketing*, Vol. 17 No 5, pp. 383-396.
  56. Quarshie, A.M., Salmi, A., and Leuschner, R. (2016). Sustainability and corporate social responsibility in supply chains: the state of research in supply chain management and business ethics journals. *Journal of Purchasing & Supply Management*, Vol. 22, pp. 82-97.
  57. Ross, A. (2016). Establishing a system for innovation in a professional service firm. *Business Horizons*, Vol. 59, pp. 137-147.
  58. Ryu, I.L., So, S.H., and Koo, C. (2009). The role of partnership in supply chain performance. *International Management & Systems*, Vol. 109 No 4, pp. 494-514.

59. Sener, S., and Saridogan, E. (2011). The effects of science-technology-innovation on competitiveness and economic growth. *Procedia Social & Behavioral Sciences*, Vol. 24, pp. 815-828.
60. Shnayder, L., Van Rijnsoever, F.J., and Hekkert, M.P. (2016). Motivations for Corporate Social Responsibility in the packaged food industry: an institutional and stakeholder management perspective. *Journal of Cleaner Production*, Vol. 122, pp. 212-227.
61. Su, H-Y., Fang, S-H., and Young, C-S. (2013). Influence of relationship transparency on intellectual capital reporting on supply chain partnerships with suppliers: a field experiment. *Supply Chain Management: An International Journal*, Vol. 18 No 2, pp. 178-193.
62. Sula, T & Banyar, M. (2015). Innovative marketing as a tool for building a positive image of an institution of higher education and increasing the competitiveness of its graduates - Analysis of the functional use of projects of the Department of Marketing Communications at the Faculty of Multimedia communications of TBU in Zlin and their potential for integration into the teaching process. *Procedia- Social and Behavioral Sciences*, Vol. 175 No 1, pp. 146-153
63. Teipal, T., Garg, R.K., and Sachdeva, A. (2013). Trust among supply chain partners: a review. *Measuring Business Excellence*, Vol. 17, pp. 51-71.
64. Tidy, M., Wang, X., and Hall, M. (2016). The role of Supplier Relationship Management in reducing Greenhouse Gas emissions from food supply chains: supplier engagement in the UK supermarket sector. *Journal of Cleaner Production*, Vol. 112, pp. 3294-3305.
65. Übius, U., Alas, R., and Vanhala, S. (2009). Innovation and corporate social responsibility in Estonian organisations. *Problems and Perspectives in Management*, Vol. 7 No 1, pp. 135-145.
66. Walsh, J. & Anurit, P., (2008). Development of excellent entrepreneurs in small and medium enterprises in Laos and Cambodia. *GMSARN International Journal*, 2(4), 147-156.
67. Walker, R.M., Chen, J., and Aravind, D. (2015). Management innovation and firm performance: An integration of research findings. *European Management Journal*, Vol. 33, pp. 407-422.
68. Wong, C.W.Y., Lai, K-H., and Bernroider, E.W.N. (2015). The performance of contingencies of supply chain information integration: The roles of product and market complexity. *International Journal of Production Economics*, Vol. 165, pp. 1-11.
69. Wu, S.I & Lin, T.R (2014). The Influence of Relational Bonds and Innovative Marketing on Consumer Perception - A Study of Theme Parks, *Journal of Management and Strategy*, Vol. 5 No 4, pp. 54-67.
70. Youn, S., Yang, M.G.M., Hong, P., and Park, K. (2013). Strategic supply chain partnership, environmental supply chain management practices, and performance outcomes: an empirical study of Korean firms. *Journal of Cleaner Production*, Vol. 56, pp. 121-130.

# RISKS AND BENEFITS FROM USING MOBILE BANKING IN AN EMERGING COUNTRY

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## Abstract

An emerging countries banking service providers are eager to implement new technologies and services in order to grasp, penetrate the market and gain competitive advantage. The banks made use of technology by introducing new products such as mobile banking, but customers are not really adopting this new banking model provided as a result some challenges. Then, the overall objective of this study is to explore the risks and benefits on acceptance and usage of mobile banking by users in emerging countries. Also, to identify whether the independent variables are statistically significant factors in the adoption of mobile banking. The research established the effect of independent variables, which include perceived usefulness, and perceived ease use on dependent variables, i.e. the adoption of mobile banking. In the findings it was found that participants would use mobile banking if it is easy to use because then it will be useful to them. Conclusions were made that perceived ease of use of mobile banking positively affect perceived usefulness of mobile banking, perceived ease of use of mobile banking positively affect the behavioral intention to use mobile banking while perceived usefulness of mobile banking has a positive impact on the behavioral intention to use mobile banking.

**Keywords:** Mobile Banking, Banking Service, Internet Banking

## 1. INTRODUCTION

Botswana's banks are faced with a challenge of existing in a competitive environment, this called for them to provide better customer services which will then enable them to enter new markets and expand thus, enabling them to compete better (Jefferis & Tacheba, 2009/10). The challenges can be realized on the low usage of banking services by customers. Banking service providers responded to this challenge by putting in place Internet banking which means the performance of banking activities via the Internet. But the new banking services never live to the expectations. Internet banking has the advantages of being convenient, safe and economical, however it has disadvantages that there is low prevalence of internet in some areas, as far as internet penetration among households in Botswana is concerned, Botswana lags behind thus making internet banking not benefiting banking consumers to par.

Consequently, Botswana banking service providers are eager to implement new technologies and services in order to grasp and, penetrate the market and gain competitive advantage. Efforts have been made by banks such as first national bank, standard chartered, Bank Gaborone and Barclays to improve the banking experience to their consumers. The banks did this by actively introducing new products, making use of technology such as mobile banking (Jefferis & Tacheba, 2009/10). Mobile or cellphone banking is seen as one important way to extend the reach of banking in low income countries. Mobile banking platforms provide way of reaching large numbers of customers on a low unit cost basis,

and can provide a range of services, including bill payment, account transfers, person-to-person transfers, government transfers such as social welfare payments and pensions, cash withdrawals via merchants or ATMs, and e-money that involves cash loaded onto smartcards or cellphone SIM cards. In order to understand the benefits attached on this banking services, then, this study explores the risks and benefits on acceptance and usage of mobile banking by users in emerging countries.

First national bank Botswana (FNBB) has been the frontrunner in using new technologies in the banking sector (Jefferis & Tacheba, 2009/10). It was the first to introduce cellphone banking operation in late 2006 of which one needs to have a valid Botswana cellphone number and a qualifying FNB bank account to register for services provided by FNBB's mobile banking which include buying prepaid airtime for oneself or someone else, viewing a list of one's most recent prepaid cellphone airtime purchases, checking balances on one's balances on all accounts, getting mini statements which reflects last 5 transactions, transferring money between one's own FNB accounts, making third party payments, receiving real time confirmation of financial transactions and maintaining one's cellphone banking details.

Standard Chartered mobile banking puts banking in the palm of their consumers hands by allowing the consumers to use their mobile phones to make a balance enquiry, request a mini-statement for the last 3 transactions, transfer funds across Standard Chartered accounts, pay utility bills, request a new cheque book, receive alerts for transactions on accounts and Top up phones with

airtime. Barclays mobile banking application allows Barclays consumers to Pay bills or send and receive money easily using a mobile number with Barclays Pingit. Bank Gaborone has also introduced their mobile banking which they call Tobetsa. The entire research is organized in the following structures: problem statement (it states the underlining issues under investigation), research objectives (it covers the purpose of the study), literature review (it deal with the previous study in relation to this study), research methodology (the process deployed), data analysis and discussion of the findings (data finding presentations and interpretations), conclusion and recommendations (it provides information on the study summary and the readers benefits) and references.

## 2. PROBLEM STATEMENT

Despite the optimistic views concerning the application and benefits of mobile banking, in Botswana there are still many crucial problems which are very difficult to conquer, consumers at banks, other service providers such as the water Utilities Corporation and Botswana still queue instead of using mobile banking to their advantage to make their lives easier. This calls for researchers to find out why customers are not using mobile banking.

## 3. RESEARCH OBJECTIVES

Based on the problem statement and other issues that affects customer's adoption of mobile banking. The overall objective of this study was derived which is to explore the acceptance and usage of mobile banking by users in Gaborone. In determining this, the study seeks to specifically:

Understand the mobile banking services that Gaborone residents are more familiar with (this objective seeks to explore different mobile banking services most suitable for respondents); Understand perception of mobile banking services by Gaborone residents (this aimed to understand how respondents perceive mobile banking services offered by banks); Identify critical factors leading to higher usage of mobile banking (there are different factors that affects usage of mobile banking services (Mavetera & Chibonda, 2014), then this objective seeks to understand those factors among the selected population); Finally, to give recommendations on successful implementation of mobile banking services.

## 4. LITERATURE REVIEW

Of particular interest to the current study is mobile banking usage and acceptance, a fundamental managerial challenge in the successful implementation of mobile banking. To this end, this study examines one theory, which is the technology acceptance model (TAM) for investigating mobile banking usage and acceptance. The structure of the literature review is designed to depict the concept of mobile banking worldwide and mobile banking in Botswana. It goes on to discuss the factors influencing the adoption of mobile banking using a related theory of technology acceptance model.

The banking sector has regularly undergone changes in technology, customer preferences, competition, regulatory requirements, changing demographics and social trends. (Pool, Kazemi, Amani & Lashaki, 2016).

The convergence of telecommunication and banking services has created opportunities for the emergence of mobile commerce, in particular mobile banking. Mobile banking services provide time independence, convenience and promptness to customers, along with cost savings. Mobile banking presents an opportunity for banks to expand market penetration through mobile services. (Lee, Lee, & Kim, 2007).

### 4.1. Mobile Banking in the World

Many Information systems researchers worldwide have investigated the concept of mobile banking. In china, Govender and Sihlali (2014) studied consumer attitudes towards online and mobile banking. The aim of this study was to investigate the market status for online/mobile banking in China. The results of the study showed that Chinese online and mobile bank users were predominantly males, not necessarily young and highly educated, in contrast with the electronic bank users in the West. The issue of security was found to be the most important factor that motivated Chinese consumer adoption of online banking. Main barriers to online banking were the perception of risks, computer and technological skills and Chinese traditional cash-carry banking culture. The barriers to mobile banking adoption were lack of awareness and understanding of the benefits provided by mobile banking.

A similar study was conducted in South Korea by (Lee, Lee & Kim, 2007). The objective of the study was to identify factors influencing the adoption of mobile banking service. In this study they concluded that perceived risk indirectly influences adoption behavior but only when it was via trust. Using the mobile banking service context, the study also obtained strong empirical evidence for measuring perceived risks' dimensions. Evidence for a composite perceived risk variable was identified and a strong inhibiting effect of perceived risk on trust was also identified.

Laukkanen and Cruz (2008) conducted a study which they investigated what inhibits mobile banking adoption in the two European countries namely Finland and Portugal and how the countries differ in terms of barriers to the service adoption. They explored how the five adoption barriers namely usage, value, risk, tradition and image, derived differed between these two countries. The results of the study suggested that functional usability and relative advantage compared to other ways of banking are currently the most powerful inhibitors of mobile banking adoption. Remarkably, tradition appeared to be a negative determinant of resistance. Portuguese online bank customers showed less resistance in terms of usage, value, risk and image to adopting mobile banking services than their Finnish counterparts. However, Portuguese online bank customers showed greater preference for personal service, indicating more traditional banking behavior compared to Finns.

Studies about mobile banking have been conducted in Africa. Mlitwa and Tshetsha (2012),

carried out a survey which sought to understand perceptions about banking, technology, and mobile banking among low-income people in South Africa. Findings that emerged from the survey were that low income people used mobile banking services; they gave it high ratings for convenience, cost, and security. The survey also showed results that some potential customers do not use mobile banking because they also perceive themselves as ineligible for bank accounts and see mobile-banking as expensive and insecure.

#### 4.2. Mobile Banking in Botswana

Focusing in Botswana, a study was carried out by Mavetera and Chibonda (2014) which investigated factors that influenced Internet Banking Adoption in Botswana’s Gaborone city. The study involved working class and college students”. The results of the study noted that Internet banking awareness and resources must be increased for them to contribute significantly to the positive adoption rates of Internet Banking in Botswana.

Jefferis and Tacheba (2009/10), stated that there have been important positive developments in the banking sector of Botswana in recent years, with enhanced competition, innovations in product and service delivery, and greater choices for customers, especially savers, both within and outside of the banking sector. The coming years therefore hold considerable challenges for the banking sector, as well as for policy makers who determine aspects of the environment in which the sector operates. Banks will be looking for sources of growth and to maintain the high profit rates that they have become accustomed to, while competition intensifies, and technological changes impact on the way that banking operations are carried out. Banks have been actively introducing new products; making use of

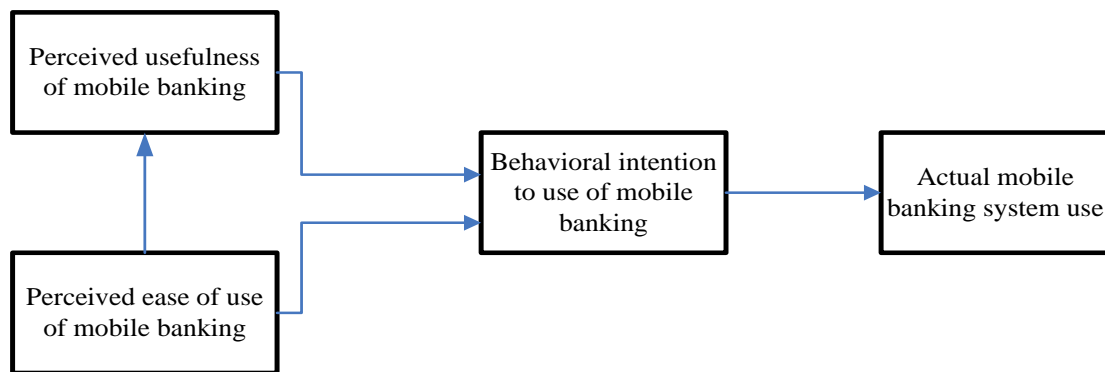
technology, with first national bank Botswana (FNBB) typically the frontrunner in this regard was the first to introduce internet and cellphone banking, and to link up with retail stores for its “mini-ATM” service.

#### 4.3. Factors Affecting the Adoption of Mobile Banking

The technology acceptance model (TAM) has been used as a valid model in predicting the individual's acceptance of various corporate IT systems (Davis, 1989). The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably:

- Perceived usefulness: This was defined by Davis (1989) as “the degree to which a person believes that using a particular system would enhance his or her job performance”. In the case of the study perceived usefulness would mean then degree to which an individual believes using mobile banking would improve their banking experience.
- Perceived ease use: Davis (1989) defined this as “the degree to which a person believes that using a particular system would be free from effort”. While, Al-Jabri and Sohail (2012) believed that adoption of technology by users demands mental ability involving lengthy time. Perceived usefulness in the case of this study means the degree to which an individual believe that using mobile banking would be free from effort. Figure 1 shows that perceived usefulness is affected by perceived ease use of mobile banking facilities. Both perceived usefulness and perceived ease use of mobile banking leads to the behavioral intention to use mobile banking hence the actual use of mobile banking will take place.

Figure 1. Mobile Banking Technology Acceptance Model, adopted from Davis (1989)



### 5. RESEARCH METHODOLOGY

The investigation aims to identify whether the independent variables are statistically significant factors in the adoption of mobile banking. The research tries to establish the effect of independent variables, which include perceived usefulness, and perceived ease use on dependent variables, i.e. the adoption of mobile banking.

There are two methods of research design, which are qualitative and quantitative research. In quantitative research the aim is to determine the

relationship between one thing (an independent variable) and another (a dependent or outcome variable) in a population. Quantitative research designs are either descriptive (subjects usually measured once) or experimental (subjects measured before and after a treatment).

For an accurate estimate of the relationship between variables, a descriptive study usually needs a sample of hundreds or even thousands of subjects; an experiment, especially a survey, may need only tens of subjects. The estimate of the relationship is less likely to be biased if you have a high

participation rate in a sample selected randomly from a population.

In surveys, bias is also less likely if subjects are randomly assigned to treatments, and if subjects and researchers are blind to the identity of the treatments.

In order to achieve the objectives of this study, the research followed a quantitative research methodology. Quantitative research method was used to provide numerical measurement and analysis of the adoption dynamic. A questionnaires were used for standardization purposes to allow for collection of the results and hypothesis testing were done as listed (6.1) blow.

### 5.1. Hypothesis

- Actual mobile banking use is positively influenced by the user's behavioral intention to use mobile banking
- Perceived ease use of mobile banking positively affect perceived usefulness of mobile banking
- Perceived ease use of mobile banking positively affects the behavioral intention to use mobile banking
- Perceived usefulness of mobile banking has a positive impact on the behavioral intention to use mobile banking

### 5.2. Sample Scheme

The basic idea of sampling is that by selecting some of the elements in a population, conclusions can be drawn about the entire population (Dembure, 2014). In this study, by selecting samples of Gaborone residents, using a survey method, with or without mobile banking and bank accounts, a conclusion was drawn about people living in Gaborone. In determination of the sample, geographical location of Gaborone city was considered in order to have the whole city be represented. A random sample of 20 residents was selected in each location which is Broadhurst, Phase 2, Village, Block9, Block7 and Block8 which amount to 120 sample size. The random sample of 20 residents was selected as to draw representation among different population. Then, a total number of 120 questionnaires were sent out to the residents and 106 returned. According to Krejcie and Morgan (1970), a sample size of 130 respondents required that 92 questionnaires would be collected and analyzed. A researcher can settle to a certain number of questionnaire received after follow-ups were made (Chukwuere, Mavetera & Mavetera, 2015). Then this study used 106 participant questionnaires after laborious follow-up carried out with no further responses received. Nonetheless, the total population is estimated at 15625 residents. According to Robinson (2014), the entire population sample size cannot be selected in a given research study, then the reason why some was included and other excluded must be provided. For this reason, the random sample of 120 residents were selected because of their wealth of knowledge with regard to mobile banking services platform, their availability, and demographic locations. Also, the sample size

was limited to the numbers provided as a result duration of the research. Again, achieving this sample size means using convenience (selection based on availability of the respondents) and purposeful (selection of respondents based on their level of knowledge on the study) sampling techniques (Oppong, 2013; Anderson, 2010). Nonetheless, these sampling techniques have pros and cons.

### 5.3. Procedure of Data Collection

Data was collected using a semi-structured questionnaire which was served on respondents through drop and pick methods. This method was chosen because of time and cost effectiveness. The use of questionnaire assisted in attaining core information and other supplementary information was obtained by reading other relevant information from publications

A method of data collection has been come up with by the researcher to ensure smooth execution of data collection. A questionnaire was created and approved; the appropriate sample was identified to ensure random selection. The questionnaire was handed personally to the residents of Gaborone so that if one was not familiar with the language of cellphone banking clarity then would be made to them.

The data collected was processed with the aid of statistical package for social science (SPSS) and Microsoft Excel. Excel enabled the researcher to use graphical representation of the gathered data.

### 5.4. Limitation of the Study

During the conduction of the research, not all the 120 questionnaires were filled by respondents. Out of a 100%, 88.33% response rate was received for the questionnaires. Different locations received different numbers of respondents therefore this may have had an impact in the research results. Another limitation was that some of the respondents did not fill give response to all of the questions in the questionnaires, making the questionnaire analysis to have missing values.

## 6. DATA ANALYSIS AND DISCUSSION OF THE FINDINGS

This section highlights the data analysis together with the findings using the research objectives (7.1 to 7.3) and hypothesis testing (7.4).

### 6.1. To Understand the Mobile Banking Services that Gaborone Residents are More Familiar with

One of the objectives of this study was to understand participant's mobile banking services participants are familiar with. To know these mobile banking services that Gaborone residents are familiar with; awareness, use of mobile banking, actual usage and intention to use was measured (see Figure 2, 3 and 4).

**Figure 2. Are you aware of mobile banking?**

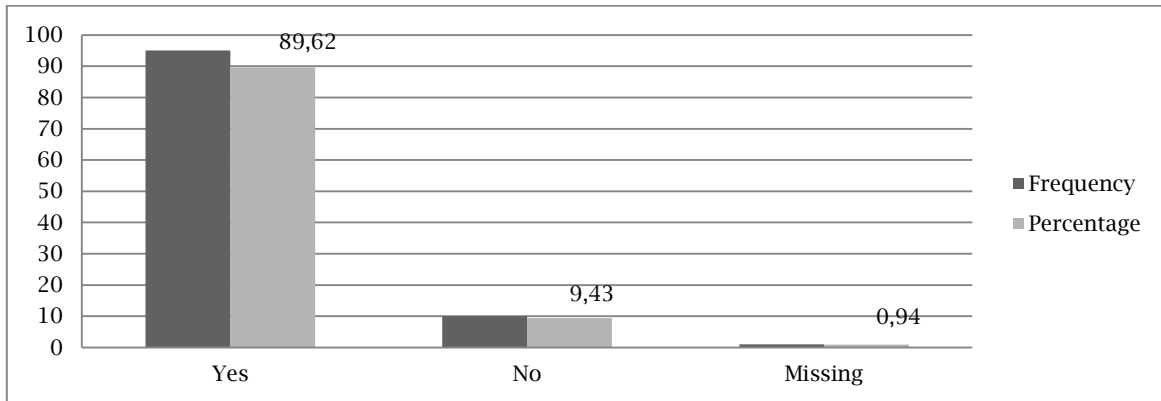


Figure 2 show that 89.62% of respondents were aware of mobile banking, 9.43% were not aware of it and 0.94% of the respondents did not specify whether they were aware of mobile banking or not.

This shows a high rate of mobile banking penetration in Gaborone, Botswana. Figure 3 determines willingness to use mobile banking platform.

**Figure 3. Do you intend to use mobile banking?**

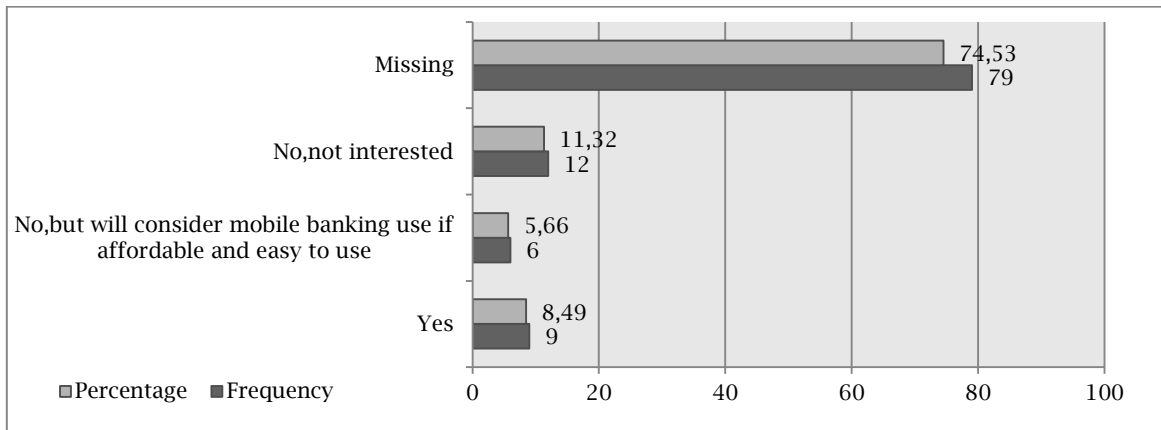


Figure 3 show that out of the 106 respondents, 8.49% of respondents showed that they intended to use mobile banking, 5.66% showed that they would use mobile banking if it is affordable and easy to use while 11.32% indicated that they were not interested in using mobile banking. Out of 79 missing

respondents, 78 are the respondents who used mobile banking and 1 was a respondent who did not use mobile banking and did not indicate their intention to use mobile banking. While Figure 4 determines whether participants use mobile banking at first place.

**Figure 4. Do you use mobile banking?**

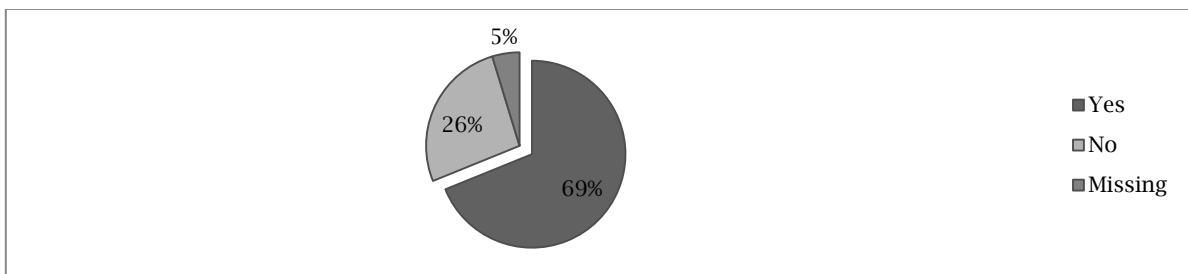


Figure 4 shows that out 69% used mobile banking and 26% did not use mobile banking. 5% of the respondents did not indicate whether they used mobile banking or not. The finding proves that

participants use mobile banking platform and also the respondents indicated using mobile banking services platform for different purposes (Table 2).

**Table 1.** Case Summary

|                              | <b>Cases</b>         |         |                          |         |       |         |
|------------------------------|----------------------|---------|--------------------------|---------|-------|---------|
|                              | Using mobile banking |         | Not using mobile banking |         | Total |         |
|                              | N                    | Percent | N                        | Percent | N     | Percent |
| Actual Use Of Mobile Banking | 73                   | 68.9%   | 33                       | 31.1%   | 106   | 100.0%  |

a. Dichotomy group tabulated at value 1.

**Table 2.** Purpose of using mobile banking

|                                     |                        | <b>Responses</b> |                | <b>Percent of Cases</b> |
|-------------------------------------|------------------------|------------------|----------------|-------------------------|
|                                     |                        | <b>N</b>         | <b>Percent</b> |                         |
| What do you use mobile banking for? | Check Account Balance  | 55               | 28.5%          | 75.3%                   |
|                                     | Transfer Money         | 49               | 25.4%          | 67.1%                   |
|                                     | Pay Store Account      | 14               | 7.3%           | 19.2%                   |
|                                     | Buy Or Pay Electricity | 35               | 18.1%          | 47.9%                   |
|                                     | Cash Withdrawals       | 40               | 20.7%          | 54.8%                   |
| Total                               |                        | 193              | 100.0%         | 264.4%                  |

Table 1 shows that 68.9% of respondents indicated they used mobile banking for several reasons that ranges from transferring money to account payment and 31.1% comprises of both who did not use mobile banking and those who did not indicate what they used it for. While, Table 2 shows that 28.5% of the respondents who used mobile banking used it to check account balance, 25.4% of the respondents used it to transfer money, 7.3% of the respondents used mobile banking to pay store accounts. 18.1% used it to buy or pay electricity and 20.7% of the respondents used it for cash withdrawals.

Objective 1 summary: In terms of awareness of mobile banking, Figure 2 shows that 89.62% of respondents were aware of mobile banking. Figure 4 shows that 69% used mobile banking; Table 1 shows that 68.9% of respondents indicated they used mobile banking for several reasons amongst options like checking account balances, transfer money, pay

store account, buy or pay electricity and cash withdrawals (see Table 4). Results indicated that 28.5% of respondents used mobile banking to check account balances, 25.4% to transfer money and the third used was cash withdrawals with a 20.7%. The research objective 1 indicated that respondent's awareness, usage and intention to use mobile banking lead to actual usage in different functions (features).

**6.2. To Understand Perceptions of Gaborone Residents Towards Mobile Banking**

*Perceived Usefulness of mobile banking*

The objective of the perceived usefulness questions was to find out if respondents believed the use of mobile banking improved their banking experience.

**Table 3.** Perceived usefulness

| <b>Construct</b>   | <b>Strongly Disagree</b> | <b>Disagree</b> | <b>Neutral</b> | <b>Agree</b> | <b>Strongly Agree</b> |
|--|--------------------------|-----------------|----------------|--------------|-----------------------|
| I think that using mobile banking would enable me to accomplish my banking tasks more quickly. | 5<br>5.1%                | 3<br>3.0%       | 13<br>13.1%    | 37<br>37.4%  | 41<br>41.4%           |
| I think that using mobile banking would make it easier for me to carry out my tasks?           | 3<br>3.0%                | 2<br>2.0%       | 19<br>19.2%    | 44<br>44.4%  | 31<br>31.3%           |
| Using mobile banking would give me more control over my banking related needs.                 | 2<br>2.1%                | 6<br>6.2%       | 27<br>27.8%    | 32<br>33.0%  | 30<br>30.9%           |
| Mobile banking would address my banking related needs.   | 0<br>0.0%                | 5<br>5.2%       | 31<br>32.3%    | 39<br>40.6%  | 21<br>21.9%           |
| Using mobile banking would reduce the time i spend on activities.                              | 2<br>2.0%                | 5<br>5.1%       | 20<br>20.4%    | 35<br>35.7%  | 36<br>36.7%           |
| I think that mobile banking would be useful.   | 3<br>3.1%                | 5<br>5.1%       | 15<br>15.3%    | 31<br>31.6%  | 44<br>44.9%           |
| Overall, I think that using mobile banking would be advantageous.                              | 2<br>2.0%                | 3<br>3.0%       | 18<br>18.2%    | 33<br>33.3%  | 43<br>43.4%           |

78.8% of the respondents agreed with the statement "I think that using mobile Banking would enable me to accomplish my banking tasks more quickly". 75.7% of the respondents agreed to the statement "I think that using mobile banking would make it easier for me to carry out my tasks". The statement "Using mobile banking would give me more control over my banking related issues" got 63.9% respondents agreeing to it. "Mobile banking would address my banking related needs", this

statement got 62.5% of respondents agreeing to it. 72.4% of the respondents agreed to the statement "Using mobile banking would reduce the time I spend on activities". The statement "I think that mobile banking would be useful." got 76.5% respondents agreeing to it and the statement "Overall, I think that using mobile banking would be advantageous" got 76.7% respondents agreeing to it. The finding shows that respondents have good and positive perception on mobile banking usage.



**Ease of Use of mobile banking**

The objectives of the ease of use questions were to comprehend whether respondents find using mobile banking free from challenges.

**Table 4.** Ease to use

| <b>Construct</b>  | <b>Strongly Disagree</b> | <b>Disagree</b> | <b>Neutral</b> | <b>Agree</b> | <b>Strongly Agree</b> |
|---|--------------------------|-----------------|----------------|--------------|-----------------------|
| I think that learning to use mobile banking would be easy.                            | 6<br>6.1%                | 2<br>2.0%       | 29<br>29.3%    | 44<br>44.4%  | 18<br>18.2%           |
| I think that it would be easy to use mobile banking to accomplish my banking tasks.   | 5<br>5.1%                | 5<br>5.1%       | 23<br>23.2%    | 47<br>47.5%  | 19<br>19.2%           |
| I think I would often become confused when i use mobile banking.                      | 20<br>20.6%              | 25<br>25.8%     | 32<br>33.0%    | 13<br>13.4%  | 7<br>7.2%             |
| I think that interacting with mobile banking would often be frustrating.              | 19<br>20.0%              | 23<br>24.2%     | 32<br>33.7%    | 13<br>13.7%  | 8<br>8.4%             |
| I think I would often need to consult someone when using mobile banking.              | 22<br>22.7%              | 27<br>27.8%     | 22<br>22.7%    | 17<br>17.5%  | 9<br>9.3%             |
| I think that Interacting with mobile banking would require a lot of my mental effort. | 24<br>25.0%              | 25<br>26.0%     | 22<br>22.9%    | 16<br>16.7%  | 9<br>9.4%             |

The statement “I think that learning to use mobile banking would be easy” got 62.6% of the respondents agreeing to it, 29.3% were neutral and 8.1% disagreed to the statement. “I think that it would be easy to use mobile banking to accomplish my banking tasks.” This statement got 66.7% respondents agreeing to it. 23.2% were neutral about it and 10.2% disagreed to the statement. The statement “I think I would often become confused when I use mobile banking” got 20.6% of respondents agreeing to it, 33.0% were neutral and 46.4% of respondents disagreed to the statement.

“I think that interacting with mobile banking would often be frustrating”, this statement got 22.1% of respondents agreeing to it, 33.7% of respondents were neutral about it and 44.2% of the respondents disagreed to the statement. The statement “I think I would often need to consult someone when using mobile banking” got 26.8% of respondents agreeing

to it, 22.7% were neutral to the statement and 50.5% disagreed to the statement. “I think that interacting with mobile banking would require a lot of my mental effort”, this statement got 26.1% of the respondents agreeing to it, 22.9% of the respondents were neutral and 51.0% disagreed to the statement. The finding shows that participants trusted and believe that mobile banking is easy to use and the features functionality meet their expectations.

**6.3. Identify Critical Factors Leading to Higher Usage of Mobile Banking**

The purpose of this research objective was to identify those critical factors leading to usage of mobile banking by the respondents. Then, Table 5 was to find the age range of the respondents in crosstabulation with mobile banking usage.

**Table 5.** Age \* Do you use mobile banking?

|              |       | <b>Do you use mobile banking?</b> |           | <b>Total</b> |
|--------------|-------|-----------------------------------|-----------|--------------|
|              |       | <b>Yes</b>                        | <b>No</b> |              |
| Age          | 17-29 | 39                                | 14        | 53           |
|              | 30-39 | 25                                | 6         | 31           |
|              | 40-49 | 5                                 | 6         | 11           |
|              | 50-70 | 3                                 | 2         | 5            |
| <b>Total</b> |       | <b>72</b>                         | <b>28</b> | <b>100</b>   |

Table 5 shows that respondents in the age range 17-29 were the ones who used mobile banking more having 39 respondents using it followed by 30-39 age range which had 25 respondents using

mobile banking. The finding depicts that age influences mobile banking usage, which also shows that younger generations are more eager to use mobile banking services.

**Table 6.** Gender \* Do you use mobile banking?

|              |        | <b>Do you use mobile banking?</b> |           | <b>Total</b> |
|--------------|--------|-----------------------------------|-----------|--------------|
|              |        | <b>Yes</b>                        | <b>No</b> |              |
| Gender       | Male   | 38                                | 15        | 53           |
|              | Female | 35                                | 13        | 48           |
| <b>Total</b> |        | <b>73</b>                         | <b>28</b> | <b>101</b>   |

Table 6 show crosstabulation that more males use mobile banking. 38 Males indicated that they used mobile banking while on the other hand 35 females indicated that they used mobile banking.

Then, gender is also an influencing factors in using mobile banking services.

In summary: Table 5 shows that age is a critical factor in mobile banking usage. Respondents in the

age range 17-29 were the ones who used mobile banking more having 39 respondents using it followed by 30-39 age range which had 25 respondents using mobile banking. Those in the age range 40-49 and 50-70 recorded the least number of respondents using mobile banking getting 5 and 3 respondents respectively. This implies that age is a critical factor in mobile banking usage.

Based on the research findings, it has been concluded that there are several mobile banking services that Gaborone residents use and are familiar with. Figure 4 shows that 69% used mobile banking, Table 1 and Table 2 indicates that 68.9% of respondents who used mobile banking at the time of the research used mobile banking for several reasons amongst option such as checking account balances, transfer money, pay store account, buy or pay electricity and cash withdrawals. results. 28.5% of respondents used mobile banking to check account balances, 25.4% to transfer money, the third used was cash withdrawals with a 20.7% followed by buying or pay electricity with 18.1%, pay store accounts got 7.3% and other use of mobile banking did not get any of the respondents using it. In terms of mobile banking awareness Table 2 shows that 89.62% of respondents in Gaborone were aware of mobile banking even though some did not use mobile banking.

In terms of perceptions towards mobile banking services by Gaborone residents, over 50% of respondents agreed to each of the perceived usefulness statements, this shows that perceived usefulness positively influences the Gaborone residents' behavioral intention to use mobile banking. On the other hand perceived ease use also got a response that it positively influences the intention to use mobile banking. Over 60% of the respondents agreed with the positive statements towards mobile banking ease of use and between 44.2% and 51% of the respondents disagreed to the negative statements towards mobile banking ease of use thus making perceived ease use a positively influencing factor in the user's intention to use mobile banking.

#### 6.4. Hypothesis Test of the Study

This section presented the hypothesis tested on this study:

***Actual mobile banking use is positively influenced by the user's behavioral intention to use mobile banking***

Those respondents who specified they did not use mobile banking but indicated they will be interested in using it only if it is affordable and easy to use, were taken as potential users and adopters of mobile banking during the time of the research hence this hypothesis was true.

***Perceived ease use of mobile banking positively affect perceived usefulness of mobile banking***

Results from Table 4 shows that between 60% and 67% of the respondents agreed with the positive statements of perceived ease of use which are "I think that learning to use mobile banking would be easy" and "I think that it would be easy to use mobile banking to accomplish my banking tasks". Furthermore 20.6 to 26.1% of respondents disagreed with the negative statements of perceived ease of

use which are "I think I would often become confused when I use mobile banking", "I think that interacting with mobile banking would often be frustrating", "I think I would often need to consult someone when using mobile banking" and "I think that Interacting with mobile banking would require a lot of my mental effort". The rest of the respondents were neutral and also disagreed to the statements. These results means that Gaborone residents believed that they would use mobile banking if it easy to use because then it will be useful to them, hence it was concluded that perceived ease of use of mobile banking positively affect perceived usefulness of mobile banking thus making this hypothesis true.

***Perceived ease of use of mobile banking positively affects the behavioral intention to use mobile banking***

Figure 2 shows that out of the respondents who did not use mobile banking, 5.66% of the respondents showed that they would use mobile banking if it is affordable and easy to use. This makes this hypothesis true as respondents showed they will have interest in using mobile banking if it is affordable and easy to use. Results from Table 4 shows that between 60% and 67% of the respondents agreed with the positive statements of perceived ease use which are "I think that learning to use mobile banking would be easy" and "I think that it would be easy to use mobile banking to accomplish my banking tasks". Furthermore 20.6 to 26.1% of respondents disagreed with the negative statements of perceived ease use which are "I think I would often become confused when I use mobile banking", "I think that interacting with mobile banking would often be frustrating", "I think I would often need to consult someone when using mobile banking" and "I think that Interacting with mobile banking would require a lot of my mental effort". The rest of the respondents were neutral and also disagreed to the statements. These results means that respondents in Gaborone believed if mobile banking is easy to use they intend to adopt and use it hence it can be concluded that perceived ease use of mobile banking positively affect the behavioral intention to use mobile banking thus making the above hypothesis true.

***Perceived usefulness of mobile banking has a positive impact on the behavioral intention to use mobile banking***

Results from Table 3 shows that between 62.5% and 78.8% of the respondents agreed with the positive statements of perceived usefulness which are "I think that using mobile banking would enable me to accomplish my banking tasks more quickly.", "I think that using mobile banking would make it easier for me to carry out my tasks?", "Using mobile banking would give me more control over my banking related needs", "Mobile banking would address my banking related needs", "Using mobile banking would reduce the time I spend on activities", "I think that mobile banking would be useful" and "Overall, I think that using mobile banking would be advantageous". These results means that respondents in Gaborone believe if mobile banking is useful they intend to adopt and use it hence it can be concluded that perceived usefulness of mobile banking has a positive impact

on the behavioral intention to use mobile banking thus making the above hypothesis true.

## CONCLUSIONS AND RECOMMENDATIONS

In the findings it was found that respondents believed they would use mobile banking if it is easy to use because then it will be useful to them, therefore a conclusion made was that perceived ease of use of mobile banking positively affects perceived usefulness of mobile banking. Furthermore respondents believed if mobile banking is easy to use they intend to adopt and use it, therefore a conclusion was made that perceived ease of use of mobile banking positively affects the behavioral intention to use mobile banking. The respondents also believed that if mobile banking is useful they intend to adopt and use it hence a conclusion was made that perceived usefulness of mobile banking has a positive impact on the behavioral intention to use mobile banking.

Furthermore this study found that gender is an influencing factor in mobile banking usage because more males used mobile banking than females did. It can also be concluded that age is another factor which influences the users' intention to use a certain technology. The results of this were that young people used mobile banking more and as age increases mobile banking usage declines.

With regards to the findings, it is recommended that for successful implementation of mobile banking in the future, service providers should focus more on marketing of the mobile banking technology to the elderly and make them understand the need and the importance of using mobile banking services. Furthermore they have to come up with ways to ensure that the more active users of mobile banking which are the youth are kept in using the technology.

## REFERENCES:

1. Al-Jabri, I. M & Sohail, M. S. (2012). Mobile Banking Adoption: Application of Diffusion of Innovation Theory. *Journal of Electronic Commerce Research*, (13) 4; 379-391
2. Anderson, C. (2010). Presenting and Evaluating Qualitative Research. *Am J Pharm Educ*. 74(8): 141.
3. Chukwuere J, Mavetera, N & Mavetera, C. (2015). An Assessment of the Effect of E-commerce on Businesses in the Mafikeng Area of South Africa. 26th IBIMA Conference. 1012-1020
4. Davis, F. D. (1989). Perceived usefulness, Perceived ease of use and user acceptance of information technology. *MIS Quartely*, 319.
5. Dembure, H. (2014). An analysis of the determinants of the banking crises in the Southern African Development Community (SADC). Retrieved June 22, 2015 from <https://repository.unam.edu.na/bitstream/handle/11070/1439/Dembure2014.pdf?sequence=1>
6. Govender, I & Sihlali, W. (2014). A Study of Mobile Banking Adoption among University Students Using an Extended TAM. *Mediterranean Journal of Social Sciences*. MCSER Publishing, Rome-Italy. 5(7), 451-459
7. Jefferis, K & Tacheba, A. (2009/10). Botswana financial sector overview. Retrieved April 22, 2015 from [www.econsult.co.bw/.../BOTSWANA%20FINANCIAL %20SECTOR%20OVERVIEW...](http://www.econsult.co.bw/.../BOTSWANA%20FINANCIAL%20SECTOR%20OVERVIEW...)
8. Krejcie, R. V & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*. 30: 607-610.
9. Laukkanen, T. and Cruz, P. (2008). *E-business and telecommunications* (Vol. 48). Porto, Portugal: Springer-Verlag Berlin Heidelberg.
10. Lee, K. S., Lee, H. S. and Kim, S. Y. (2007). Factors influencing the adoption behavior of mobile banking: A South Korean perspective. *Journal of internet banking and commerce*, 12(2).
11. Mavetera, N & Chibonda, N. (2014). A Chi-Square application on the factors influencing internet banking adoption and Usage in Botswana. *Mediterranean Journal of Social Sciences*, 5(20).
12. Mlitwa, N & Tshetsha, N. (2012). Adoption of Cell-Phone Banking among Low-Income Communities in Rural Areas of South Africa. Retrieved May 22, 2015 from <http://dx.doi.org/10.4236/ib.2012.44045>
13. Oppong, S. H. (2013). The Problem of Sampling in Qualitative Research. *Asian Journal of Management Sciences and Education (AJMSE)*, 2 (2): 202-210.
14. Pool, K. J, Kazemi, R. V, Amani, M & Lashaki, J. K. (2016). Retail bank services strategy: A model of Traditional, Electronic and mixed distribution choices. *Int. J. Manag. Bus. Res.*, 6 (1), 1-12.
15. Robinson, O. C. (2014). Sampling in Interview-Based Qualitative Research: A Theoretical and Practical Guide, *Qualitative Research in Psychology*, 11 (1): 25-41.

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