EFFECT OF ELECRONIC RETAIL PAYMENT SYSTEMS ADOPTION ON FINANCIAL PERFORMANCE OF MEDIUM AND LARGE SUPERMARKETS IN NAIROBI COUNTY, KENYA

BY

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DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed: _____Date: <u>21/11/2018</u>

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This research project has been submitted for examination with our approval as the University Supervisor.

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ACKNOWLEDGEMENT

DEDICATION

I dedicate this project to my dear loving husband Evanson Kiugu, my Son Elbert Wachira, and my whole family.

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LIST OF ABBREVIATIONS

ATM   Automated Teller Machine

ICT   Information, Communication and Technology

NSE   Nairobi Securities Exchange

RBV   Resource Based View

ROA   Return on Assets

ROE   Return on Equity

SME   Small and Medium Enterprises

TAM   Technology Acceptance Model

ABSTRACT

A key assumption of most research work done on the improvement of operations has been technological innovations and adoptions are directly proportional to improvements in performance. The process of technological innovation and implementation forms a critical part in the growth of many nations. A change of past techniques and adoption of local technology similar to that of more advanced industrialized nations lead to indigenous technological innovations. The advancement in technology has made some tasks more efficient and cheaper but it also has its fair share of challenges. This has seen firms in the retail sector apply technology in their payment systems to reduce costs and enhance financial performance and convenience but this adoption has not been embraced fully. This study sought to determine the effect of electronic retail payment system adoption on financial performance of medium and large supermarkets in Nairobi County, Kenya. The population for the study was all the 87 large and medium supermarkets in Nairobi County while the sample was 30 supermarkets that had their head office in Nairobi. The independent variables for the study were electronic retail payment system adoption as measured by the natural logarithm of the total value of transactions through the electronic retail payment system on an annual basis, capital structure as measured by debt ratio, liquidity as measured by current ratio and firm size as measured by natural logarithm of total assets. Financial performance was the dependent variable and was measured by return on assets on an annual basis. Secondary data was collected for a period of 5 years (January 2013 to December 2017) on an annual basis. The study employed a descriptive cross-sectional research design and a multiple linear regression model was used to analyze the relationship between the variables. Statistical package for social sciences version 21 was used for data analysis purposes. The results of the study produced R-square value of 0.345 which means that about 34.5 percent of the variation in financial performance of medium and large supermarkets in Nairobi County, Kenya can be explained by the four selected independent variables while 65.5 percent in the variation in financial performance was associated with other factors not covered in this research. The study also found that the independent variables had a strong correlation with financial performance (R=0.587). ANOVA results show that the F statistic was significant at 5% level with a p=0.000. Therefore the model was fit to explain the relationship between the selected variables. The results further revealed that only electronic retail payment system adoption and liquidity produced positive and statistically significant values for this study. Capital structure and firm size were found to be statistically insignificant determinants of financial performance among medium and large supermarkets in Nairobi County, Kenya. This study recommended that adequate measures should be put into place to improve and grow electronic retail payment system adoption and liquidity of supermarkets as they significantly influence financial performance.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The emergency of Information, Communication and Technology(ICT) and digital innovations has made great evolutionally development in finance, economics, operations (Slozko&Pello 2015).Due to the introduction of electronic retail payment system, the global payment system has evolved to adjust with the current trend of cashless transactions among individuals, governments and businesses (Odi & Richard, 2013). Columba (2009) asserts that the distribution network for payment services attract many people to the firm, hence increasing revenue. Kemppainen (2003) contends that effective payment infrastructure is crucial in assisting firms to institute long-term connections with their clients, as both private and corporate consumers seek to invest in the firms to tap into the tremendous benefits attached to the system.

This study was guided by several theories such as the technology acceptance model, resource based view theory and the diffusion of innovation theory that have tried to explain the relationships between electronic retail payment services and financial performance of firms. Technology Acceptance Model (TAM) clarifies the way clients embrace and make use of an innovative idea. TAM will be applied in this study to establish how retail payment services acceptance influences financial performance of supermarkets in Nairobi County, Kenya. Resource Based View (RBV) theory as developed by Wernerfelt (1984) suggests that resources that a firm a cquires enables the firm to achieve competitiveness as compared to their competitors through enhancing innovations thus firms need to focus on how they can identify and use resources to develop a sustained competitive advantage which will enhance their performance.

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Diffusion of innovation refers to the communication of an idea which is considered to be novel to the members of a social system through certain preferred channels. Innovations have to gain acceptability in a wide area in order to be sustainable. This theory has guided the study of the adoption of various retail payment services in businesses.

In recent years, the payment services in Kenya have witnessed massive transformation as the industry partakes of the new wave in the ICT advancements. The supermarkets in Kenyan have, thus increasingly embraced ICT to expand their service provision through models such as the e-payments (KEPSS, 2017). The use of electronic payment system is however still slow in Kenya though card companies are positioning for a slice of this market.With use of cash consumers are limited to funds they have on hand to access funds.

1.1.1 Electronic Retail Payment Services

According to Kaur and Pathak, (2015), electronic retail payment services are payments done under electronic commerce environment inform of money exchange by electronic means. Teoh, Chong, Chua and Lin (2013) defined e-payment as any electronic payment transfer from a payer to payee via an e-payment channel that facilitates remote access of bank accounts and transactions through an electronic network. According to the World Bank (2010), electronic retail payment systems refers to systems that provide cashless payment services such as mobile phones, credit or debit cards, ATM cards and Point of Sale Machines. It is further clarified as the intersection of both banking and telecommunications services. The above definitions are summarized, e-payment system is a collection of processes and components that aid several parties to transact and exchange monetary value using electronic means.

According to Scholnick et al., (2008), payment infrastructure is a network of interdependent entities that facilitate the exchange of data between systems to initiate, expedite and sanction cash transfer between two parties .An efficient payment system executes these tasks at a lower cost to the involved parties. Information technology allows real time information processing and analysis, reliability, accuracy and speed in information flow leading to productivity; hence profits for the organizations. Companies use technology and ICT mainly to achieve cost reduction, customer satisfaction, and revenue and market share growth objectives.

The transactions made by several individual clients are referred to as retailed payments. This covers, person-to-person, individual to business and business to business payments. It entails diverse payment instruments such as remote transactions and point-of-sale payment instruments. It also massively utilizes private networks, such as credit card companies and automated clearing houses (BIS, 2003). Retail payment intensity is calculated through the number of retail transactions to reveal the size of business level of retail payments (Rogers, 1995).In this study, electronic retail payment services will be measured by the percentage change in value of electronic transactions per year.

1.1.2 Financial Performance

The range by which a firm's financial objectives will or have been met is called financial performance (Yahaya & Lamidi, 2015). A firm's financial performance is subject to its effectiveness in using its assets for its key function of carrying out business and generating revenue. It's also the general state of a firm in terms of finance. Financial performance can as well be used to gauge or measure financial health of firms from the same industry or across different industries for comparison purposes. In summary, it's a crucial objective that firms especially the profit oriented firms desire or aim at to achieve (Kajirwa, 2015).

Financial performance concentrates more on items that influence the firm's financial statements or reports directly. The financial performance analysis can deal with items like sales turnover, dividend growth, asset base and capital employed etc. (Omondi & Muturi, 2013). It's a crucial measure of some economic units' success for instance on achieving of set goals and objectives (Xu & Wanrapee, 2014). Firm's stakeholders are mostly concerned with the firm's performance in terms of finance (Nyamita, 2014).

There are several financial ratios that can be applied in expressing financial performance; these include activity ratios, liquidity ratios, debt ratios and profitability ratios (Bouba, 2011). It can be determined from various perspectives including: liquidity, profitability, and solvency (Mwangi & Angima, 2016). Performance measurement for a company can be done through accounting-based measures calculated from firm's financial statements like ROA, ROE and Gross profit margin (Mwangi & Murigu, 2015).

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1.1.3 Retail Electronic Payments Services and Financial Performance

According to Laudon and Laudon (2012), digital firms are swifter in detecting and responding to the environment than the traditional firms and thus more receptive during turbulent times. A growing link is being witnessed between a firm's ability to use IT and its ability to employ corporate strategies that lead to ultimate goal realization. Becoming high-quality product, increasing market share, employee productivity and innovation depend more on the organization's quality of information system. Businesses commit massive resources in information systems to attain six strategic business objectives which include: innovation, operational excellence, services and business models, improved decision making, competitive advantage and customer and supplier intimacy.

According to Briggs and Brooks (2011), payment services are essential within the retail industry and they account for a significant portion of operational costs and revenues. Besides, they are equally related to an augmented market share of banks, especially through credit provision. Hasan et al., (2012) contend that robust payment services are necessary in assisting the banks in establishing enduring relationships with their clients.

Kantor (2001) is of the opinion that technological innovation is key factor in economic progress of any country as well as in gaining competitive advantage for different industries. A crucial role for both large firms, medium, small and micro is played by innovation (WladawskyBerger, 2008). Kemp (2003) maintains that innovation remains to be one of the main competitive weapons in a firm and is

distinguished as a business's core. It is also considered by Ruttan (1984) as a very effective means to progress business' productivity should there be resource limitations.

New payment technologies that take the form of electronic methods have not only reduced the settlement time but also the financial costs of processing client payments (Humphrey et al., 2006). The shift from the traditional paper based payment systems to electronic methods has substantially reduced the cost of operations for firms. The combination of the sophisticated payment methods and the reduced cost of operations attributed to the shift focus from the traditional payment methods to electronic payments techniques will positively impact the financial performance in the firms (Kavu et al., 2016).

1.1.4 Medium and Large Supermarkets in Nairobi County, Kenya

According to Ebrahims, Jack & Jill, the Kenyan retail industry is highly active with supermarkets ranging from partnerships, sole proprietors, limited liability companies to companies that are publicly owned such as Uchumi Supermarket ltd. These retailers fight for competitive advantage in the market through product diversification, price wars or quality of services advanced to customers. The country's business environment has changed tremendously leading to growth in supermarkets with majority going regional and others becoming part of the local industry (McKinsey Global Institute, 2017). Large and medium supermarkets are those stores with employees of fifty and above. These supermarkets are located within the capital center of Nairobi with branches all over Kenya and some have gone regional. The medium and large supermarkets have recently been stocking other household goods such as household appliances, clothing and furniture.

As the industry becomes more profitable, more players' mainly international retail chains are anticipated to set up operations in Kenya (Anurag, Tyagi & Raddi, 2016).

The improved financial performance of supermarkets in Kenya has been associated with factors such as market liberation, increased urbanization and growing middle class and its changing lifestyles and thus increased competition in the segment. Medium and large Supermarkets in Nairobi are becoming many and bigger and demonstrate bigger growth potential. Supermarkets in Nairobi have faced stiff competition as each superstores endeavor to become the best. Consistent market has been attributed to consistent disposable income and divergent consumer taste on different brands (Odi, 2017).

For the case of Kenyan supermarkets, electronic payment systems has been of great importance in ensuring the success of the industry despite the geographical locations and irrespective of the type of business practiced (WTO, 2017). Some of the positive contributions in the Kenyan market is that business consumers and operators are able to access market services in selling and buying in 24 hours through ought the year, hence making the operations of business activities convenient to every involved market player as people are able to get involved in any time of the day according to their needs and convenience (WTO, 2017). Electronic payment systems have been widely adopted among supermarkets in Nairobi County and it is important to investigate whether this adoption has any effect on financial performance of the firms (KEPSS, 2017).

1.2 Research Problem

A key assumption of most research work done on the improvement of operations has been technological innovations and adoptions are directly proportional to

improvements in performance (Upton & Kim, 1999). The process of technological innovation and implementation forms a critical part in the growth of many nations. A change of past techniques and adoption of local technology similar to that of more advanced industrialized nations lead to indigenous technological innovations (Roehm & Sternthal, 2001).The advancement in technology has made some tasks more efficient and cheaper but it also has its fair share of challenges (Aladwani, 2001). This has seen firms in the retail sector apply technology in their payment systems to reduce costs and enhance financial performance and convenience but this adoption has not been embraced fully (Kombe&Wafula, 2015). This study entails a review of the effect of electronic retail payment systems on financial performance of medium and large supermarkets in Nairobi.

Supermarkets in Nairobi County are increasingly deploying the use of electronic retail payment systems to improve the quality of services offered and expand (Lavi, 2016). There has been increased speed of transformation with more supermarkets realizing the potential use of electronic retail payment systems in service delivery. A few studies however exist on the application of electronic retail payment systems for success and growth of supermarkets. Despite increasing awareness in the research literature on the importance of electronic retail payment systems for supermarkets in the development context (Heeks, 1999), there is still lack of studies on electronic retail payment systems adoption, usage and impact within supermarkets in Nairobi and Kenya in general. There is a need to explore how their adoption and usage are improving financial performance and the extent to which electronic retail payment systems usage is practiced within supermarkets.

Several studies have been conducted globally by scholars on e-payment adoption.Huang (2014) did a research to establish the effect of mobile phones on SMEs performance in Auckland, New Zealand. The study's findings revealed that most SMEs in Auckland were using e-payment technology in executing their firm transactions. Similarly, Escobari and Donner (2010) assessed the use e-payment services by SMEs in developing countries and found that use of electronic payment services have aided SMEs to produce more hence improving the sales thus increasing the financial performance.Yu and Ramanathan (2008) studied ICT adoption in UK firms and found out that out of 41 retail businesses that included supermarkets, 20 had installed high technology in ICT and had achieved significant operational efficiency.

Locally, Chogii (2012) studied effects of mobile phone technologies on SMEs in Nairobi and, the findings demonstrated that most SMEs realised that mobile phones had a positive influence on their gains. Otiso, Chelangat andBonuke (2012) carried out a research that aimed at establishing effectiveness of ICT in service quality delivery at Kenya Power and Lighting Company. The study found out that ICT boosted service quality and improved customer satisfaction.Omwansa (2013) in his study on ICTs and operational efficiency in supermarkets in Nairobi found out that the supermarkets with largest extent of ICT application in their premises had the highest operational efficiency. Makori (2013) studied real-time information processing and supply chain optimization among supermarkets in Nairobi, Kenya and found out that use of real-time information processing technology had benefits such as improved inventory management, reduced labour costs and supply chain visibility.

There is evidence that several studies have been conducted on ICT adoption, however most of them have concentrated on other adoptions as opposed to retail payment services with few studies focusing on the payment systems. Consequently this research aims at closing the gap by determining the relationship between the financial performance of medium and large supermarkets in Nairobi County and electronic retail payments systems. The study intends to answer the following the research question; what is the effect of electronic retail payments systems adoption on financial performance of medium and large supermarkets in Nairobi County, Kenya?

1.3 Objective of the Study

To determine the effect of electronic retail payments systems adoption on financial performance of medium and large supermarkets in Nairobi County, Kenya

1.4 Value of the Study

The study's findings will be used for future reference by researchers, students and scholars who seek to undertake studies on a similar or correlated field. The study will also benefit researchers and scholars in the identification of other fields of research by highlighting related topics that require further research and reviewing the empirical studies to determine study gaps. The study greatly contributes to the banking sector's financial performance.

The government and other policy makers will benefit from the study findings as the standard so as to formulate policies in relation to the economy. It will further benefit as it will get enlightened by understanding the influence of electronic retail system adoption on financial performance of supermarkets in Kenya.

The study provides an understanding on the effectiveness of electronic retail payments services adoption on the financial performance of supermarkets in Kenya.

The findings from this study will be of great impact to Medium and large supermarkets in Nairobi and other supermarkets in the country in reference to adaptation of cashless payment systems that is likely to improve their activities and consequently add to the sector performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The section outlines the theoretical framework used in the study and reviews former studies on electronic retail payment systems and firms' financial performance. It entails the theoretical review, determinants of foreign direct investments, empirical review, the conceptual framework and the literature summary

2.2 Theoretical Framework

This presents review of the relevant theories on electronic retail payment systems adoption. The theories covered are; diffusion of innovation theory, resource-based view theory and technology acceptance theory.

2.2.1 Diffusion of Innovation Theory

Diffusion of Innovation refers to the communication of an idea which is considered to be novel to the members of a social system through certain preferred channels (Rogers, 2003). The spread of new ideas is impacted by four variables which are: the actual innovation, social systems, and time and communication channels. Of utmost importance is innovations have to gain acceptability in a wide area in order to be sustainable. According to Fisher (1971), adoption of innovation when mapped in the long run forms an S shaped curve. This curve begins with the innovators, early adopters, early and late majority and finally the laggards.

How successful an innovation will be stems from the resolutions put forward by the social systems through five defined steps which are; knowledge: such as innovation awareness and continuous learning regarding it; persuasion which means willingness

to have detailed knowledge concerning the innovation; resolution, that is, consideration of the advantages and disadvantages of the innovation and choice of whether to adopt the innovation; application which is an examination of how useful the innovation will be and finally confirmation, which is eventual decision on the continual use of the innovation (Rogers, 2003). The diffusion of innovation model though falls short of explaining the importance of the capability and the dynamics of different inter-connected trading partners and the influence of power between trading partners (Hart & Saunders, 1997).

Rogers (1995) describe communication channel as a critical contributor to the success of adoption of new innovation in the organization. As an effective communication channel creates prior awareness of the new technology, the trading partners need to work together to ensure the success of technological innovations. This will be determined by the inter-connected industry the organization is in and how influential that organization is to its trading partners (Lundblad, 2003). This theory has guided the study of the adoption of various technological innovations in businesses. The adoption of electronic retail payment systems will be influenced by the rate of innovation diffusion prevailing in the country.

2.2.2 Resource Based View Theory

This hypothesis was created from crafted by Wernerfelt (1984) who insists on the significance of assets and its suggestion on the firm execution. This hypothesis recommends that firms can accomplish competitive advantage by being imaginative and giving better an incentive than their clients. This must be accomplished when firms accumulate assets and utilize them ideally to their advantage (Barney, 2011). The Resource Based Theory additionally recommends that the different resources that

a firm has are the contributions to its creation procedure (Crook, 2008). Currie (2009) recommends that an association is comprised of a gathering of such huge numbers of assets which empowers it have one of a kind abilities.

The company's capacity is subject to the assets that it has. In this season of merciless rivalry a firm should advance its assets with the end goal to have the capacity to accomplish higher returns. RBV is utilized to clarify how firms gain competitiveness through inventively conveying better an incentive than clients, they center on recognizing the extraordinary assets and utilizing them ideally to their advantage. The hypothesis is critical to this study in light of its thought that firms with more assets will have the capacity to grow more technological innovations to convey their administrations to their clients in this way are beneficial over the long haul. A supermarket that adopts electronic retail payment system should be able to record improved financial performance in the long run.

2.2.3 Technology Acceptance Theory

This model clarifies the way clients embrace/acknowledge and utilize an innovation. TAM was developed in 1989 by Davis. This model asserts that once a client is given an alternative innovation, some aspects influence their choices on the means and time of utilization. This incorporates its apparent convenience and seen helpfulness. TAM embraces settled causal chain of genuine conduct convictions, goal and disposition. This was produced by social clinicians from the hypothesis of contemplated activity. In Davis' study, two vital parts are recognized; seen convenience and seen helpfulness (Davis, Pallister&Foxall, 2002).

TAM is widely adopted and greatly contributes to the development of a prediction of an individual's usage of technology (Fishbein&Ajzen, 2010). Perceived ease of use influences the perceived usefulness and the intention for adoption (Davis, 1989). Despite TAM being an important source for theoretical framework in the study of adoption and use of technology it has many limitations which include the initial purpose designing the model which is parsimony and generality (Dishaw& Strong, 1999), not taking into consideration non-organizational setting of the organization (Davis &Venkatesh 2000), and ignoring the factors which moderate the adoption of ICT (Sun & Zhang, 2006).

This theory has affected research in acceptance of technology. In this exploration, TAM will be utilized to discover how the utilization of technology enhances financial performance of supermarkets in Kenya and how the accessibility of technologyimpacts the utilization of technological innovations among supermarkets in Kenya.

2.3 Determinants of Financial Performance

The firm's financial performance can be influenced by elements either internal or external to the firms that define the output levels. The internal factors are different for each firm and determine its financial performance. These factors are triggered by both managerial and board decisions. The internal factors include technology adoption, firm size, liquidity, financial leverage, management efficiency, capital, market power among others. External factors include; exchange rate volatility, the country's economic growth, inflation and interest rates among others (Athanasoglou, Brissimis& Delis, 2005).

2.3.1 Electronic Retail Payment Systems

New payment technologies that take the form of electronic methods have not only reduced the settlement time but also the financial costs of processing client payments (Humphrey et al., 2006). The shift from the traditional paper based payment systems to electronic methods has substantially reduced the cost of operations for firms. The combination of the sophisticated payment methods and the reduced cost of operations attributed to the shift focus from the traditional payment methods to electronic payments techniques will positively impact the financial performance of companies (Pandey, 2010).

According to Creyghton, Storz, Rutstein, Mohr and Grealish (2009), payment services are essential within the retail industry and they account for a significant portion of operational costs and revenues. Besides, they are equally related to an augmented market share of banks, especially through credit provision. Hasan et al., (2012) contend that robust payment services are necessary in assisting the banks in establishing enduring relationships with their clients.

2.3.2 Liquidity of a Firm

Liquidity is defined as the degree in which an entity is able to honor debt obligations falling due in the next twelve months through cash or cash equivalents for example assets that are short term can be quickly converted into cash. Liquidity results from the managers' ability to fulfill their commitments that fall due to policy holders as well as other creditors without having to increase profits from activities such as underwriting and investment and as well as their ability to liquidate financial assets (Adam & Buckle, 2003).

According to Liargovas and Skandalis (2008), liquid assets can be used by firms for purposes of financing their activities and investments in instances where the external finance is not forthcoming. Firms with higher liquidity are able to deal with unexpected or unforeseen contingencies as well as cope with its obligations that fall due in periods of decreased gains. Almajali et al., (2012) noted that firm's liquidity may have great influence on financial performance of insurance companies; therefore he proposed that insurance companies ought to aim at increasing their current assets while decreasing their current liabilities. However, Jovanic (1982) noted that an abundance of liquidity may at times result to more harm. He therefore concludes that the influence of liquidity on financial performance of firms is ambiguous.

2.3.3 Capital Structure

Capital structure is also another important determinant of financial performance of a firm. Capital structure is the debt, equity financing ratio. For a firm to thrive, substantial amount of resources are required inform of labour, land, capital employment of all required finances which could either be internally or externally generated. The firm's capital structure together with the costs of acquiring resources is the main determinants of the source of finance to be selected. These costs can be non-monetary or monetary. According to Su &Vo, (2010), debt financing exposes the firm to bankruptcy although its attributed with certain tax and monitory benefits. Debt financing also reduces agency conflict by reducing the firm's the free cash flow.

2.3.4 Firm Size

Burca and Batrinca (2014) asserts that the relationship existing between size and financial performance is positive in the sense that more resources are available in larger firms, better risk diversification strategies, complex information systems and

are able to manage expenses well compared to small firms. This may have an impact on the financial performance of insurance companies in different ways for example large firms may be advantaged compared to smaller firms as they can be able to exploit economies of scale and scope; as such they are more efficient in their operations and as a result reap higher level of profits.

According to Almajali et al., (2012) the firm's size may have an impact on its financial performance. The relationship between performance and size is positive due to the fact that there are efficiencies in operating cost that result to increased output and economies of scale. Insurers of large companies are able to diversify their risks hence are able to quickly respond to any changes that may occur in the market. Yuqi(2007) noted that in firms that are exceptionally large, there could be a negative performance in relation to its size due to bureaucratic and other costs implications.

2.3.5 Macro-Economic Variables

Several studies have been undertaken to ascertain the effect of macroeconomic factors on performance of companies. The factors include but not limited to monetary aggregates, rate of interest, investment level in the economy, consumer price index, producer price index, GDP growth, inflation, financial depth and the degree of market efficiency. Kwon and Song (2011) carried out a research on mergers in the Korean market. He found out that the global financial challenges negatively influence the cumulative abnormal return of the acquiring company when upon the making of a merger announcement. He also stated that it may be possible that investors are more aversive to large cash outflows during a period of crisis. Flannery and Protopapadakis (2002) pointed out that inflation and money supply are well documented as the two macro-economic factors that have a significant effect on shareholders returns.

2.4 Empirical Review

Many studies have been carries out both locally and globally to support the relationship between electronic retail payment systems adoption and financial performance, but these studies have produced mixed results. In their study, Al-Smadi and Al-Wabel (2011) used the survey research designed to examine the impact of IT on the Jordanian banking sector. Their study entailed a survey of 15 Jordanian financial institutions between the year two thousand and two thousand and ten. The accounting data was used to gauge the performance of banks as well as regressed on relevant variables using the OLS regression. Their study reveals that the use of IT had a positive influence on the general performance of Jordanian banks.

Hasan et al., (2012) used descriptive survey research design to track an integrated and comprehensive view of the significance of IT on the retail payments for the performance of banking institutions. The researchers examined the retail payment services across 27 European Union markets. They document a rich relationship in regions with better retail payment transaction systems such as ATMs and POS. Generally, technology greatly impacts the way the financial institutions conduct their business. IT facilities guarantee a broad range of alternative and options that make the market viable for business.

Gutu (2014) using descriptive research design examined the effect of the Internet technology on the performance of the banks in Romania. The study sample consisted of 11 banks analysed between 2003 and 2013. The independent variables consisted of early adopting banks, number of internet users, and online advertising. The results showed that Internet revolution brought importance to both the customers and banks as well. Therefore, the banks reduce the costs of labour and branches through

automating most of their activities while clients reduce the time and money spent on the activities that involves banking. From the study, it was clear that the three variables had a positive influence on the performance. However, such effect was too low to conclude that Internet technology has a vital effect on performance. The conclusion was that internet technology had no impact on Romanian banks.

Krishna (2015) used descriptive research design to ascertain effects of Information Technology (IT) on banking industry in India. She examined the various technological developments within the Indian Banking sector that have been attributed to ICT in 2015 in form of Telephone banking, ATMs, Mobile and on-line banking. The studies reveals that use of ICT results into lower costs, however, the impact on profitability is constantly inconclusive, due to the possibility of effects that results from a huge demand of skilled labour, trustworthiness of the competition in financial services as well as changes in the information system.

Locally, Munyoki (2013) broke down the impact of online banking on the monetary performance of commercial banks in Kenya. A clear research configuration was received and a study populace of all the 43 commercial banks in Kenya. The study set up a feeble yet positive and noteworthy connection between online banking and money related performance of commercial banks in Kenya. The relationship is credited to online bank cut costs, increment commission pay, diminish staffing levels and make banking more helpful for clients. The analyst at that point suggested the banks' should address security worries for the expanding online banking extortion cases.

Using descriptive survey research design, Ngumi (2013) conducted a research study to determine the impacts of innovative practices on the profitability of the Kenyan Commercial banks. The study sampled all the 43 commercial banks across the region and applied various linear regression scrutinies to investigate the statistical implication of several independent variables allied to the system. The results indicated that innovations in the banking system have greater influences on profitability of the financial institutions in Kenya.

Okiro (2013) explored the effects of Mobile and Online banking in the Kenyan market. The research work used descriptive and qualitative study design, which was consistent with the objective intended in establishing the effects of e-banking infrastructure in the Kenyan institutions. The study population was 61 commercial institutions in Kenya. The study concluded that Internet banking has enhanced financial performance for banks. Mobile banking besides being bedeviled by many challenges still positively contributes to financial performance.

Okello (2016) carried out a study to establish the influence of electronic retail payment services on the financial performance of Commercial Banks. The target population y comprised of the forty-three commercial banks for a time of five years from 2011 to 2015. This study utilized on the secondary data of the banks as registered with the Kenyan Central Banks. The data included return on assets for commercial banks and the volume of transactions done through ATMs, Bank Agents and mobile banking over a given period. It also utilized the data on the number of as

ATMs and Agents recruited by banks. The findings established that the adoption/use of electronic retail payment services has improved the performance in the banking industry through ensuring its productivity and efficiency is greatly improved.

2.5 Conceptual Framework

The conceptual model developed below portrays this expected relationship between the study variables. The factors characterized here are electronic retail payment systems adoption and financial performance.

Figure 2.1: The Conceptual Model

Independent variable   **Dependent variable**

Electronic retail payment system
• Ln value

Financial performance
• ROA

Capital structure
• Debt ratio
Liquidity
• Current ratio
Firm Size
• Log total assets
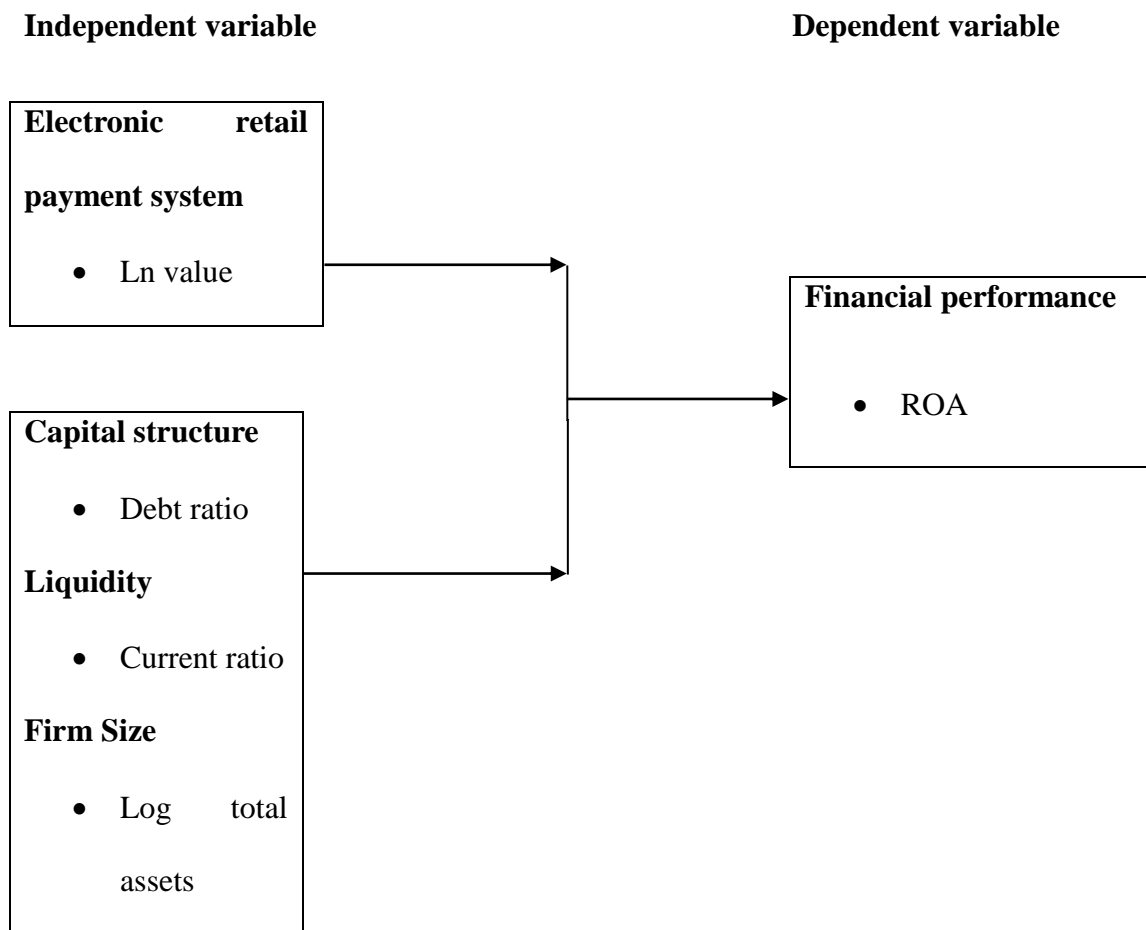
Control Variables

Source: Researcher (2018)

The independent variable is electronic retail payment systems adoption as measured by the natural logarithm of the total value of electronic retail payment transactions per year. The control variables are capital structure as measured by debt ratio, firm size as measured by natural logarithm of total assets and liquidity as measured by the current ratio. Financial performance is the dependent variable which the study sought to explain and it was measured by ROA.

2.6 Summary of the Literature Review

This part examined the variety of theories put forward on electronic retail payment systems adoption including the diffusion of innovation theory, resource-based view theory and technology acceptance theory. This chapter further outlines the determinants of financial performance. It also outlines the empirical studies done by other scholars on the topical area of electronic retail payment systems adoption and financial performance both at the local and global scene. Although several studies have been done concerning overall information technology innovations, very few have specifically dealt with electronic retail payment systems adoption and financial performance. The local study that has been carried out on electronic retail payment systems adoption and financial performance addressed the banking sector. This study intended to fill this research gap by investigating the effect of electronic retail payment systems adoption on financial performance of medium and large supermarkets in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter explains the research criteria applied in establishing the influence of electronic retail payment systems adoption on financial performance. It also shows the population of study, research design, criterion applied in collecting and analyzing of data.

3.2 Research Design

For this study, descriptive cross sectional design was used. A descriptive study entails a description of all the population elements and it gives room for estimation of a part of a population with these attributes. In order to determine if the variables are independent or dependent, relationships among various variables is examined. Cross-sectional study methods are done once and they represent summary at a given timeframe (Cooper & Schindler, 2008).

3.3 Population and Sample Size

The total population in this study was 87 medium and large supermarkets operating in Kenya as at 31st December 2017 according to KNBS. The sample of the study was 30 of the firms that have their operations in Nairobi.

3.4 Data Collection

Data was exclusively collected from a secondary source. The selected retail supermarkets financial data for five years (January 2013 to December 2017) was collected and analyzed. The data to be collected included value of total transactions

paid through Mpesa, credit cards and debit cards per year, total assets, profit before interest and tax, closing and net profit for each year.

3.5 Diagnostic Tests

Linearity show that two variables X and Y are connected by a mathematical equation Y=bX in which b is a constant number. The linearity test was acquired tthrough the scatterplot testing or F-statistic in ANOVA. Stationarity test is a process where the statistical properties such as mean, variance and autocorrelation structure do not change with time. Stationarity will be obtained from the run sequence plot. Normality is a test for the assumption that the residual of the response variable are normally distributed around the mean. This was determined by Shapiro-walk test or Kolmogorov-Smirnov test. Autocorrelation is the measurement of the similarity between a certain time series and a lagged value of the same time series over successive time intervals. It will be tested using Durbin-Watson statistic (Khan, 2008).

Multicollinearity is said to occur when there is a nearly exact or exact linear relation among two or more of the independent variables. This was tested by the determinant of the correlation matrices, which varies from zero to one. Orthogonal independent variable is an indication that the determinant is one while it is zero if there is a complete linear dependence between them and as it approaches to zero then the multicollinearity becomes more intense. Variance Inflation Factors (VIF) and tolerance levels were also carried out to show the degree of multicollinearity (Burns & Burns, 2008).

3.6 Data Analysis

SPSS version 21 computer software was used in the analysis since it's more user-

friendly. The data was inputted into the SPSS and examined using descriptive, correlation and regression analyses. In descriptive statistics, the study used standard deviation, mean, and scatter plot. In inferential statistics, the study used multivariate regression analysis to determine the relationship between the study variables.

3.6.1 Analytical Model

The study applied the regression model in form of:

$$Y= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon.$$

Where;

Y= Financial performance of retail supermarkets as determined by ROA on an annual basis

β_0 = Constant Term

$\beta_1, \beta_2, \beta_3, \beta_4$ = Beta Coefficient of variable X which measures the change Y to change in X

X_1 = Electronic retail payment systems adoption as determined by the natural logarithm of the total annual value of electronic retail payments

X_2= Capital structure given as long term debt / (shareholders equity + long term debt) on an annual basis

X_3= Firm size, as given by natural logarithm of sales on an annual basis

X_4= Liquidity, as given by current assets divided by current liabilities on an annual basis

ε =Error term

3.6.2 Tests of Significance

In the testing of the statistical significance, the F- test and the t – test were applied at 95% confidence level. The F statistic was used to determine a statistical significance of regression equation whereas the t statistic was applied in testing statistical significance of individual parameters.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

The chapter concentrated on the analysis of the collected data to establish the effect of electronic retail payment system adoption on the financial performance of large and medium supermarkets in Nairobi County, Kenya. Using descriptive statistics, correlation analysis and regression analysis, the results were presented in table forms as shown in the following sections.

4.2 Diagnostic Tests

The researcher carried out diagnostic tests on the collected data. "A test of Multicollinearity was undertaken. Tolerance of the variable and the VIF value were used where values more than 0.2 for Tolerance and values below 10 for VIF suggest that there is no Multicollinearity". "From the findings, the all the variables had a tolerance values >0.2 and VIF values <10 as shown in table 4.1 suggesting that no Multicollinearity exists".

Table 4.1: Multicollinearity Test for Tolerance and VIF

	Collinearity Statistics	
Variable	**Tolerance**	**VIF**
ERPS adoption	0.310	1.326
Capital structure	0.380	1.367
Liquidity	0.706	1.417
Firm size	0.503	1.99

Source: Research Findings (2018)

"Shapiro-walk test and Kolmogorov-Smirnov test was used in normality test. The null hypothesis for the test was that the secondary data wasn't normal. If the p-value recorded was more than 0.05, the researcher would reject it". The test outcomes are as depicted in table 4.2.

Table 4.2: Normality Test

Financial performance	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
ERPS adoption	.149	150	.300	.857	150	.853
Capital structure	.156	150	.300	.906	150	.822
Liquidity	.172	150	.300	.869	150	.723
Firm size	.165	150	.300	.880	150	.784
a. Lilliefors Significance Correction						

Source: Research Findings (2018)

"Both Kolmogorov-Smirnova and Shapiro-Wilk tests recorded o-values greater than 0.05 implying that the data used in research was distributed normally and therefore the null hypothesis was rejected". "This data was therefore appropriate for use to conduct parametric tests such as Pearson's correlation, regression analysis and analysis of variance".

"Autocorrelation tests were executed for checking of correlation of error terms across time periods. Autocorrelation was checked by use of the Durbin Watson test". "A

durbin-watson statistic of 1.990 indicated that the variable residuals were not serially correlated since the value was within the acceptable range of between 1.5 and 2.5".

Table 4.3: Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.587ᵃ	.345	.327	.01674114	1.990

a. Predictors: (Constant), Liquidity, Capital Structure, ERPS adoption, Firm size

b. Dependent Variable: Financial performance

Source: Research Findings (2018)

4.3 Descriptive Analysis

Descriptive statistics gives a presentation of the average, maximum and minimum values of variables applied together with their standard deviations in this study.

Table 4.4 below shows the descriptive statistics for the variables applied in the study. An analysis of all the variables was obtained using SPSS software for the period of five years (2013 to 2017). ERPS adoption had a mean of 7.7527 with a standard deviation of 0.4827. Capital structure had a mean of 0.8578 and standard deviation of 0.6414. Liquidity recorded a mean of 0.3847 with a standard deviation of 0.1392. Firm size resulted to a mean of 9.9753 with a standard deviation of 0.7903. Financial performance which was the dependent variable in this study had a mean of 0.0225 and a standard deviation of 0.0204.

Table 4.4: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Financial performance	150	-.05320	.06140	.0225173	.02039993
ERPS adoption	150	6.807	8.703	7.75271	.482682
Capital Structure	150	.2460	8.2233	.857788	.6414015
Firm size	150	8.418	11.577	9.97527	.790269
Liquidity	150	.140	.948	.39468	.139249
Valid N (listwise)	150				

Source: Research Findings (2018)

4.5 Correlation Analysis

"The study employed the Pearson correlation to analyze the level of correlation between the financial performance and the independent variables for this study (ERPS adoption, liquidity, size and capital structure)".

"It was discovered that there was a positive and statistically significant correlation (r = .568, p = .000) between ERPS adoption and financial performance. The study also found out that there was a positive and significant correlation between liquidity and financial performance as evidenced by (r = .195, p = .017)". "Capital structure was found to have a weak positive association with financial performance but the association was not significant as evidenced by (r = .063, p = .447). Firm size was found to have a weak but insignificant association with financial performance as evidenced by (r = -.041, p = .617)". "Although the independent variables had an association to each other, the association was not strong to cause Multicollinearity as

all the r values were less than 0.70. This implies that there was no multi-collinearity among the independent variables and therefore they can be used as determinants of financial performance in regression analysis".

Table 4.5: Correlation Analysis

		ROA	ERPS adoption	Capital Structure	Firm size	Liquidity
ROA	Pearson Correlation	1				
	Sig. (2-tailed)					
ERPS adoption	Pearson Correlation	.568**	1			
	Sig. (2-tailed)	.000				
Capital Structure	Pearson Correlation	.063	.091	1		
	Sig. (2-tailed)	.447	.270			
Firm size	Pearson Correlation	-.041	-.182*	-.053	1	
	Sig. (2-tailed)	.617	.026	.516		
Liquidity	Pearson Correlation	.195*	.136	-.067	-.205*	1
	Sig. (2-tailed)	.017	.096	.418	.012	

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

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

c. Listwise N=150

Source: Research Findings (2018)

4.5 Regression Analysis

Financial performance was regressed against four predictor variables; capital structure, ERPS adoption, liquidity, and firm size. The regression analysis was undertaken at 5% significance level. The critical value obtained from the F – table was compared with the one obtained from the regression analysis.

The study obtained the model summary statistics as portrayed.

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.587[a]	.345	.327	.01674114	1.990

a. Predictors: (Constant), Liquidity, Capital Structure, ERPS adoption, Firm size

b. Dependent Variable: Financial performance

Source: Research Findings (2018)

Based on the outcome in table 4.6 above, R^2 value was 0.345, a discovery that 34.5 percent of the deviations in financial performance of medium and large supermarkets in Nairobi County is caused by changes in ERPS adoption, liquidity, size and capital structure of the firms. Other variables not included in the model justify for 65.5 percent of the variations in financial performance of medium and large supermarkets in Nairobi County. Also, the results revealed that there exists a strong connection among the selected independent variables and the financial performance as shown by

the correlation coefficient (R) equal to 0.587. Durbin –Watson outcome of 1.990 was established thus indicating that the variable residual were not serially correlated.

Table 4.7: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.021	4	.005	19.061	.000[b]
	Residual	.041	145	.000		
	Total	.062	149			

a. Dependent Variable: Financial performance

b. Predictors: (Constant), Liquidity, Capital Structure, ERPS adoption, Firm size

Source: Research Findings (2018)

"The significance value is 0.000 which is less than p=0.05. This implies that the model was statistically significant in predicting how ERPS adoption, liquidity, firm size and capital structure, affects financial performance of medium and large supermarkets in Nairobi County".

"Coefficients of determination were used as indicators of the direction of the connection between the independent variables and financial performance of medium and large supermarkets. The p-value under sig. column was applied in indicating the significance of the relationship between the dependent and the independent variables. At 95% confidence level, a p-value of less than 0.05 was interpreted as a measure of statistical significance. As such, a p-value above 0.05 indicates a statistically

insignificant relationship between the dependent and the independent variables". The

results are as shown in table 4.8

Table 4.8: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.194	.031		-6.191	.000
	ERPS adoption	.024	.003	.563	8.158	.000
	Capital Structure	.001	.002	.026	.378	.706
	Firm size	.002	.002	.091	1.304	.194
	Liquidity	.020	.010	.139	1.999	.048

a. Dependent Variable: Financial performance

From the above results, it is evident that only ERPS adoption and liquidity produced

positive and statistically significant values for this study (high t-values (8.158 and

1.999), $p < 0.05$). Capital structure and firm size were found to be statistically

insignificant for this study as evidenced by (t= 0.378, p= 0.706) and (t= 1.304, p=

0.194) respectively.

The following regression equation was estimated:

$Y = -0.194 + 0.024X_1 + 0.020X_2$

Where,

Y = Financial performance

X_1 = ERPS adoption

X_2 = Liquidity

On the estimated regression model above, the constant = -0.194 shows that if selected dependent variables (capital structure, ERPS adoption, liquidity and firm size) were rated zero, the financial performance would be -0.194. A unit rise in ERPS adoption would cause a rise in financial performance by 0.024 while a unit rise in liquidity would cause a rise in financial performance by 0.020. Capital structure and firm size were found to have an insignificant influence on financial performance of medium and large supermarkets in Nairobi County.

4.6 Discussion of Research Findings

The study sought to determine the relationship between electronic retail payment system adoption and financial performance of medium and large supermarkets. ERPS adoption as measured by natural logarithm of total value of transactions through ERPS on an annual basis was the independent variable. The control variables were capital structure as measured by debt ratio, liquidity as measured by current ratio and firm size as measured by natural logarithm of total assets while financial performance as measured by the ROA was the dependent variable. "The influence of each of the independent variable on the dependent variable was analyzed in terms of strength and direction".

"The Pearson correlation coefficients between the variables revealed that a strong positive correlation exists between ERPS adoption and financial performance. The relationship between liquidity and financial performance was found to be weak, significant and positive. A discovery was made that there was a weak positive but insignificant relationship between capital structure and financial performance of

medium and large supermarkets in Nairobi County while firm size was found to have a weak and insignificant negative relationship with financial performance".

The model summary revealed that the independent variables: ERPS adoption, capital structure, liquidity and firm size explains 34.5% of changes in the dependent variable as depicted by R^2 value meaning this model doesn't include other factors that account for 65.5% of changes in financial performance. The model is fit at 95% level of confidence since the F-value is 19.061.

The findings concur with Okello (2016) who studied the influence of electronic retail payment services on the financial performance of Commercial Banks. The target population for the study comprised of the forty-three commercial banks for a time of five years from 2011 to 2015. This study utilized on the secondary data of the banks as registered with the Central Bank of Kenya. The data included return on assets for commercial banks and the volume of transactions done through ATMs, Bank Agents and mobile banking over a given period. It also utilized the data on the number of as ATMs and Agents recruited by banks. The findings established that the adoption/use of electronic retail payment services has improved the performance in the banking industry through ensuring its productivity and efficiency is greatly improved.

This study is also in agreement with Okiro (2013) who explored the effects of Mobile and Online banking in the Kenyan market. The research work used descriptive and qualitative study design, which was consistent with the objective intended in

establishing the effects of e-banking infrastructure in the Kenyan institutions. The study population was 61 commercial institutions in Kenya. The study concluded that Internet banking has enhanced financial performance for banks. Mobile banking besides being bedevilled by many challenges still positively contributes to financial performance.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter shows the summary of research findings, the conclusions made from the results, and the recommendations for policy and practice to achieve the expected financial performance of medium and large supermarkets in Nairobi County . The chapter also discusses a few main limitations encountered and suggestions for future research.

5.2 Summary of Findings

"The researcher was seeking to investigate the effect of electronic retail payment system adoption on financial performance of medium and large supermarkets in Nairobi County. The independent variables for the study were ERPS adoption, capital structure, liquidity and firm size. Secondary data was obtained from financial reports of the targeted supermarkets and was analyzed using SPSS software version 21. The study used annual data for the 30 medium and large supermarkets in Nairobi County selected for this study covering a period of 5 years from January 2013 to December 2017".

"From the results of correlation analysis, a strong positive correlation was found to exist between ERPS adoption and financial performance. The relationship between liquidity and financial performance was found to be weak, positive and significant. The study also showed that there exist a weak positive and insignificant relationship between capital structure and financial performance of medium and large

supermarkets in Nairobi County while firm size was found to have a weak and insignificant negative relationship with financial performance".

"The co-efficient of determination R-square value was 0.345 which means that about 34.5 percent of the variation in financial performance of medium and large supermarkets in Nairobi County can be explained by the four selected independent variables while 65.5 percent in the variation of financial performance was associated with other factors not covered in this research. The study also found that the independent variables had a strong correlation with financial performance (R=0.587). ANOVA results show that the F statistic was significant at 5% level with a p=0.000. Therefore the model was fit to explain the relationship between the selected variables".

"The regression results show that when all the independent variables selected for the study have zero value the financial performance will be -0.194. A unit increase in ERPS adoption would lead to increase in financial performance by 0.024 while a unit increase in liquidity would lead to an increase in financial performance by 0.020. Capital structure and firm size were found to have an insignificant effect on financial performance of medium and large supermarkets in Nairobi County".

5.3 Conclusion

The study gives a conclusion that financial performance of medium and large supermarkets in Nairobi County is significantly affected by ERPS adoption and liquidity of the firms. It was revealed that ERPS adoption had a positive and significant effect on financial performance. "The study therefore concludes that higher ERPS adoption among medium and large supermarkets in Nairobi County leads to an increase in financial performance. The study found that liquidity had a

positive and significant effect on financial performance and therefore it is concluded that higher levels of liquidity leads to an increase in financial performance. Firm size and debt ratio were found to be statistically insignificant determinants of financial performance and therefore this study concludes that firm size and capital structure do not significantly influence financial performance among medium and large supermarkets in Nairobi County".

"This study concludes that independent variables selected for this study ERPS adoption, capital structure, liquidity and firm size influence to a large extent financial performance of medium and large supermarkets in Nairobi County. It is therefore sufficient to conclude that these variables significantly influence the financial performance as shown by the p value in anova summary. The fact that the four independent variables explain 34.5% of changes in financial performance imply that the variables not included in the model explain 65.5% of changes in financial performance". This finding concurs with Okello (2016) who carried out a study to establish the effect of electronic retail payment services on the financial performance of Commercial Banks in Kenya. The target population for the study comprised of the forty-three commercial banks for a time of five years from 2011 to 2015. This study utilized on the secondary data of the banks as registered with the Central Bank of Kenya. The data included return on assets for commercial banks and the volume of transactions done through ATMs, Bank Agents and mobile banking over a given period. It also utilized the data on the number of ATMs and Agents recruited by banks. The findings established that the adoption/use of electronic retail payment services has improved the performance in the banking industry through ensuring its productivity and efficiency is greatly improved.

5.4 Recommendations

The study established that there was a positive influence of ERPS adoption on financial performance of medium and large supermarkets in Nairobi County. This study recommends adequate measures to be put into place to improve and grow the ERPS adoption of the firms. Medium and large supermarkets in Nairobi County and other sectors should adopt ERPS to enhance their financial performance and increase their returns to shareholders in future. The management of the firms should ensure a good proportion of assets are sufficiently utilized in ERPS adoption which will eventually lead to better performance.

The study found out that a positive relationship exists between financial performance and liquidity position. This study recommends that a comprehensive assessment of a firm's immediate liquidity position should be undertaken before investing in ay long term project as firm's liquidity has been found to be a significant determiner of financial performance.

The relationship between capital structure and financial performance of medium and large supermarkets in Nairobi County was found to be positive but insignificant. This implies that although an increase in debt financing may improve financial performance of a firm, the effect is negligible. This study recommends that management of medium and large supermarkets in Nairobi County should look for other determiners of financial performance other than capital structure.

5.5 Limitations of the Study

"The scope of this research was for five years 2013-2017. It has not been determined if the results would hold for a longer study period. Furthermore it is uncertain whether

similar findings would result beyond 2017. A longer study period is more reliable as it will take into account major economic conditions such as booms and recessions".

"Data quality is one of the study limitations. From this research, it is hard to conclude whether the results present the true facts about the situation. The data that has been used is only assumed to be accurate. The measures used may keep on varying from one year to another subject to prevailing condition. Secondary data was employed in the study which was already in existent as opposed to primary data which was raw information. The study also considered selected determinants and not all the factors affecting the financial performance mainly due to limitation of data availability".

For data analysis purposes, the researcher applied a multiple linear regression model. Due to the shortcomings involved when using regression models such as erroneous and misleading results when the variable values change, the researcher cannot be able to generalize the findings with certainty. If more and more data is added to the functional regression model, the hypothesized relationship between two or more variables may not hold.

5.6 Suggestions for Further Research

This study focused on electronic retail payment system adoption and financial performance of medium and large supermarkets in Nairobi County and relied on secondary data. A research study where data collection depends on primary data covering all the 87 medium and large supermarkets in Nairobi County is recommended so as to compliment this research.

The study was not exhaustive of the independent variables affecting financial performance of medium and large supermarkets in Nairobi County and this study

recommends that further studies be conducted to incorporate other variables like growth opportunities, industry practices, a firm lifecycle stage, political stability and other macro-economic variables. Establishing the effect of each variable on financial performance will enable policy makers know what tool to use when controlling the financial performance.

The study concentrated on the last five years since it was the most recent data available. Future studies may use a range of many years e.g. from 1970 to date and this can help confirm or disapprove this study's findings. The study limited itself by focusing on medium and large supermarkets in Nairobi County. The recommendations of this study are that further studies be carried out on other sectors in Kenya. Finally, due to regression models' limitations, other models such as the Vector Error Correction Model (VECM) may be applied in explanation of the various relationships among variables

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APPENDICES

Appendix I: List of Medium and Large Retail Supermarkets in Kenya

1. Acacia Supermarkets
2. Al - FatihahMaru Ltd
3. Alliance Supermarkets
4. Amana Eastleigh Supermarkets
5. Amici Supermarkets
6. Betccam Savers Supermarkets
7. Buru Buru Mini Markets
8. Chandarana Supermarkets
9. Choppies Enterprises
10. City Mattresses
11. Cleanshelf Supermarkets
12. Clear Cut Supermarkets
13. Crown Supermarkets
14. Daily Basket Supermarkets (Delta Shops)
15. Deepak Cash and Carry Ltd
16. Eagle Supermarkets
17. Eagles Mart
18. Eastleigh Supermarkets
19. Eastmatt Supermarkets
20. Ebrahims& Co Ltd
21. Esajo Supermarkets
22. Fair Mart Supermarkets
23. Fairlane Supermarkets
24. Gachuku Emporium
25. General Foods (Kenya Ltd)
26. Gigiri Supermarkets Ltd
27. G-Mart Supermarkets
28. Green Forest Supermarkets Ltd
29. Happy Valley Supermarkets
30. Highrise Provision Stores

31. Homechoice Supermarkets
32. Housewives Delight Ltd
33. Jack and Jill Extravaganza
34. Jaharis Supermarkets
35. Jawa's Supermarkets Ltd
36. JD's Supermarkets
37. Jopampa Provision Stores
38. Juja Road Fancy Store Ltd
39. JuthlalLalji& Bros
40. K & A Self Selections Store Ltd
41. Kabete Rations
42. Kaka Self Services Ltd
43. Kalumos Trading Co Ltd
44. Kantaria Commercial Stores
45. Kanyaki Supermarkets
46. Karia Supermarkets
47. Karrymatt Supermarkets
48. Kassmart Supermarkets
49. Kenton Supermarkets
50. Kieni Enterprises
51. Lucky Stop Supermarkets
52. Maathai Supermarkets
53. MagunaAndu Supermarkets
54. Metro Cash and Carry Ltd
55. Midas Touch Supermarkets
56. Mulei Supermarkets
57. Muthaiga Mini Market Ltd
58. Naivas Supermarkets
59. Nakumatt Holdings Ltd
60. NemchandNarshi& Co
61. New Bharat Ration Store
62. New Westlands Stores Ltd
63. Ng'ororgaa Supermarkets

64. Ngong Hills Supermarkets

65. Nova Supermarkets

66. Pakmatt Supermarkets

67. Quickmart Supermarkets

68. Rikana Supermarkets

69. Rongai Mattresses Ltd

70. Savannah Selfridge Supermarkets

71. Select and Pay Supermarket

72. Select and Pay Supermarkets

73. Selfridges Supermarkets

74. Society Stores Supermarkets

75. StageMatt Supermarkets

76. Sunmatt Limited

77. Suntec Supermarkets Ltd (Just Homes Limited)

78. Tumaini Supermarkets

79. Tumaini Supermarkets

80. Tuskys Supermarkets

81. Uchumi Supermarkets

82. Ukwala Supermarkets

83. Uthiru Wayside Supermarkets

84. Wagon Shopping Limited

85. Western Provision Stores

86. Yako Supermarkets

87. Zucchini Green Grocers Ltd

Source: Kenya National Bureau of Statistics (2018)

Appendix I Data

COMPANY	Year	Financial performance	Capital Structure	Firm size	Liquidity	ERPS adoption	ERPS adoption
Acacia Supermarkets	2013	0.02690	0.6973	10.630	0.425	19070779	7.280
	2014	0.02190	0.8346	10.708	0.380	19639370	7.293
	2015	0.01260	0.9381	10.715	0.306	21438729	7.331
	2016	0.01230	0.7801	10.567	0.214	22058297	7.344
	2017	0.00707	0.8835	10.473	0.271	22422351	7.351
Alliance Supermarkets	2013	0.03300	0.5630	10.660	0.558	46137777	7.664
	2014	0.04100	0.5831	10.528	0.606	52021524	7.716
	2015	0.03900	0.5860	10.622	0.605	61944650	7.792
	2016	0.03100	0.5611	10.603	0.615	68177548	7.834
	2017	0.03900	0.5781	10.634	0.652	82907475	7.919
Amana Eastleigh Supermarkets	2013	0.04980	0.7832	9.973	0.468	185100000	8.267
	2014	0.03890	0.7612	9.987	0.450	207011000	8.316
	2015	0.03870	0.8806	9.954	0.442	226116000	8.354
	2016	0.03600	0.9457	9.911	0.341	241152000	8.382
	2017	0.02840	0.9055	9.839	0.283	259525000	8.414
Buru Buru Mini Markets	2013	0.01100	0.8101	9.519	0.256	48957925	7.690
	2014	0.01500	0.9230	9.489	0.345	52683299	7.722
	2015	0.00250	0.7960	9.473	0.283	62211641	7.794
	2016	-0.01600	0.9152	9.404	0.415	69280267	7.841
	2017	0.00017	0.8675	9.343	0.422	55995671	7.748
Chandarana Supermarkets	2013	0.04100	0.4685	9.769	0.659	52021524	7.716
	2014	0.03900	0.5017	9.704	0.752	61944650	7.792
	2015	0.03100	0.7255	9.657	0.742	68177548	7.834
	2016	0.03900	0.7201	9.586	0.565	82907475	7.919
	2017	0.04980	0.6598	9.469	0.610	185100000	8.267
Choppies Enterprises	2013	0.02110	0.7617	9.847	0.430	49105498	7.691
	2014	0.02500	0.7168	9.878	0.410	76568930	7.884
	2015	0.02520	0.9760	9.923	0.464	107112469	8.030
	2016	0.00300	0.9723	9.897	0.430	14135528	7.150
	2017	-0.01510	0.9782	9.833	0.410	13917895	7.144
City Mattresses	2013	0.06140	0.5561	10.437	0.470	69579795	7.842
	2014	0.04260	0.4694	10.445	0.270	71242659	7.853
	2015	0.03240	0.4293	10.364	0.360	79397808	7.900
	2016	0.04060	0.4581	10.196	0.328	88147289	7.945
	2017	0.03590	0.5845	10.208	0.258	103323540	8.014
Cleanshelf Supermarkets	2013	0.02870	0.5901	8.888	0.820	100455558	8.002
	2014	0.03090	0.6090	9.035	0.625	124881964	8.096
	2015	0.02510	0.6409	9.179	0.798	175808828	8.245
	2016	0.02470	0.6084	8.969	0.762	198484270	8.298
	2017	0.03220	0.5483	8.973	0.948	210877927	8.324

Clear Cut Supermarkets	2013	0.00840	0.9269	9.759	0.476	18000858	7.255
	2014	-0.00630	0.8657	9.705	0.411	16778631	7.225
	2015	-0.01770	0.9225	9.481	0.340	15077051	7.178
	2016	0.00300	0.9652	9.586	0.367	14135528	7.150
	2017	-0.01510	0.9740	9.570	0.451	13917895	7.144
Daily Basket Supermarkets	2013	0.02510	0.7852	11.577	0.470	6407485	6.807
	2014	0.02470	0.7663	11.565	0.270	7308855	6.864
	2015	0.03220	0.9753	11.535	0.360	8864537	6.948
	2016	0.00840	0.8647	11.398	0.328	10287085	7.012
	2017	0.00940	0.8865	11.276	0.258	12201968	7.086
Eagle Supermarkets	2013	0.01900	0.7340	10.382	0.489	30985096	7.491
	2014	0.03300	0.6881	10.384	0.367	43500988	7.638
	2015	0.03400	1.1253	10.240	0.322	61812663	7.791
	2016	0.02700	1.4772	10.379	0.165	81190214	7.910
	2017	0.00440	1.5140	10.449	0.327	69432374	7.842
Eastleigh Supermarkets	2013	0.04980	0.8615	11.534	0.400	185100000	8.267
	2014	0.03890	0.8552	11.474	0.318	207011000	8.316
	2015	0.03870	0.9149	11.440	0.399	226116000	8.354
	2016	0.03600	0.7824	11.344	0.400	241152000	8.382
	2017	0.02840	0.8754	11.248	0.335	259525000	8.414
Eastmatt Supermarkets	2013	0.03300	0.8552	11.165	0.357	46137777	7.664
	2014	0.04100	0.9149	11.192	0.346	52021524	7.716
	2015	0.03900	0.7824	11.260	0.286	61944650	7.792
	2016	0.03100	0.8754	11.172	0.275	68177548	7.834
	2017	0.03900	0.2460	11.089	0.227	82907475	7.919
Ebrahims& Co Ltd	2013	-0.03580	0.6516	11.209	0.390	31771339	7.502
	2014	-0.02570	0.8019	11.202	0.370	36907136	7.567
	2015	-0.00773	0.7038	11.196	0.410	45934458	7.662
	2016	0.00184	0.7686	11.129	0.310	52426513	7.720
	2017	-0.04070	0.8702	11.110	0.140	47123839	7.673
Fair Mart Supermarkets	2013	-0.03570	0.6516	9.473	0.401	14108996	7.149
	2014	0.00375	0.8019	9.517	0.287	15562476	7.192
	2015	-0.02030	0.7038	9.574	0.296	16589359	7.220
	2016	-0.03130	0.7686	9.586	0.224	14469562	7.160
	2017	-0.05320	0.8702	9.564	0.390	13802498	7.140
Fairlane Supermarkets	2013	0.01900	0.8080	10.120	0.380	30985096	7.491
	2014	0.03300	0.8046	10.226	0.460	43500988	7.638
	2015	0.03400	0.8907	10.205	0.540	61812663	7.791
	2016	0.02700	1.2118	10.174	0.570	81190214	7.910
	2017	0.00440	0.9179	9.957	0.353	69432374	7.842

General Foods (Kenya Ltd)	2013	0.01800	0.8080	9.649	0.285	17152445	7.234
	2014	0.01500	0.8046	9.644	0.331	25638050	7.409
	2015	0.01800	0.8907	9.639	0.298	32991926	7.518
	2016	0.01500	1.1511	9.613	0.385	29374062	7.468
	2017	0.01500	0.6859	9.619	0.300	29619072	7.472
Gigiri Supermarkets Ltd	2013	0.02400	0.7261	10.580	0.420	9958767	6.998
	2014	0.01200	0.7321	10.559	0.320	11305398	7.053
	2015	0.00380	0.8858	10.534	0.310	15278026	7.184
	2016	-0.00081	0.8644	10.512	0.300	14564631	7.163
	2017	-0.00380	0.6584	10.602	0.355	14962089	7.175
G-Mart Supermarkets	2013	0.04000	0.7261	10.273	0.333	19519623	7.290
	2014	0.04200	0.7321	10.277	0.313	110315683	8.043
	2015	0.02300	0.7286	10.277	0.300	137299354	8.138
	2016	0.04100	0.7104	10.339	0.303	147846339	8.170
	2017	0.04100	0.7234	10.377	0.355	164116122	8.215
Happy Valley Supermarkets	2013	0.01800	0.6243	9.636	0.340	17152445	7.234
	2014	0.01500	0.6570	9.699	0.305	25638050	7.409
	2015	0.01800	0.7435	9.807	0.340	32991926	7.518
	2016	0.01500	0.7150	9.838	0.370	29374062	7.468
	2017	0.01500	0.7444	9.746	0.340	29619072	7.472
Highrise Provision Stores	2013	0.01600	0.7695	10.011	0.420	14705350	7.167
	2014	0.01900	0.7614	9.964	0.380	12834687	7.108
	2015	0.01900	0.7397	9.938	0.230	14570598	7.163
	2016	0.01600	0.7289	9.905	0.202	14609492	7.165
	2017	0.01600	0.7330	9.909	0.368	14705350	7.167
Homechoice Supermarkets	2013	0.04490	8.2233	10.054	0.331	195352756	8.291
	2014	0.04460	0.8734	10.085	0.308	220391180	8.343
	2015	0.04710	0.8113	10.104	0.280	222495824	8.347
	2016	0.02780	0.7443	10.077	0.211	233965447	8.369
	2017	0.03740	0.7434	10.059	0.460	250482000	8.399
Ukwala Supermarkets	2013	0.02650	0.3634	9.348	0.340	8801382	6.945
	2014	0.01710	0.6314	9.347	0.304	9657867	6.985
	2015	0.01260	0.4641	9.366	0.291	10239922	7.010
	2016	0.01620	0.5751	9.362	0.477	10452691	7.019
	2017	0.01050	0.8231	9.420	0.358	10372441	7.016
Karrymatt Supermarkets	2013	0.04490	0.8381	10.824	0.326	195352756	8.291

	2014	0.04460	0.7967	10.791	0.338	220391180	8.343
	2015	0.04710	0.6692	10.826	0.376	222495824	8.347
	2016	0.02780	0.6576	10.798	0.337	233965447	8.369
	2017	0.03740	0.5920	10.761	0.460	250482000	8.399
Kassmart Supermarkets	2013	0.04170	0.9118	8.965	0.679	108348593	8.035
	2014	0.04140	0.9922	8.881	0.414	121062739	8.083
	2015	0.04270	0.9993	8.633	0.737	145780505	8.164
	2016	0.03860	1.0236	8.649	0.546	165758268	8.219
	2017	0.03640	0.8621	9.978	0.390	169458985	8.229
Maathai Supermarkets	2013	0.01100	0.5073	9.922	0.340	67154805	7.827
	2014	0.01400	0.6267	9.951	0.440	92493035	7.966
	2015	0.00740	0.6129	9.932	0.420	122864886	8.089
	2016	-0.00960	0.5861	9.931	0.380	124855560	8.096
	2017	0.00120	0.5554	9.308	0.230	115114374	8.061
Muthaiga Mini Market Ltd	2013	0.03780	0.7450	9.331	0.202	304751807	8.484
	2014	0.03960	0.8152	9.297	0.368	322684854	8.509
	2015	0.04540	0.8607	9.285	0.331	376969401	8.576
	2016	0.03910	0.8607	9.318	0.308	467741173	8.670
	2017	0.04070	0.8461	8.418	0.280	504775429	8.703
Naivas Supermarkets	2013	0.04000	0.9458	8.451	0.211	19519623	7.290
	2014	0.04200	0.9487	8.497	0.460	110315683	8.043
	2015	0.02300	0.9812	8.530	0.340	137299354	8.138
	2016	0.04100	0.9310	8.535	0.304	147846339	8.170
	2017	0.04100	0.9154	8.708	0.291	164116122	8.215
Tuskys Supermarkets	2013	0.04490	1.0788	8.741	0.477	195352756	8.291
	2014	0.04460	0.7295	8.781	0.358	220391180	8.343
	2015	0.04710	0.9278	8.712	0.326	222495824	8.347
	2016	0.02780	1.1594	8.574	0.338	233965447	8.369
	2017	0.03740	1.5554	8.579	0.376	250482000	8.399
Quickmart Supermarkets	2013	0.01890	1.3285	8.645	0.337	40685928	7.609
	2014	0.01850	1.2726	8.679	0.376	46755111	7.670
	2015	0.01620	1.2531	8.682	0.679	60490833	7.782
	2016	0.02120	1.4072	10.243	0.414	10025858	7.001
	2017	0.01130	1.3509	10.230	0.737	9999503	7.000