MOBILE PAYMENTS, CONSUMER WELFARE AND FIRM PERFORMANCE: EVIDENCE FROM SUPERMARKETS IN NAIROBI CITY COUNTY

BY

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DECLARATION

This dissertation is my original work and has not been previously presented to this or any other University for an award.

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To my loving dad and mum who consider my intellectual potential to be infinitely elastic.

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ABBREVIATIONS

CAK	Communications Authority of Kenya
CBK	Central Bank of Kenya
GDP	Gross Domestic Production
GoK	Government of Kenya
GSMA	Global System for Mobile Association
ICT	Information Communication Technology
IDT	Innovation Diffusion Theory
IT	Information Technology
MP	Mobile Payment
MPSP	Mobile Payment Service Provider
MVNOs	Mobile Virtual Network Operators
NFC	Near Field Communication
POS	Point of Sale
PKI	Public Key Infrastructure
SME	Small and Medium Enterprises
SMS	Short Message Services
TAM	Technology Acceptance Model
TIB	Theory of Interpersonal Behavior
TRA	Theory of Reasoned Action
UMTS	Universal Mobile Telecommunications System
UTAUT	Unified Theory of Acceptance and Use of Technology
WAP	Wireless Application Protocol

ABSTRACT

Expansion in ownership rates of mobile phones has laid the foundation for revolutionary technologies thereby generating a wide range of new business opportunities in its wake. The research issue is whether there are benefits that accrue to users and firms on account of mobile payments. On this premise, this study explores the linkage between mobile payments and consumer welfare, and the nexus between mobile payments and firm performance. The study formulated five specific objectives and a matching number of hypotheses to achieve the main objective of the study. In the realms of transaction cost theory, this study posits that firm activities impact consumer welfare. From the mobile payment's perspective, the research suggests that availability of digital payments bolsters consumer welfare. Similarly, under the theoretical basis of stakeholder theory, the study argues that fulfillment of stakeholder interests positively influences firm's performance. The study adopted positivistic research paradigm and descriptive research design. The study confirmed the moderating effects from consumer characteristics on the relationship between mobile payments and firm performance. The above study perspectives are strongly supported by the data. Using data collected from 289 supermarkets in Nairobi, the effects of mobile payments were investigated using econometric methods. The main finding is that, incidence of mobile payments positively and significantly correlates with consumer welfare and with firm performance. Mobile payments were found to enhance consumer surplus, a proxy for consumer welfare. Mobile payments were also found to be positively associated with firm performance. Consumer characteristics jointly did not have a moderating effect in the relationship between mobile payments and performance of firms. Ultimately, the study finds evidence for firms to adopt mobile payment systems, so as to boost their business fortunes. For greater efficacy, mobile payment providers should customize payment services to suit different consumer segments.

CHAPTER ONE: INTRODUCTION

1.1 Background

The steady evolution of wireless technology and a corresponding growth in mobile devices users has given rise to a new platform for the information exchange as well as procurement of goods and services (Paypal, 2018). Whereas mobile payment platform providers view it as a market expansion model, merchants view mobile payment option as an opportunity for widening their payment catchment while customers associate the platform with convenience and expediency (Nielsen, 2018). Significant paradigm shifts in consumer preferences and purchase patterns have evolved, with both consumers and retailers resorting to cashless transactions as the use of digital payments permeates the retail sector and other industries (Statistica, 2019).

In response to the Covid-19 pandemic, the Government of Kenya eased regulatory hurdles on mobile payments thus boosting utilization of digital payment platforms (GoK, 2020). Among other interventions, the government exempted charges with respect to low value mobile money transfers and doubled up the maximum daily limit for digital money remittances as a way of promoting contactless transactions. Globally, authorities are steadily institutionalizing mobile solutions delivery of services and fulfillment of governance obligations (Bandura & Ramanujam, 2021). To government, mobile payments present an extra option for generating revenue as evidenced by the newly introduced digital service tax (GoK, 2020).

Mobile payment services hold tremendous potential for improving access and scale of online transactions (Raddi, 2016). In comparison to the traditional means of payment, mobile payments offer a vast array of opportunities to the wide range of stakeholders involved in modern day businesses. With the ever-rising base of mobile subscribers, there is no doubt that opportunities for utilization will continue to abound. Whereas initial acceptance of a mobile service contributes to its success, greater returns are bound to accrue from persistent usage compared to a singular moment of use (Tossy, 2014). As newer mobile money-based platforms continue to evolve, the scope of application of mobile solutions amongst consumers and firms is expected to further expand.

The importance of the retail sector as a contributor to Kenya's growth and development is underscored in the Kenya Vision 2030 master plan (GOK, 2020). Among other objectives, the Vision 2030 development blueprint seeks to boost the volume of products sold through retail channels especially supermarkets with a view to stimulating consumer driven investment opportunities. Accordingly, efficient payment systems have a superlative role towards bolstering the country's social-economic status. Indeed, a rapid pace of integration of business products and mobile based applications has seen the Kenyan market record an exponential growth in the number of mobile payment (m-payment) technology platforms. According to the State of the Industry Report on Mobile Money released by *Groupe Speciliale Mobile Association* (GSMA) in 2017, mobile payments can influence at least 11 of the world's 17 Sustainable Development Goals (SDGs), such as businesses selling products using mobile payments and growing buying power (GSMA, 2019). Mobile payments are therefore an essential basis for future economic growth. Consequently, many economies around the world have started to facilitate mobile payments and encouraging them.

Currently, mobile payment services in Kenya are availed through the licensed mobile network operators namely, Safaricom Ltd, which runs the "M-Pesa" brand, Airtel Ltd which operates the "Airtel Money" solution and Telkom (K) Ltd which fronts the "T-Kash" option. In addition, there are two Mobile Virtual Network Operators (MVNOs) presently riding on the back of Airtel's network service. Finserve Africa Ltd, a subsidiary of Equity Bank of Kenya operates the "Equitel" brand while Mobile Pay runs the "Tangaza Pesa" mobile payment platform (CAK, 2021).

Increased fusion and integration of mobile payment services have significantly contributed towards a robust digital finance ecosystem (CBK, 2020). As at 31st December 2020, there were 32.5 million active mobile money subscriptions, while the number of agency outlets which facilitate deposit and withdrawals stood at 264,390. Customer to business transfers amounted to Kenya shillings 983.7 billion (CAK, 2021) signaling an increasing reliance on mobile payment platforms for commercial purpose. Over time, this positive trajectory

of growth in mobile transactions is likely to be further enhanced by the steady decline in the cost of high capability devices that have the necessary capacity to support most of the critical mobile payment functionalities.

This study is underpinned by the perspectives of transaction cost theory, stakeholder theory as well as innovation diffusion theory to explicate the linkages among mobile payments, consumer welfare, consumer characteristics, firm characteristics and performance. The key theory that anchors this study is the transaction cost theory advanced by Williamson (1979) which postulates that entities should deliberately structure their actions in such a way that it reduces exchange related cost so as to accomplish optimality and efficiency. Furthermore, this empirical investigation is grounded on the stakeholder theory advanced by Freeman (1984) which postulates that success of any entity is contingent upon the kind of relationship that a firm maintains with its key stakeholders and organizations should always strive to have good relations with theses stakeholders so as to ameliorate overall performance. The innovation diffusion theory suggested by Rodgers (1962) postulates that innovation is channeled via a specific avenue over a period of time among the constituents in a social system.

Although there is vast literature that examines adoption of mobile money services, few studies have probed the potential link between mobile payments consumer welfare and firm performance. Consequently, little is known about how consumer demographics and firm characteristics either strengthens, weakens or reverses the nexus between mobile payments and firm performance. This understanding of the linkage would be fundamental for practitioners and regulators towards designing better mobile payment schemes in the quest achieve the vision 2030 and the big four agenda. Therefore, this study is motivated by desire to adopt the digital finance by leveraging on technology in making payments.

1.1.1 Mobile Based Payments

Mobile based payments entail the monetary exchange for settlement of goods or services offered. According to Shin (2015), mobile payments is pecuniary settlement for a product/service acquired or sold via a portable electronic devise. Mobile payment refers to numerous payment services conducted under financial regulations and undertaken through

a mobile devise (Portecus, 2015). Users of electronic commerce can enjoy the convenience of making purchases from anywhere and at any time without necessarily leaving the comfort of their home. Initially, electronic commerce only allowed users to transact using an immobile computer which was within their residence vicinity (Govi, 2017). Current digital platforms that use mobile gadgets to make payments have overcome the latter problem and therefore facilitating consumers to transact anywhere at will. Driven by mobile phone mobility, the growth of mobile shopping and mobile payment services has been phenomenal in recent years, the two having an increasing role to play in the day to day activities of users (Pimarnsawast, 2018). Mobile payments provide companies with innovative ways to enhance connectivity, increase customer satisfaction, and be able to communicate with customers wherever they are. The term "mobile payment" has been accorded diverse definitions by various researchers (Square, 2018). Remarkably, the phrase "mobile payment" is used interchangeably with expressions such as "mobile money", "mobile financial transaction" and "mobile money transfer."

Tumaini (2016) describes digital transactions as those that are based on the use of a mobile device to effect a payment transaction thereby transferring cash from a payer to a receiver as mobile payments. Included here are mobile payment transactions conducted via mobile banking platforms. Vongraluang and Bhatiasevi (2017) regard mobile payment as the utilization of mobile devices to accomplish payment transactions. Thus, it avails an alternative payment method for consumers to purchase digital content as well as physical products or services. On their part, Zhao and Kurnia (2014) regard mobile payment as a financial transaction involving the use of suitable mobile apparatus. Mobile payment is a financial activity, whereby mobile gadget is used to prompt or accomplish a business transaction (Ovum, 2016).

One of the most outstanding aspects of mobile payment is that it serves as a tool for conducting business, more so in a manner that tends to replace banks, automated teller machines and conventional credit cards (QZ.com, 2017). It virtually enables a user to carry out financial transactions from within a mobile device. In practice, a mobile user initiates a transaction to pay for commodities or services offered by riding on the integration between a network service provider and a financial institution thus facilitating the customer

to pay the amount of a particular transaction (PWC, 2019). When the payment request is approved and purchases done, a notification is sent to the customer's device and the transaction is deemed complete. The amount of purchase is credited to the vendor's bank account, and withdrawn from the customer's mobile wallet (Smart Card Alliance, 2017). In some instances, the user may pay using mobile money that is availed by a third party such as a banking institution.

For greater success, mobile payments require a relatively reliable security system such as the wireless application protocol (WAP) in financial applications (Statistica, 2019). In addition, wireless public key infrastructure (PKI) are systems used to manage certificates and keys necessary for authorizing and accessing digital signatures from the users of mobile devices. M-payment may thus be perceived as consisting of cash transfers done by use of a mobile device alongside imbursement modes that support virtual banking and electronic money storage accounts (Nyawo, 2017). It is the transfer of funds for commodities and services where the functionality of a mobile device to execute and confirm payment is used. Mobile devices may be telephones, smart phones, mobile terminals, or personal digital assistant (PDA). In either of these transactions, the payer may be at the buying point or may be in a remote place (Nyaga, 2017).

1.1.2 Consumer Welfare

Gpkretail (2017) regards consumer welfare as the distinct payback derived from the utilization of goods and services. Individual welfare may therefore be perceived as an individual's own assessment of gratification, based on particular price and income levels (Cloninger, 2016). Thus, consumer welfare measurement relies heavily on information about individual preferences. Though reasonably subjective, welfare is generally deemed to be a valid indicator since it can be linked to a person's utility on the basis of consumption of a particular product. Boosang (2017) regards consumer welfare as the fulfilment an individual gets from the consumption of specific commodities. The consumer surplus concept is occasionally applied to measure consumer welfare. As a measure of consumer welfare, consumer surplus denotes the excess valuation ascribed to a product by a user over the chargeable price (BBhattacharya & Wamba, 2018).

In the analysis of consumer welfare, Bhatiaseri and Naglis (2018) emphasizes the direct benefits of reduced price, condensed risk, as well as efficient supply responses. Consumers may gain from flexible pricing models associated with m-payments in addition to smoother consumption patterns since they do not need to incur costs to visit physical markets to enquire prices or to make settlements. In practice, difficulties relating to consumer welfare measurement are surmounted by considering the price that different individuals would be willing to offer in return of specific services or commodities (Bezovski, 2016).

Nielsen (2018) contends that the aggregate utility consumers derive from the firm influences the nature of transactions that consumers engage in with a given firm. Considerations that consumers make when seeking value relations with a firm include the usefulness related with the actual consumption of goods, in light of attendant opportunity costs (IPSOS, 2017). These aspects are described from the perspective of the perceived utility that consumers derive from the organization and support that one's opinion influences usefulness (Ovum, 2016). These elements may therefore help to establish the motivations to use the offerings of a firm and in particular, mobile payments (Rootman & Kruger, 2018).

1.1.3 Consumer Characteristics

The consumer characteristics are the fundamental identity features of individual households (Euromonitor, 2017). Demographics have widely been used for segmentation bases. This is because, a given group of people or firms with comparable profiles have often been observed to portray diversity in preferences (Mishra & Swain, 2018). Consumer characteristics may include the aspects of age, race, religion, gender, family size, occupation, literacy levels, employment status among others (Chui, Chen & Chen, 2017). Demographics relating to age, aspects of gender, literacy and employment features may impact on the link between mobile payments, consumer welfare and resultant firm outcomes (Sagire, 2017). Age is reasonably expected to impact on usage from the perspective that younger users are associated with greater technology enthusiasm

compared to the relatively older generation. Age could also have a bearing on the perceived welfare levels and the resultant firm performance outcomes (Zhang & Glanzel, 2012).

Demographics are an inherent aspect of the of the consumer makeup. Such features denote the way people identify themselves or the way they are branded by others and are therefore stable representational dimensions of a consumer (Accenture, 2015). Behavioral mechanisms may be shaped by the context of an individual, background alongside related characteristics. Cultural, social, personal and psychological characteristics greatly impact customer purchases (Hamin & Hussin, 2014). Pertinently, demographic, fiscal, social, situational and technological factors exert external influences on consumer behavior. External factors could have a major influence on buyers on the consumer context and transactional processes.

Mobile payment usage behavior could vary based on gender aspects to which different social roles are assigned (Amegbe, Hanu & Nawasiima, 2017). Education enhances capacity to utilize technology and to focus on welfare maximizing features. Employment status dictates the disposable income available to a consumer; hence it regulates the transactional power (Mhlanga & Vallabh, 2015). Thus, analysis of consumer characteristics will illuminate important facets relevant to mobile payment usage and the attendant outcomes.

1.1.4 Firm Characteristics

Firm characteristics are the basic recognizable attributes through which are descriptive of a firm (Square, 2018). Firms continuously strive to realize excellent performance by maximizing on inputs and various factors of production. Antony and Mutalemwa (2017) contend that an organizations unique capability significantly influences an organization's competitive edge. Zimmerman (2014) observes that though mobile money subscriptions are on a steady trajectory, the degree of utilization of m-payment services is remarkably inconsistent, a reality that denotes shifting welfare parameters and fluctuating impacts on firm outcomes. The market size within which a firm operates will potentially implicate on the scope of products and services available to consumers. Location on the other hand will determine accessibility and may either encourage or discourage potential consumers from

going for a firm's offerings. Duration of existence of a firm would inform the degree of trust and confidence that consumers attach to a given firm and thus their willingness to do business with the firm (Tossy, 2018).

1.1.5 Firm Performance

Firm performance is quantification of entity's aptitude to utilize optimally its principal resources to attain its strategic objectives (Yeboa, 2020). According to Hajri (2017), firm performance is the pecuniary outcome emanating from the interaction among organizations' activities, features and environment. Dynamics in the corporate world continue to render uncertainty among business entities. Modern firms are under intense pressure to deliver better, faster and at the most competitive terms, so as to remain relevant in the ever-evolving marketplace (Hossain, 2020). Accordingly, firms are obliged to deal with and improve their ability to adapt to an increasing range of challenges emerging from their operating context. Consistent success through superior value proposition to consumers remains a priority to present organizations. This is because it is only through quality that businesses are able to achieve success and realize further market penetration (Hanza & Shah, 2018). It is thus imperative to analyze and measure business performance to ascertain a firm's position and prospects. A measure of a firm's financial performance, which depends both on the entity's own productivity, and also on the market realities in which it operates is crucial (Govi, 2017).

Dawes (1999) points out that firm performance measurement is most effectively achieved by using multiple indicators. Despite the significance of the concept of firm performance, there is no unanimity about its characterization and conceptualization as a research construct (Bongens & Soderberg, 2017). In particular, Bourke (2017) argues that firm outcome research has notable glitches like failing to agree on definition, settling on metrics that are favorable to an individual researcher, and generally there is minimal value for validity. Expounding on the linkage between information technology (IT) and firm performance, Beck, Pamuk, Ramrattan and Uras (2018) isolate possible explanations for the success of IT deployment within a firm. First is the quality of firm's process management chain particularly the integration of IT into key operational processes. Next

is the firm's capacity for harnessing and distributing information. Thirdly is the ability to impart preferred information handling patterns.

Firm performance is crucial to the sustainability of any business. Aron (2018) established that increased digitization of key customer processes enhanced organizational performance. Sayid, Echabi and Azi (2015) observe that attending to stakeholder needs yields positive value across multiple dimensions and eventually boosts firm performance. As such, Onyango (2017) emphasize the need for clearer conceptualization of firm performance and better measurement approaches. Notwithstanding this significance, lack of unanimity on the connotation, dimensionality and measurement of firm performance hampers research progress and comprehension of the concept. Firm performance analysis therefore, despite its significance, suffers from difficulties such as lack of concrete evaluation metrics. In this regard, Nyaga, 2015) posit that where there exist multiple dimensions or measurement criteria, the researcher should choose those deemed most relevant to a study. Possible metrics that can be used to indicate a firm's performance include among other return on investment, capital growth, revenue progression, liquidity and stock exchange ratings.

1.1.6 Supermarkets in Nairobi

A supermarket is regarded as a "large self-service store selling foods and household goods" (OED Online, 2019). The Kenyan retail landscape features an avalanche of supermarkets that offer a wide range of shopping features. Supermarkets provide a shopping opportunity for all types of consumer merchandise and services. In Kenya, the largest supermarket chains are situated in Nairobi and offer a wide range of products. Besides the traditional retail stuff, supermarkets have diversified into various customer lines such as coffee shops, fast-food segments, fashion stores, home decoration stores, book and stationery stores, toy stores and even butcheries.

Kenya's retail sector is among the largest and most developed in Africa. In 2020, the wholesale and retail sector in Kenya accounted fora 7.6 percent gross domestic product contribution, exemplifying its significance to the economy (KNBS, 2020. With few regional companies, Kenya's retail sector primarily driven by indigenous investors and

some foreign venture capitalists, largely buoyed by rising purchasing power, improved macroeconomic outlook, and relatively inexpensive retailing space. Retailers have diversified their range of goods in an attempt to stay competitive. More so they have adopted online distribution channels. Consequently, the provision of mobile payments was made possible by the latter, both remotely at the point of sale.

Companies are moving from conventional types of making payments such as credit cards, cheques and liquid cash, in view of this disruptive technology. Businesses are steadily switching to innovative alternatives that allow mobile based transactions. Supermarkets in Kenya, which are leapfrogging into mobile payments, are important to this study. According to a survey conducted by Kenya National Bureau of Statistics (KNBS, 2020), Kenya's retail sector contribution to GDP stood at Kenya shillings 669 billion in 2018, and Kenya shillings 740 billion in 2019, therefore ranking among largest sectorial contributors to Kenya's GDP. Accordingly, Kenya's strategic pan 2018-2023, whose objective is to sustain social economic transformation, aims at enhancing retail infrastructure to ease the cashing of digital money. Correspondingly, retailers are taking advantage of the growing opportunities brought about by mobile payments to broaden their customer base and boost their growth potential.

Due to their ability to offer a one stop access to a wide array of products, all under one roof, supermarkets have expectedly emerged as key transactional hubs. With a possible aim of enhancing transactional convenience to motivate spending among shoppers, supermarkets have deployed shopping platforms that enable customers to make transactional settlements using a wide range of payment methods. Shoppers can pay in cash, credit cards, debit cards and most significantly, through integrated mobile payment options. Given the frequency and scope of transactions involved, supermarkets potentially offer a rich data set instrumental to the current study.

1.2 Research Problem

Organizational performance is best captured through a multifaceted approach (Weiser, 2019). Payment systems lie at the core of operations of firms and significantly the modern retail outlets popularly referred to as supermarkets. Within the mobile payment process, there are several distinct actors (Xena & Rahadi, 2020). There are product vendors or retailers who offer goods or service to the consumer. Next are the consumers who are the owners of the mobile devices and partakers of the product or service on offer. Lastly, there is the payment service provider who can either be the mobile network operator, credit card agent or even a bank (Albar & Hoque, 2019). The latter is tasked with overseeing the flow of transactions between retailers, mobile customers and a trusted third party. A trusted third party assumes some of the responsibilities of the mobile network operator by offering mobile standardization, access and interoperability.

An efficient payment infrastructure is central to firm operations and overall performance since it facilitates smooth financial interactions thus stimulating consumer confidence (Yeboa, 2020). Though large productivity improvements and extensive consumer benefits are attributed to mobile payments, there are parallel arguments that mobile systems yield minimal impact on firm productivity. Sivithanu (2019) on their part contend that mobile payment solutions can only be viable if they interest both consumers and merchants. Expecting to reap substantial returns, organizations are continually investing colossal funds in mobile payment initiatives (Wambua, 2017).

Currently, mobile payment platforms continue to rapidly evolve within the business environment yielding new alternatives on how consumers can transact and conduct financial affairs (Mazer & Rowan, 2016). By eliminating the need to handle cash, mobile payments have enabled ubiquitous transactions thus allowing economies to function unfettered (GSMA, 2021). In light of mobile payment system's potential to transform the transaction arena, it is fundamental to map the consumer perspectives that inform usage decisions and the consequential outcomes.

Due to its fairly nascent status, academic and theoretical consideration of the business value of mobile payment systems is yet to be fully ascertained. Existing literature renders contradictory evidence on whether expected paybacks from mobile payment installations have materialized (Gichage, Kamuzora & Malima, 2017). Some empirical studies suggest a positive linkage between mobile payments and firms performance (e.g. Yeboa, 2020; Sivathanu, 2019; Pagani, 2015) whereas some studies have documented a negative relationship (e.g. Hossain, 2019; Tossy, 2018; Weiser, 2019). The diverging outcomes can be ascribed to model misspecifications; selection of key variables; operationalization of study variables; nature of data adopted, sampling disparities among others.

Organizational managers are relentlessly under pressure to improve organizational performance and to expand returns, hence the need for strategic business improvement tools (Nyaga, 2015). In response to client and operational demands, supermarkets are increasingly implementing mobile based payment systems expecting improved performance results. However, concerns abound regarding whether deployment of mobile payments translates to improved customer welfare in addition to improved gross firm performance. Practitioners are also concerned about whether implementation of mobile payment platforms really leads to enhanced organizational performance. Though some studies (e.g. Omwansa, 2015; Mallat, 2017) have demonstrated links between consumer welfare and firm performance, the implication of mobile payments on the entire performance chain is still unsettled.

Furthermore, whereas various studies have been done to explicate mobile money innovation phenomenon, little is documented on the significance of mobile payments within the context of consumer welfare and firm performance. Prior studies that have been conducted have largely concentrated on other aspects of mobile payments especially the adoption patterns of mobile and electronic banking systems. Thus, elements in the firm performance chain using specific performance measures deserve consideration (Hanza & Sha, 2018). Bourgoignon et al. (2019) posit that when analyzing links among interdependent variables, mediating and moderating variables should be properly explored to adequately discern underlying relationships. In response to this glaring knowledge gap, this study examines the moderating effects of specific consumer and firm characteristics.

To address the evident highlighted literature gaps highlighted, the study sought answers to the following questions: what is the relationship among the mobile payments, consumer welfare, consumer characteristics, firm characteristics and performance with evidence from supermarkets in Nairobi County?

1.3 Objectives of the Study

The overall objective of the study was to investigate the linkage between mobile payments, consumer welfare and firm performance. Specifically, this study sought to:

(i) Establish the relationship between mobile payments and consumer welfare of supermarkets in Nairobi County.

(ii) Determine the relationship between mobile payments and performance of supermarkets in Nairobi County.

(iii) Analyze the moderating effect of consumer characteristics on the relationship between mobile payments and firm performance of supermarkets in Nairobi County.

(iv) Determine the relationship between consumer welfare and firm performance of supermarkets in Nairobi County.

(v) Establish the moderating influence of firm characteristics on the relationship between firm performance and consumer welfare of supermarkets in Nairobi County.

1.4 Value of the Study

This study makes various significant theoretical, managerial and policy contributions. First, it clarifies the relationships between mobile payments, consumer welfare attributes and firm performance metrics. Thus, the study is enlightening to various stakeholders within the m-payment ecosystem including technology service providers to better appreciate and address critical consumer needs and concerns with regard to m-payment transactions. The study features current dynamics in the mobile money markets, where groundbreaking payments based on mobiles are frequently being introduced and the interrelationship between payments and their impacts which had remained unclear but whose knowledge is crucial. Clarification of the underlying relationships between mobile payments and consumer welfare can fundamentally assist service providers within the m-payment spectrum including technology service providers to better comprehend and relevantly address consumer needs and concerns with regard to m-payment transactions.

Kenya's payment system has previously featured as heavily dependent on paper-based payment systems, thereby occasioning system inadequacies and exorbitant charges on service (Accenture, 2013). Transition to electronic-based payments can provide a general economic surplus since replacement of cash for payments made electronically is usually assumed to be related to a decline in social based costs (Humphrey et al. 2001). In addition, the transition from traditional payments based on cards to those based on mobile devices can generate economic benefits as a result of lower charges.

Regulatory questions have emerged which need answers. Key aspects in this regard relate to whether mobile financial services pose new consumer protection challenges. These regulatory concerns warrant investigation into these impacts, highlighting the plights of consumers with the intention of improving the awareness of end-user needs and obstacles to the quality and pace of the payment system. It is worthwhile to recognize and predict the influences of mobile-based payments and their effects on conventional modes of payment.

In the emerging digital financial environment, the provision of comprehensive information to policy-makers and regulatory authorities on the effects and consequences of mobile payments can improve their decision-making processes. Exposition of the various mobile payment outcomes through this research holds the potential of contributing to policy by aiding the crafting of relevant guidelines needed to nurture the m-payment environment for the benefit of both consumers and business operators. Besides, this study originates a solid platform to academicians and researchers for examining similar phenomena in other contexts or different countries.

Prior studies contend that consumer socio-economic and financial characteristics are important to the choice of payments (Muhlesein, 2018).By examining the moderating effects between variables under study, an enhanced understanding of the relationships emerges. Mobile payment users who are young, relatively more educated and with somewhat better income-levels are ordinarily expected to be more inclined towards electronic payment tools. This is in perceived contrast to older, less educated, with lower-income individuals who have been reported to opt for traditional means of payment like

cash. An explanation for this observation is that by using paper-based approaches, the user incurs higher opportunity costs, which usually take more time to overcome. The effect of cultural and international backgrounds towards technological innovations has been observed in other studies (Harris et al., 2016)). Besides, usage of mobile payments payment form is heavily influenced by payment features like convenience and expediency associated with various payment mechanisms.

Industry players whose operations revolve around payments an exchange of funds stand to benefit from the findings of this study. From one perspective, it is likely that, as a result of the emerging mobile payment alternatives, banks and other financial institutions may experience a diminishing revenue stream from money transfer services. On other perspective, mobile network operators are likely to benefit from emerging opportunities of revenue such as levying charges on traditional methods of payments for a right to use mobile platforms for transactional purposes. Accordingly, this study presents vital insights to various stakeholders within the mobile money ecosystem that could form a basis for strategic positioning.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this chapter, pertinent works that provide theoretical anchorage for the study are reviewed. This is followed by an explanation of relationships between variables, namely mobile payments, consumer welfare and firm performance. A conceptual framework is then formulated, and the relevant hypotheses propounded.

2.2 Theoretical Foundation

Aron (2018) defines theory as a structure of connected thoughts or concepts that organizes and condenses understanding about the real social life. Thus, anchorage of study on a specific hypothesis is defined by the context, beliefs, ideologies and theories of the phenomena being examined. Theory helps to recognize the ideologies that define the design and structure of organizations and ensures that the study is focused in the right direction (Zhao & Zhang, 2017). This study is underpinned by transactional cost, stakeholder and innovation diffusion theories.

2.2.1 Transaction Cost Theory

Transaction Cost Theory is one of the most widely used theories in social sciences. Williamson (1979) regards transaction costs as the overall costs of running operations within an organizational set up. Transaction cost theory is premised on the notion that to realize efficiency and optimality, an organization should structure its affairs in a manner that minimizes the cost of exchange (Govil, 2017). According to the transaction cost theory the cost incurred when transferring or converting assets from one form to another constitutes the most significant transactional burden (Shin, 2015). Transaction cost theory contends that organizations economize on costs by selecting a form of governance that minimizes transaction and production costs. As such, transaction costs can be positively manipulated depending on how a firm organizes and structures its processes (Raddi, 2016).

Costs incurred in negotiation and conclusion of business deals amount to a transaction cost (Beck et al., 2018). Transaction costs may also include costs of conducting inspections, locating business partners, costs of drawing up contracts and costs of settling transactional

disputes. Williamson (1979) classified the factors in the theory of transaction costs into two, namely human factors and environmental factors. Notable human factors are; opportunism and bounded rationality. In context, opportunism refers to the self-interest seeking nature of human beings. Bounded rationality refers to the nature of human beings which is intentionally rational but limited in reality (Sayid et al., 2015). Rationality is bounded in various dimensions including available information, time and capability to exercise judgment. Bounded rationality implies that firms have a limited capacity to acquire critical information with adequate precision, a reality that complicates decision making (Opati & Gachukia, 2019).

Ordinarily, industries will only have a few numbers of suppliers of key resources that match particular organizational needs. Capitalizing on their small numbers and the desirability of their products, suppliers may decide to behave opportunistically. They may conspire to exploit a firm by inflating prices, reducing quantities or even compromising on quality. Faced with no choice, an organization would have to internalize the attendant overheads effectively swelling the transaction costs (Gichage et al., 2017). Lee (2015) asserts that by identifying these attributes scholars can better engage in an analysis that gives insight on which transactions occur, for what reasons and why these transactions occur.

The view by Williamson (1979), that market imperfections often emerge when individuals behave opportunistically and act in a rationally restricted manner corresponds to the view of Hajri (2017) who assert that business partners seek to optimize potential benefits. This leads to opportunistic conduct and self-interested behavior. As such, the exchange of goods or services between parties in a business will always lead to positive transaction costs. These costs are those for enforcement, bargaining and information. Transaction theory is therefore emphatic about firms internalizing the functions that they can handle adequately and efficiently, while subcontracting those that they cannot handle adequately to external entities with capability to perform the tasks adequately and more effortlessly (Nielsen, 2018).

Argyreis and Zenger (2022) point out that transaction costs impact on firm capabilities. Transaction cost theory considers the goal of an organization as that of minimizing the cost of exchanging resources within the environment and inside the organization. This is based on the notion that not all costs associated with transactions will generate value for the firm. Nyawo (2017) vouches the transaction cost theory as suitable springboard for designing and analyzing computer driven information systems. He contends that by blending multiple concepts, the theory is able to clarify the transactional nature of economic exchanges. Transaction cost theory inclines to the view that application of technology can cure imperfections within the economic system (Boosang, 2017). Organizations have to contend with varying information from multiple directions, resulting in perpetual cycles of uncertainty. For instance, there is an ever-rising number of competitors, products and pricing models evolving every day, rendering it difficult for a firm to predict the imminent market outlook (Bezovski, 2016).

Organizations thrive within symbiotic relationships. Firms depend on other entities for business continuity. Occasionally, a firm may be contracted by another to supply assets of a specific character (Cloninger, 2016). A firm may enter into an exclusive arrangement to supply specific products to another. This would require the firm to invest heavily in the necessary capabilities necessary to fulfil the demand of its client. In a situation where the contracting entity decides to alter the contractual terms such as pricing, the firm designated to supply specific assets would be subjected to huge business risks (Bhatiaseri & Naglis, 2018).

The transaction cost theory is relevant to this study in multiple respects. Minimizing transactional costs within an organization's internal operational matrix is critical to firm success. Mobile based payments could potentially offer solutions to inadequacies within transactional settings as well as reduce the costs of exchange. This study posits that utilization of mobile based payment platforms in Kenyan supermarkets is a form of organizational response with a cost effective, efficient, and feasible solution to facilitate transactions between consumers and their businesses. Purchase of products in supermarkets within Nairobi is a continuously recurring activity. As such, if not managed strategically, it could lead to high costs being incurred by organizations. Mobile based

payment systems, in comparison to traditional payment systems, are more efficient, and possess transactional features that fairly coincide with the needs of the consumers served by supermarkets in Kenya.

2.2.2 Stakeholder Theory

Mitroff (1983) gave impetus to the concept of stakeholder theory in his work titled "Stakeholders of the Organizational Mind". Subsequently Freeman (1984) extended the stakeholder theory asserting that a business has an obligation to maximize stakeholder value. This theory is widely applied in the field of consumer welfare in relation to corporate entities. According to Tantalo and Priem (2016), maximization of shareholder wealth is not just dependent on provision of capital for business ventures but also the power of stakeholder synergy from which opportunity capital will derive. In terms of the stakeholder theory, stakeholders consist of any person or entity affected by a firm and its operations. This means that organizations have a responsibility to people or groups of people who go far beyond the boundaries of the organization and transcends contractual relations (Horisch et al., 2014).

Stakeholder classification extends to include those that are in a relationship with the firm voluntarily and those that engage with the firm involuntarily. Primary stakeholders have crucial resources needed for the firm's survival. According to Mishra and Swain (2018), the primary stakeholders include consumers, managers, creditors, employees, suppliers, community stakeholders, regulatory stakeholders, and shareholders. These stakeholders can influence the economic direction of the firm (Nyaga, 2017). On the other hand, secondary stakeholders can impact on the economic conditions of the firm only by influencing other stakeholders. This is so because firms do not depend on these stakeholders for survival. They include non-governmental organizations, the media, consumer advocacy groups as well as environmentalist groups. Consequently, a firm must keep its interests aligned to the welfare of customers, suppliers, employees and communities within its environment (Rootman & Kruger, 2018).

The foregoing position contrasts the traditional notion that a firm should principally concentrate on the interests of its shareholders. With such approach, Square (2018) contends, is unsustainable since without stakeholder's support the firm would cease to exist. Tumaini (2016) argues that relationships between stakeholders and organizations are symbiotic, hence a firm should focus on all identifiable stakeholders taking into consideration the interests of each in its strategy process. Stakeholder theory holds relevance to firm performance since it provides a means of blending shareholder objectives with the exigencies of complex operational environments (Chui et al., 2017).

To further emphasize the responsibility of stakeholders in the success of a business, Gpkretail (2017) describes business as consisting individuals and parties that create a relationship with the firm because they can be affected by the firm activities and their action can affect the firm operations. Pimarnswawast (2018) avers that understanding how stakeholder relationships work and the attendant dynamics enables the overall mapping of the business strategy. From the foregoing, the success of a firm significantly depends on how the firm manages its relationship with different stakeholders. While not all stakeholders may be necessarily adversarial, their actions may affect managerial discretion.

According to the stakeholder theory, businesses can deal effectively with performance oriented issues if by responding to the needs of individuals and groups that are affected or can affect the business (Hamin & Hussin, 2014). Maximizing value for employees and those who provide resources to the business is not enough to secure optimum returns. In light of the diverse categories of stakeholders within the value chain, organizations ought to be aware of many more variables beyond the exchange of goods and services for a price that may have a bearing on the firm's overall position (Tumaini, 2016).

In this study, stakeholder theory offers substantial guidance on the extraction of parameters to use in measuring firm performance. Measurement of firm performance necessitates identification of different stakeholders within a firm set up so as to decipher performance outcomes that would adequately disclose performance. Stakeholder satisfaction has been employed by researchers as a variable for firm performance (Nyaga, 2017). Application of stakeholder theory in firm performance allows a researcher to differentiate between

performance outcomes and antecedents from the perspective of each stakeholder group (Pagani, 2015). The stakeholder approach is relevant in all cases in which an organization adapts an approach intended to achieve the company's goals by satisfying customer needs across the entire value chain.

Remarkably, the utility that consumers receive from a firm significantly dictates the future course of engagement as well as the transactional scope with the firm. Making stakeholders feel well treated works in favor of firm performance (Tellez & Zeadally, 2017). Based on the theory, a firm can enhance its business purpose and value for the benefit of its shareholders by ensuring that the stakeholders and consumers in particular are satisfied with the firm’s offerings and operations.

2.2.3 Innovation diffusion Theory

Innovation diffusion theory (IDT) originates from the seminal works of Rogers (1962). Diffusion is the mechanism in which innovation is communicated via specific channels over considerable period among the participants of a social system. As suggested by Lee (2015), innovation is delineated by five attributes: observability, trialability, complexity, compatibility, and relative advantage. When innovative behaviour synchronizes, the needs, values and experiences of their adopters, then the impression has the possibility to catch up (Aron, 2018). Owing to the nature of its wide-ranging spectrum, the theory is relevant since it helps in understanding the adoption mechanism for plentiful of ideas and innovations.

The IDT meticulously scrutinizes the process via which an emergent innovation or technology has to go through in so as to have societal impact. Weiser (2019) argues that an evolving innovation has to exceed five serious stages so as to be adopted by other parties: the innovative behaviour requires to possess relative advantage over the prevailing technology that it might replace, it requires to be well-matched so as to to fit into current societal processes, it must be sufficiently simple and intuitive so as to be utilized by a larger group of audiences, it requires to be simple to experiment with, and, lastly, it has to be observable.

Rogers (1962) singled out five parameters that are influential aspects in the diffusion process: innovation, adopters, communication channels, time and social system (Shin, 2015). Innovation process is the technology, product or idea introduced to the society. Adopters are the persons, entities or assemblies of individuals who are exposed to the innovation and go via the decision-making avenue (Sivathanu, 2019). Communication channels are the ways via which the innovation is transmitted to the other parties. Time denotes the timeframe in which the innovation is assessed, as the transmission mechanism is infrequently prompt (Tellez & Zeadally, 2017). The social system is the normative and social impacts whereby the introduced innovation takes place (Omwanza, 2015).

The IDT is relevant in delineating the linkages among mobile payments, consumer welfare, consumer characteristics, firm characteristics and firm performance. Mobile payments is construed as an innovative behaviour which eases the transaction process in the diverse business ventures so as to augment consumer welfare hence improving the overall firm performance. The propensity to adopt technology (mobile payments) largely depends on the consumer and firm characteristics. Young people often embrace technology in settling transactions compared to old citizens. Furthermore, younger firms rarely embrace significant technology since they are constrained by resource scarcity unlike large firms which are endowed with substantial resources to carry out innovative behaviour. Despite the multi-disciplinary and widespread application of IDT, this theory has notable shortcomings. First, it does not take into consideration the social support or individual resources to embrace novel behaviour. Secondly, it does not integrate participatory approach in its framework.

2.3 Empirical Literature

An In-depth review of relevant empirical literature was undertaken based on the study objectives.

2.3.1 Mobile Payments and Consumer Welfare

Mobile payment is the primary aspect of mobile commerce involving the exchange of goods or services between two parties for monetary value. Accordingly, customers are able to purchase and pay for the goods through their mobile devices (Suri, 2017). Mobile

gadgets are used by individuals as personal payment instruments that are connected to the remote points of sale. Mobile payment platforms consist of technologies that are at the disposal of the user and tasks that are performed by the payment service provider to complete a payment transaction. As such, mobile payments may take place virtually without the need of a bank or in the presence of a recipient (Mbiti & Weil, 2013).

Traditionally entrenched payment modes such as cash, cheques, and credit cards have been replaced by newer generation alternatives that encompass mobile features. Increasing mobile device usage in addition to the expanded mobile based transaction capabilities have yielded a firm position for mobile payments in the modern business arena. Mobile payments are gradually evolving as a dominant way of making financial settlements for commodities and services. Currently shoppers in Kenya can choose from at least four mobile money solutions notably; M-Pesa, Telkom Cash, Airtel money and Orange money, (CAK, 2021). Driven by the rising inclination towards mobile transaction options, businesses are aggressively reconfiguring their systems to integrate mobile payments, which offer technical advancements in payment processing and more convenience.

Payment transactions can be conceptualized based on diverse characterizations such as location, medium, time and size of transaction (Raina, 2014). In terms of location mobile payments could either be described as remote or proximate mobile payments based on the location. In this case, the distinction is made on the basis of the location of the cell phone in relation to the point of sale of the vendor, which may also be in terms of information about the payment account.

According to Raina (2014), remote payments are suitable for transactions by persons who do not have limited access to banking systems. More so, this form of payment can favorably serve freelance vendors or seasonal outside traders that may not have a standard normal point of sale systems. To accomplish mobile payments within a Kenyan supermarket setting, the customer and the firm establish separate accounts with a third party who is basically a mobile payment service provider who serves as a payment intermediary. By sending a request in the prescribed format, the customer triggers the movement of funds from his electronic wallet to that of a designated seller. Upon the receipt and authorization

of transaction request, the mobile payment service provider draws funds from the user's account and remits the funds into the seller's account. This action is followed by a notification message to both parties involved in the particular transaction.

There is obvious merit in exploration of the various that are assumed to have an overall constructive impact on the consumer approach to mobile payment. As pertinent, this research explores the linkage between mobile based means of payment on selected firm and consumer attributes by employing empirical evidence identifiable with mobile payment platforms within the retail business realm. To make transactions efficient, mobile payments should be used in such a way that diverse digital methods of payment complement each other (Schuh & Stavins, 2014). This requires firms to keep track of developments within the mobile payment spectrum.

2.3.2 Mobile Payments and Firm Performance

Nyaga (2015) observe that in view of the emerging models of service based economies, sustainability of firms will heavily depend on creation and sustenance of long-term customer relationships. On its part, shareholder value is a useful indicator and predictor of business success. Indeed, diverse studies have linked shareholder value and firm performance (Omwansa, 2015). Aron (2018) isolated four key determinants of the market value of a business. These are, first, acceleration of cash flows, second, increased cashflows, third, reduced cash flow risk and finally, increased business' residual value. As indicators of market value, the four also relate to the shareholder value as they are the owners of the firm. In relation to accelerated cash flows, Bourke (2017) notes that the speed of consumers' response to marketing activities impacts on acceleration of cash flows. Firms with better consumer welfare as depicted by the aspects of satisfaction and fulfilment are more likely to have higher turnover with a corresponding need for efficacious transaction settlement systems.

Several studies have successfully linked consumer welfare and firm performance. Wambua (2017) for instance, noted that customer satisfaction is an intangible and valuable asset that generates positive returns. They are of the view that firms with positive changes in consumer satisfaction and higher levels of consumer satisfaction often outperform other

firms in the stock market. Gichage et al. (2017) posit that there exists a positive link between consumer welfare and future cash flows and by extension, the value of the firm. Thus, increased consumer satisfaction leads to increase and accelerations in earnings, increased business residual value and less volatility of cash flows. Other than reduced perceived risk associated with the cash flows, consumer satisfaction in this case will lead to increase in stock price. Accordingly, consumer welfare will lead to reduced cost of capital since customer satisfaction is associated with growth in cash flow and reduced risks associated with future cash flows. Summarily, better consumer welfare stabilizes revenue flows, while lowering variation and uncertainty. As such, enhanced consumer welfare will render an impact on the firm's market value as well as the stock price.

Consumer fulfillment and satisfaction leads to a significant growth of cash flows. The growth of revenue also benefits more from transactions deriving from satisfied customers. On their part, Hossain (2019), observe that higher customer fulfilment diminishes the risk associated with cash flow fluctuation and unpredictability. Reduced cash flow variability lowers the cost of capital thus sustaining stock price growth. Business' overall value being a function of among others, quality, and number of customers, cumulatively which are related with the welfare of the market share is equally bolstered (Lebua & Semlambo, 2017). Due to the centrality of customers to the performance of a firm, their welfare should be a priority for firms seeking to boost their value and as an extension that of their shareholders.

Another useful indicator of firm performance is financial outcome of a given firm, the better the financial outcome, the better the firm performance. There is ample evidence that links consumer welfare to financial outcomes and confirms a positive association between the two. Studies point to a positive relationship between a firm's customer satisfaction level and the corresponding financial market performance (Kigen, 2017). Scholars have propounded different measures of consumer welfare change designed to appraise prospective improvements in wellbeing. In relation to sharing and distributing value, consumers are key stakeholders in the performance of the firm. Responding and addressing the interests of consumers leads to better consumer welfare. Consumer welfare

encompasses the benefits that that consumers derive from consuming products (Mallat, 2017).

Empirical precision requires authors to formulate propositions in a manner that aids theory based predictions. Lee (2015) root for a scientific procedure and further proffers that theoretical precision is critical to any solid research venture. Accordingly, the choice of an appropriate measure in empirical research ought to be influenced by theoretical and pragmatic considerations. Yeboa (2020) posits that organizational performance can be assessed based on profitability, market growth, overall shareholder value added. Xena and Rahadi (2019) observe that blending organizational, environmental and people factors yields an atmosphere that impacts individual consumer behavior leading to superior firm performance.

Entities that responsively address the evolving stakeholders' welfare imperatives are likely to generate more value over time (Aron, 2018). Besides providing elaborate measures of welfare, a stakeholder-oriented approach triggers an objective assessment of value that a firm generates for stakeholders within the organizational value chain. In this manner, managers are enlightened on the expectations of stakeholders and how such insights could aid towards creating more value. Based on this perspective managers can appraise their ability to boost the welfare for the stakeholders especially the consumers and other participants within the value minting hierarchy.

The invisible hand concept propounded by Adam Smith (1776) offers rational explanation for the consumer welfare-firm performance link in a practical context. In the perspective of Smith (1776), self-interest yields an optimal allocation of capital for society. The reasoning is that in the pursuit to optimize self-interest, individuals end up pursuing broader interests that they would not have purposed or contemplated. Every rational consumer would endeavor to obtain the most advantageous deal for whatever resources he can marshal. As such it is his own benefit, and not that of the firm that he has in view. Inevitably, the pursuit of individual surplus naturally, leads to choices that positively or negatively impact on firms and their business objectives.

2.3.3 Consumer Welfare and Firm performance

Consumer welfare refers to the benefits, fulfillment, or payback that people derive consuming products that they purchase (Portecus, 2015). People however differ in what they consider beneficial, as such, individual welfare is an individual customers' view of gratification. Individual welfare revolves around two factors notably, level of income and the prevailing price of the products. Consumer welfare measurement is based on individual preferences due to the uniqueness of people and their view of what is beneficial. According to Raddi (2016), the benefits that people derive from the products they consume are not limited to flexible pricing models, a wide range of products to choose from and innovation. Firm performance on its part denotes to the extent to which organizational objectives have been met by the marketing, economics, or management activities (Taouab &Issor, 2019). The achievement of these objectives leads to better effectiveness, efficiency and competitiveness of the organization's procedures and structure.

Taouab and Issor (2019), observe that a firm's business sustainability and survival is highly dependent on its ability to structure available financial resources in order to generate revenues and achieve profitability. Accordingly, firm performance is a multi-dimensional approach of evaluating managerial outcomes as depicted through overall efficiency, effectiveness and competitiveness of an organization. Lebans and Euske (2016), consider firm performance from the perspective of nonfinancial and financial indicators that convey information in relation to accomplishment of organizational objectives. Siminica (2018) asserts that a performing firm exhibits efficacy, effectiveness and efficiency. Further, Onyango (2017) avers that firm performance encompasses the elements of profitability, growth, return, efficiency, productivity, and competitiveness. Similarly, Needorn (2019) contends that firm performance should incorporate items such as quality, effectiveness, efficiency, evaluation, and piloting.

Firm performance is doubtlessly a pertinent construct in organizational management. Despite the relevance of the construct, there is discernibly no unanimity among scholars about its measurement, dimensionality and even its description. This lack of consensus on organizational performance assessment has led to the use of different dimensions or determinants of firm performance measurement. Determinants that stand out prominently

include; growth performance, profitability performance, customer satisfaction, social performance, employee satisfaction, environmental audit performance, market value performance of the organization, and corporate governance performance (Anthony & Mutalemwa, 2017). According to Wambua (2017), aspects such as economic output, stocks return, and product market are also deemed to constitute firm performance. Firm performance also points to investment return rate, asset growth, market share and revenue expansion. Other metrics could include shareholder overall value added accruing to stakeholders.

Mazreku (2015) observes that managers are increasingly using customer satisfaction to evaluate quality and that, high customer satisfaction which is related to consumer welfare is widely perceived to be an indicator of future profits for firms. Customer satisfaction on its part is characterized by the expectations from the product before purchase and the post purchase experience. Bangens and Soderberg (2017) suggests that higher consumer satisfaction triggers accelerated cash flows and a reduction in risks associated with the liquidity. According to Mallat (2017), enhanced consumer welfare could lead to better revenues, a factor that points to consumers procuring additional good and services from a firm. Also, enhanced revenues could be attributed to acquisition of additional consumers or increased repeat transactions by preexisting customers. Higher revenues to firms are generally attributable to satisfied consumers. Greater consumer satisfaction is associated with less price sensitivity which means that consumers would willing to pay more for goods and services from an entity that delivers the needed level of satisfaction (Lubua & Semlambo, 2017). Consumer welfare also leads to profitability as firms achieve higher levels of consumer retention, reduced operation costs and higher revenues.

Service efficiency and consumer satisfaction indices of firms needs to be evaluated from the consumer’s viewpoint. Customers ordinarily expect businesses to offer them quality commodities and services that meet their requirements. According to Selvam (2015), customers form the focus point for business improvement. As such, firms seeking to improve their performance must understand the needs of customers, improve the general perceived quality of services, avoid defects, and add value to what they offer. Opati and Gachukia (2019) point out that customer satisfaction enhances a consumer's ability to pay

and the business generates profit as a result. Harelimana (2018), posits that the main indicator of firm performance is profitability and that it is dependent on activities that generate revenue for the firm. However, while working towards profitability, organizations should not underrate other dimensions of firm performance. Firms should seek to satisfy their customers through provision of high quality products at favorable prices.

Consumer welfare is vital for survival of companies more so in the fierce competition. Studies show that satisfying consumers and retaining them is cost effective. Tossy (2014) found that it is five times more expensive in terms of time and resources, to enlist a new customer compared to maintaining an existing one. Therefore, retaining customers by increasing their satisfaction can be a survival strategy for organizations. According to Sagire (2017) due to the importance of consumer satisfaction to a firm, it is used as a criterion of for determining quality. The criterion is carried to consumers through the goods and services. Mazer and Rowan (2016) assert that customer satisfaction is universally accepted as a measure of firm competitiveness a view that is also held by Suri (2017), who term customer satisfaction as an influential firm performance metric. Also, on competitiveness, a firm can only gain a competitive advantage over its rivals by either lowering costs or performing in ways that lead to differentiation (Mazreku, 2015). As such, firms aiming at achieving a competitive advantage will create a superior customer value (Reina, 2014).

Previous studies have explored the relationship between consumer attitudes and firm performance (Seminka, 2018). The general consensus is that better consumer welfare boosts customer retention and repurchase intent (Needon, 2019). As a result, higher consumer satisfaction leads to enriched cash flows, profitability and improved revenues for the firm. The net impact of these relationships is that they yield better outcomes on market valuation and firm's stock price (Labans & Euske, 2016).

Being able to meet customer needs is a key aspect of firm performance, Baoteng (2015), hold that many organizations measure consumer satisfaction to see if they meet the needs of their customers. Occasionally, consumer satisfaction has been used to analyze the performance of managers in firms. In the early 90s for instance, consumer satisfaction was

used in measurement of employee-related outcomes. Notably, 37% of organizations used non-financial aspects of firm performance such as consumer welfare in calculation of their executive's bonuses (Bwisa, 2014). In certain instances, firms tend to use customer satisfaction to diagnose the performance of their products and services and link consumer satisfaction to both executive and employee compensation.

Consumer satisfaction, product quality and service standards are key aspects of firm performance (Ivatury, 2016). Consumer satisfaction, according to Kwa (2015), is the judgments or feeling by customers of different services or products after they have used them. As such, customer satisfaction can be used to mean very different things including professionalism, price, delivery time, and response to a customer's request, efficiency or even variety (Kuronen & Takala, 2013). Essentially, customer satisfaction is understood as a subjective process by Koivu (2015) where individuals assess it in terms of their expectations and actual reality. In elaboration, Kamau (2015) viewed customer fulfillment as a construct of post-purchase informed by the experience with the transaction.

Strategic marketing is largely informed by consumer welfare. The consequences and determinants have largely been studied in the extant literature over the last few decades. Scholars do not only acknowledge the significance of consumer welfare towards the corporate performance but also urge practitioners to pay huge attention to its management and measurement. The instinct motivating the opinion that consumer welfare is important is forthright. According to Riley (2019), fulfilled or rather satisfied consumers often demonstrate loyal behavior. A view that is supported by Omo (2015) who highlights that fulfilled consumers prefer the firms and their products to those of its competitors. These consumers are less sensitive to price changes and often attract new consumers through the word-of-mouth and referrals. Ultimately better consumer welfare leads to customer satisfaction and fulfillment which translate to better returns, improved financial performance and better overall firm performance. Corporate performance is negatively affected by customer complaints. However, according to Razak (2015), consumer satisfaction counters customer complaints and enhances usage behavior and customer loyalty. As such, stronger loyalty among the consumers, as noted by Rust, Moorman, and Dickson (2002), translates to increased usage levels and therefore secures future revenues.

According to Onyango (2016), customer loyalty minimizes the possibility of customer defection to other brands or firms. Reduced customer defection means that firms that focus on consumer welfare are more likely to retain customers and perform better in terms of sales. Other advantages of consumer welfare in relation to firm performance include reduced defective goods, reduced complaints and cost related to warranties as well as reduced field service costs.

Often, better consumer welfare leads to higher economic returns for firms. According to Mutua (2016), customer perceptions of higher and better quality are associated with better economic returns. Other than economic benefits, firms also earn employee satisfaction a bigger market share and better productivity when they achieve better consumer welfare as was observed by Mallat (2015). Customer satisfaction is generally associated with cost competitiveness, employee loyalty, long term growth and profitable performance. Better returns for the shareholders mean profitability and as an extension better firm performance.

2.3.4 Mobile Payments, Consumer Characteristics and Firm Performance

There are about 8.3 billion cell phone subscriptions worldwide, according to Elliot (2019), with over39.5 million in Kenya (O'Dea, 2020). Globally, mobile commerce revenue has been on an upward trajectory and the widespread use of mobile payments is expected to proportionately impact on company performance. M-payment centers around payment of bills, goods or services through mobile devices that ride on communication technologies (Leavy, 2016). Luwedig (2015)), regard mobile payments as a means of processing payment transactions where the payer or customer uses a mobile gadget in conjunction with existing mobile communication modes to initiate, complete or realize a payment. According to Au and Kauffman (2008), m-payment refers to any transaction through which a mobile device is used to initiate, confirm, and authorize a transaction.

Forrester (2012) avers that m-payment is a kind of transaction originated through a mobile device without the use of voice function. Gartner (2013) asserts that m-payment refers to transactions conducted through digitally enabled devices such as mobile phones. Payment instruments included in this regard are stored value accounts and banking instruments. M-payments according to Gartner (2013), excludes transactions made on the service

provider's interactive voice response platform and the billing system. Kihoma (2016), defines mobile payments as a form of transaction where a consumer uses mobile technology to complete money transfer and information exchange. This is from the consumer who is the payer to the merchant who is being paid, by way of short-range communication technologies or accessible communication platforms.

According to Arvidsson (2014), due to the many benefits and opportunities that m-payments offer to the society, there have been many efforts across the world to scale up the use of mobile payments. This stems from the view that there are huge economic benefits for a society if cash transactions are replaced with electronic payments. This is so because the costs associated with cash-based transactions are deemed to be significantly higher than those of digital payments. Lescroel (2015) contends that m-payments have a positive impact on the economy of countries where they operate. This positive impact has been noted in both developing and developed countries.

Applications have been developed by third parties to protect consumer financial transaction enhancing the security of mobile payments, offering an additional benefit to those of the general economy and the society. Park et al. (2019) highlights that consumer confidence in using M-payments has increased, trust in the service providers strengthened therefore increased momentum in the desire for consumers to engage in online shopping channels. According to Heitz-Spahn (2013), m-payment benefits to e-commerce and online shopping channels in that it offers consumers comparative empowerment. This occurs when consumers or rather customers are free to decide which retailer to choose over the other. Electronic payments have enhanced the convenience and have made mobile payment a reality for use in real life (Thakur & Srivastava 2014). Mobile based payments have significant benefits to financial institutions, the retailers, and also consumers (Nambiar & Lu 2005). With the mobile payment platform offering a host of advantages over the conventional means of payments, consumers have the convenience of making purchases at any time irrespective of their location. Mobile payments offer usefulness, reachability, mobility, ubiquity and compatibility (Park et al., 2019).

Given the huge benefits of m-payments and the growing realization that mobile technology, including phones, tablets and computers have great potential to spur commercial transactions, the need to study M-payments in relation consumer welfare and firm performance is essential. With this motivation there has been various studies focusing on M-payments. Zhou (2013) explored the factors influencing users' desire to use mobile payments including trust, security, compatibility, social influence, among others. In addition, the studies explored the impact of relative advantage (ubiquity, efficiency, and convenience) on acceptance of digital payments. Lubua (2015) explored the drivers and barriers of mobile payment. According to the latter study results, risks associated with mobile payments pose barriers to acceptance of the payment method while usefulness and performance expectancy are the main drivers of m-payment acceptance. Dass (2016) explored the factors that motivate consumers' intent to continued use of mobile based payments. The study found that service, information and system quality positively impacted consumers' trust. Trust was also found to have a role in promoting consumers' intention to reuse mobile payments.

A commonly troubling issue among consumers in mobile payments is system quality. Davis (2015), and Karai and Onyuma (2015) suggest that system quality measures the technical success of a mobile payment system from the perspectives of system reliability, ease of use, compatibility among other system performance metrics. Dais and Buddy (2016) term variables such as accessibility, system architecture, hardware and software as well as response time as part of system quality. Different studies recognize usability as a significant factor on a consumer's behavior and intention to use mobile payments (Zhang, Yang & Wang, 2018). Cathrine and Margaret (2015) found that compatibility could influence consumers 'decision to adopt mobile based payments. Conversely, substandard system quality may negatively impact consumer welfare by increasing difficulty of using mobile payments for consumers therefore reducing their' satisfaction and trust of both the products and services (Zhou, 2013).

Quality of service is another critical aspect that concern consumers in relation to the use of mobile based payments. Service quality is frequently assessed by reliability, empathy, and responsiveness of the support organizations (Chimaobi & Chizoba, 2014). The mobile

payments service can take a variety of forms including capability to keep privacy and confidentiality, the integrity of transaction processing, and the availability of accessing the mobile payment platform. Chitungo and Munongo (2016) assert that consumers' welfare and intent to use a digital payment platform is influenced by the ease of searching products, transaction and after sale activities. Consumer attitudes towards mobile based payments is significantly influenced by processing integrity, privacy, and availability (Bagana & Muturi, 2015). Notably, if mobile payments are not reachable and stable when consumers seek to settle bills through mobile devices, consumers may not be inclined to use it more often.

According to Bwisa (2014), cost is also an important factor influencing mobile payment. Costs related to mobile payments include transaction fees, mobile device costs and access costs (Zhang al., 2018).In comparison to conventional payment methods, consumers' motivation to adopt mobile payments could be negatively impacted by cost (Collen, Ghani & Koepke, 2015). In a study on assessment of mobile payments in Nzuki (2016) also concurs that costs related to mobile payments might have an influence on adoption of mobile based payments. Consequently, according to the study by Caporasoand and Madeira (2014), consumers preferred to use cash payments as opposed to mobile payments due to the extra transaction costs charged accruing from the use of mobile platforms. Perceived usefulness denotes the extent of user confidence with regard to a system's ability to improve their job efficiency (Davis, 2015). Jack and Suri (2016) contend that mobile payments have multiple benefits related to time independent transactions and time and that consumers will use mobile payments for the benefit of their welfare if they think it improves their prospects of realizing an intended outcome.

Kwa (2015) describes social influence, as the extent to which a consumer, perceives the importance of others believing that they should use a new system. It affects consumers' behavior (Kamau, 2015). Therefore, in certain social contexts, customers will use mobile payment systems to sustain their relationships with others and to boost their standing within their social networks (Leland, 2015). Confidence is a major concern for consumer welfare; it relates to the willingness of customers to take a gamble based on their perceptions of merchants and service providers to fulfill their needs.

According to Zhou (2013), a great deal of risk and uncertainty are involved as consumers engage in mobile payment transactions. For example, the risk of hacking of the mobile network resulting in the loss transaction information is one of the uncertainties that consumers face while using mobile payments. As a consequence, building trust is crucial to affecting the intention of customers to use mobile-based payments (Lu, 2019). Molla and Licker (2001) argue that trust is related with two problems: privacy and security. One of the vital factors influencing the adoption of mobile payments is the capacity of service providers to maintain consumer privacy and ensure the integrity and security of mobile payments. According to Zhou (2013), trust can promote consumers' intention to use and reuse mobile payment services.

Consequently, consumer protection is considered to be a critical aspect of creating consumer loyalty on mobile payment platforms in the context of user satisfaction (Kihoma, 2016). It results in consumer satisfaction which covers three main aspects in the sense of mobile payments notably, satisfaction with the products and services, fulfilment with the method and mechanism used for the transaction, as well as satisfaction with the information provided and modified (Karai & Onyuma, 2015). Customers may be less likely to use or reuse mobile payments, according to Leavy (2015), if they are not happy with experiences with their service providers. According to Becker and Jaakkola (2020), extant literature reviews suggest that it is difficult to measure consumer welfare at the point of service or payment during consumer mobile payment use, but studies have highlighted certain feelings as proxies of customer satisfaction. Consumers are seen to derive satisfaction from the cost of using M-payments while paying for a good or service.

Mallat (2015) posits that a successful mobile payment system should be such that it lowers the cost of initial subscription into the platform and finishing a transaction. Notably, higher subscription costs, communication costs and costs per transaction is often detrimental to consumer spending and firm performance (Shafinah et al., 2013; Chatterjee & Kar 2020). Consumer welfare is also related with the usefulness of mobile-based payments. According to Omwansa (2015), m-payment platforms enable users or consumers to withdraw or spend their money at anytime and anywhere with minimal charges. As a result of this, if consumers perceive mobile payment platforms as more useful than traditional payment

methods, then they will be more fulfilled using the M-payment options. Jack and Suri (2014) note that mobile money platforms reduce the financial transaction costs of users.

Trust offered by mobile based payments helps improve consumer welfare for users. Trust refers to the risk freedom believed to be concomitant with carrying out a financial transaction. It is directly proportional to client satisfaction with usage. Trust contributes to maintaining a transactional association amongst the supplier and its consumers (Koivu, 2015). It is a relationship that guarantees better consumer welfare and improved firm performance because it plays an important role in consumer satisfaction and determines if consumers will adopt mobile based payments more often in their transactions (Slade et al., 2015).

However, it should be noted that M-payments are intangible and pose some degree of unpredictability and risk (Baoteng, 2015). In this regard, service providers should employ the antecedents of trust including talent, honesty and kindness. Through these antecedents, mobile payments will deliver desired services, and satisfy the requirements of customers positively without fear of being cheated (Sebastianelli & Tamini, 2018). In addition, the perception of trust towards a mode of payment extends to trust in the merchant or firm a factor that plays a significant role in firm performance. Also, closely related to trust is credibility which refers to the trust placed on different parties not to do anything that harms the interest of others. Mobile payments offer greater credibility therefore positively impacting the usage satisfaction and consumer welfare (Kapoor et al., 2014). Literature indicates that trust is key in building preference to a mobile payment platform and leads to better consumer welfare.

According to Mustafa et al. (2020), information risk associated with different modes of transaction is an important factor in consumer welfare and their choice of payment methods to use. Notably, reduced risk of information instills greater trust in users. Consumer trust is due to decreased fear of the unintentional or deliberate loss of their financial or personal details to external entities (Ludewig, 2015). Also, consumers derive satisfaction from the convenience of mobile payments. According to Lu (2018), mobile payment systems have perceptible ease of use, offering a positive attitude and, resultantly, have a constructive

effect on consumer well-being. Due to discernible aspect of usability, mobile payment platforms eliminate transaction errors therefore positively impacting consumer welfare (Omo, 2015). In addition, the easiness in use is linked with convenience and time saving all of which improve consumer welfare and impact positively on firm performance. Furthermore, mobile payments do not depend entirely on existence of physical business outlets organizational branches, hence have simple and clear service features (Lal & Sachdev, 2015).

Performance in reference to mobile based payments measures how consumers feel after they use the mobile payment platforms. It is noted that through mobile based payments, customers can transact anytime and anywhere. In terms of performance, mobile payments can be evaluated on their speed and level of risk when performing a business activity (Lee, 2015)). Previous literature suggests that payment system efficiency contributes towards greater inclination to use the particular platform (Slade et al., 2015). In this regard, satisfactory performance of mobile payment platforms has a contributory effect on customer welfare and entity performance. M-payment options as modes of payments bring numerous benefits to consumers and impact firm performance. In addition, M-payment benefits financial institutions and mobile service providers (Onyango, 2016). According to Thakur and Srivastava (2014), improved M-payment platforms enable convenient and practicable mobile commerce transactions. Mobile payments -payment have benefits such as expediency, flexibility, compatibility, usefulness, and ubiquity. Mobile money platforms offer a technological solution that alleviates challenges emanating from unavailability of mainstream financial services. Availability of M-payment enables prospective customers to undertake financial transactions in a reliable and affordable way (Jack & Suri 2014). The platform eliminates access and spatial barriers, and also offers a funds preservation option to both the unbanked and banked (Mutua, 2017).

As per the findings of Jack and Suri (2014), use of mobile money platforms reduces transaction costs for households and as such ensure that they enjoy smooth consumption amidst negative idiosyncratic shocks. Mobile payments facilitate redistribution across huge geographical distances, rendering a huge impact on households' purchasing power thereby increasing their spending capacity. With increased consumer spending, consumer welfare

increases and by extension, better firm performance. In addition, mobile money platforms have contributed to consumer welfare by reducing travel costs when sourcing for different products and services (Riley, 2019). Wright et al. (2014) view mobile payments as a channel that increases security for users therefore lead to even greater satisfaction. Through mobile money platforms, consumers can enjoy even greater access to financial platforms-financial inclusion, increase remittances and improve economic empowerment of consumers more so women (Kamau, 2015). Other advantages of mobile based payments include increased safety and convenience, the platforms have also reduced dependence on banks among other major financial institutions (Wright et al., 2014).

2.3.5 Consumer Welfare, Firm Characteristics and Firm Performance

A study conducted by Islam et al. (2018) found that 22% of the firms sampled used mobile based payments to pay their suppliers while 9% used the platform to pay their employees and 20% to pay for utility bills. Also, from the sample studied, 36% of the firms received payment from their customers using mobile based platforms. Further, findings of the study were that there was heterogeneity across countries. In Kenya, 20% of the firms used the mobile based payments to pay their suppliers while in Uganda, 29% of the firms used the platform and 17% in Tanzania. However, a greater difference was noted in the usage of mobile device-based payments for paying for user bills. Compared to 42 %of companies in Tanzania and 19 % in Uganda, 15 percent of companies in Kenya used digital payment platforms to settle their bills. Lescroel (2015) notes that the acceptance of information technology is vital to rising returns for entrepreneurship as economies advance to the innovation-driven phase of economic growth. Mobile payments tend to closely relate with better firm performance and growth. Mobile based payment platforms not only reduce transactions costs but also improve trade credit which is a key factor in company success. Businesses can achieve greater investment through these channels and thereby boost company efficiency (Jack & Suri, 2014).

The study by Islam et al. (2018) points to a positive association between the use mobile based payments and the likelihood acquisition of fixed assets by a firm. This relationship is largely attributable to lesser transaction costs, greater solvency, and enhanced liquidity all of which contribute to improved productivity and better quality standards, resulting in

improved performance of the firm. In addition, among the several foundations of business success is the anticipation of potential returns. Mobile payments have been shown to save time and increase cash flows in a business (Mararo & Ngahu, 2017). Thus, time that could have been spent on dealing with transactions can be allocated to other productive activities leads to increased profitability and therefore better firm performance. Nzuki (2016) examined the relationship between increased investment and company efficiency, and noted that investing in innovation, information technology, and research and development improves company productivity. Liu and Lu (2015) link investment mobile based innovation to increased transactional capacity pointing to potential for improved firm performance.

Beck et al. (2015) suggest that firm performance is influenced by trade credit. According to their study, the use of mobile based payments increases the access to different financing options such as the use trade credit, trade credit then improves the performance of the firm. Onyango (2016) also highlight trade credit's role in growing access to funding alternatives, such as bank financing, through reputational effects. In particular, increasing access to financing options facilitates investment and as extension lead to better firm performance (Razak, 2015). Mobile payment methods have been linked to higher revenues and profits more so in micro-enterprises. In addition, through the use of savings, financial and transaction operations information from mobile based payment platforms, it is easier to evaluate the effect of price variations (Ndung'u et al., 2016). As noted by diverse scholars, mobile money payment platforms are increasingly being used to administer salaries and wages. They offer an easier and cost-effective alternative to traditional payment methods. In addition, employee welfare has been termed as a dimension of firm performance therefore; the payment method offers an easier route to firm performance (Blumenstock et al., 2015).

With decreased transaction costs, exchanging money across individuals increases and becomes more feasible, and consumption smoothing options become more. Reduced transaction costs are also responsible for increased transactions and network members increase. Mobile money platforms have the potential for businesses to reduce the enforcement expense of transactions. Through mobile based payments, firms can overcome

distance and time constrains to instantaneous transfer of information (Higgins, Kendall & Lyon, 2012). Islam et al. (2018) notes that consistent and low-cost record keeping can increase confidence and trust in the system. Due to reduced transaction costs, the resources freed can now be allocated to better uses aimed at achieving business objectives and improving firm performance.

The effect of the various m-payment attributes on consumer disposition and the attendant impact on transaction trends is bound to implicate on various firm performance dimensions including profitability (Govi, 2017). Garett et al. (2014) established that mobile payment users had diverse age, income among other demographic extractions. Study findings further pointed to m-payment users being motivated by convenience denoting potential susceptibility to impulse shopping. Consumers with limited technical skills may not use a mobile tool if its interface is complicated or basically difficult to use. Consumers who attach a high premium to time may avoid mobile based platforms with slow response speed. Technological realities such as interface settings influence consumer learning and memorization (Aron, 2018).

Transaction costs are arising naturally within consumer purchase and consumption set up. Based on magnitude, costs surrounding a transaction may encourage or dissuade consumers from taking particular choices (Hajri, 2017). Bwisa (2015) regards consumer welfare as the overall welfare, depicting economic efficiency. Sivathanu (2019) aver that mobile payment research is largely focused on consumer approval and utility. Hence, from a consumer standpoint, m-payments have been endorsed based on various potential benefits that yield convenience for consumers. However, Garett et al. (2014) further observe that though mobile payments are progressively gaining traction, the implications of these realities on consumer welfare remain largely unknown.

Whereas the consumer welfare dimensions have been captured through diverse studies, scholars also point out that consumer welfare deriving from mobile payment usage could have a bearing on firm output. Raddi (2016) posits that mobile payments provide a means of increasing consumer spending by creating a situational convenience for impulse shopping. Mallat (2015) hypothesizes that as mobile payments become more common,

impulse purchases will increase. The overall effect of this is that firms will rake in higher revenues which will effectively boost firm performance. It is thus vital to ascertain both the planned and the accidental consumer welfare and firm performance outcomes that flow from m-payment orchestrated undertakings (Tossy, 2018).

2.4 Knowledge Gaps

Rapid technological growth and innovations associated with mobile devices and the related digital technologies have yielded significant improvements to the functionality of commercial mobile platforms. Mobile technologies are now being used for much more than just the traditional purpose of communication (Hossain, 2019). Of the many innovations, mobile money payment platforms and the related functionalities such as mobile commerce have stood out as significant areas of mobile technology use (Bourke, 2017). With increased use of mobile devices, the field of mobile money has received significant attention from scholars and academicians around the world. Nevertheless, due to various limitations the scope of prior related studies does not encompass the aspects addressed by this study.

Garett et al. (2014), for instance, assessed the use of mobile based payments among American users. The study used 15,060 respondents picked from 50 federations as well as the Columbia district. A detailed database of mobile based payment usage among American users was developed. Study results revealed that respondents who used mobile payments were on probability, more likely to be men, and the minorities with above average income and younger in age. A strong association between adoption of digital payment platforms and high cost debt, credit card behavior and trouble with management of finances was observed. In addition, results from the study suggest that mobile payment platform users were more prone to impulse spending and were more focused on convenience.

Through this study, Garett et al. (2014) contributes immensely to literature on mobile based payments. However, the research was limited in its scope and was performed in the sense of American consumers. In the said study, respondents were picked from 50 states in America hence a generalizability challenge in its conclusions. In addition, the study used

quantitative data to arrive at its conclusion. This current study seeks to evaluate if the findings by Garett et al. (2014) hold in the Kenyan context. Beyond characterizing users of mobile money payments, this current study systematically evaluates the implications of mobile money payment on consumer welfare and firm performance.

Adebiyi et al. (2013), ventured to explore whether, proliferation in mobile innovations has resulted to increased application of mobile payment technologies. The latter study set out to examine variables that inform the adoption and acceptance of mobile-based payments technologies in Nigeria. To achieve this objective, a revised model incorporating the aspects of complexity, security, and compatibility was employed. To test the model, a random survey of 250 respondents was conducted in the Nigerian city of Lagos. Findings revealed that Nigerians view mobile payments as beneficial and a key facet in the cashless economy.

In addition, the study showed that Nigerians would be further motivated to use mobile based payments based on convenience and ease of use. The study however highlights customer trust, in the agents and service providers, complexity of the payment procedures and interface, security and privacy of personal information as well as costs as pertinent factors that implicate on successful adoption and implementation of mobile based payments (Yeboa, 2020). However, the foregoing research did not detail the advantages that mobile payment users would gain by implementing the technology, and this study was also conducted in Nigeria. The current research extends the frontiers; it was carried in the Kenyan context and encompasses the critical dimension of consumer welfare and firm performance.

Arvidsson (2014) acknowledges that indeed there are potential economic benefits for a society that transforms it from cash-based transactions or rather payments to electronic payments. Arvidsson (2014) investigated the attitudes and motivation of consumers to start using mobile based payments. The study was based on the diffusion of innovation theory and the technology adoption models (TAM). It was found that the most critical factor in explaining the likelihood of consumers switch to a mobile payment platform is the concomitant ease of use. Also, consumers were likely to adopt mobile payment platforms

if they proved to be highly trustworthy, have lesser perceived security risks and offer relative advantage.

Lower income and higher age, according to the study were also associated with better adoption or rather a positive view of mobile payment platforms. In a nutshell, Arvidsson (2014) suggests that firms that aim to launch mobile payment platforms must understand that reliability of the service is a major concern for consumers and trust in the platform is engendered over time. Therefore, as consumers gain knowledge and competence on use of the system, they are more likely trust the platform. Hence mobile payment platforms ought to be designed in a manner that supports the learning process for both merchants and consumers.

Arvidsson (2014) only examined consumer attitude aspect as a driver to mobile money platform utilization. Also, while the study offers insight into what drives consumers to adopt mobile payments, it does not detail how the payment method benefits consumers and how it impacts on consumer welfare. The study recommendations are to companies that intend to use mobile based payments, it highlights the issues that need to be addressed to make the platform successful. However, it did not cover the benefits that a firm derives from adopting mobile based payments. The current study fills these gaps by linking mobile payments to consumer welfare and firm performance.

Callen et al. (2015) aimed at establishing the triggers of consumer intention to use mobile payment platforms. To achieve the objectives, the study used three perspectives which are; technology features, business features and consumer features. These constructs were examined and measured to better understand the perspective of consumers on mobile payment in Malaysia. A survey was undertaken upon 1000 mobile payment respondents. Study outcome showed that firms could better meet consumer needs better by understanding how mobile payments relate to consumer welfare. By improving the welfare of their consumers, the firm can meet their need more readily. However, the current study goes further to clarify the benefits of these payment to the organization through relating the mobile based payments to firm performance. Unlike the previous study, the current

study explores consumer welfare in detail including how this relates to firm performance. In addition, it extends the scope of the former study to cover the Kenyan context.

Kim et al. (2018), asserts that good security improves trust. They extend this view to e-payment platforms that the perceptions of trust through good security will lead to increased use of e-commerce and e-payment. The study contends that the perception of customers of the security and their level of trust are major factors in the evolution of e-commerce. It aimed at assessing consumer security concerns brought about electronic payments. In that study a conceptual model that was set to determine levels of perceived trust and security among the consumers and how these constructs affected consumer use of electronic payment systems was used. Data obtained through a sample of 219 respondents was analyzed. It was found that both security standards and technical protections are significant factors in improvement of consumers' security perception. More so, the study concluded that a consumer's perceived security was significantly and positively related to trust in the use of electronic payment systems.

In addition, consumers' perception of security is positively and significantly related trust attributable to the use of electronic payment systems. Further, consumers' perceived trust has a positive impact on the use of electronic payment systems. In summary, the study gives insight to service providers on the essence of ensuring security of the electronic payment systems and offers guidelines to practitioners on how to respond to consumer security risks brought about electronic payments. The Kim et al. (2018) study had a limited in scope only covering e-payments within Korea. This study fills this gap by studying e-payments in the Kenyan context. In addition, while Kim et al. (2018) tackled e-payments generally, the current study focusses on mobile money payments. Unlike the Him et al (2010) study, the current study goes beyond security and trust issues in digital payment systems and examines the broader aspect of consumer welfare in relation to mobile payments. Also, while the previous study provides insights into firms and service providers on the essence of ensuring trust and security in electronic payment systems, the current study outlines the various benefits to both consumers x and firms respectively benefit in terms welfare and performance from mobile based payments.

In the context of China, Zhao and Kurnia (2014) suggest that with technological innovation, particularly that, involving integration of mobile communication systems and the internet technology, M-payments are set to grow rapidly. They attribute this to the high population in China and the high number of users of mobile technologies. Despite the predictions, the study observes that the number of mobile payment subscribers in China is still low. Using quantitative approach, the study assessed the factors that affects the general adoption of mobile-based payments in China. Its results show that the adoption of mobile payment systems in China was affected by several factors, including service quality, system quality, usefulness, confidence, social effects, among others. The study also revealed that the elements of service quality and device quality are significant on the preference of a customer in deciding whether to use mobile payments. Further, an individual's needs, lifestyle, and promotion or advertisement offered by service providers are important factors influencing mobile payments in China (Zhao & Kurnia, 2014). The study recommends that service providers come up with strategies that encourage more usage of mobile payment platforms.

Again, the current study extends the scope by covering mobile payments in Kenya with particular focus on Nairobi City County's 17 sub-counties by investigating the use of mobile cash payments in supermarkets. While previous studies covered factors that influenced consumer adoption of mobile money payment, their scope did not include the benefits that consumers derive from mobile based payments. The current study goes beyond the factors influencing adoption of mobile payments and highlight how the payments relate to consumer welfare. While the former studies highlighted the areas of action for firms that intend to use mobile payments and service providers including service quality and system quality, it does detail the benefits that the users of these platforms will derive from applying the technology. The current study looks into the subsisting relationships between mobile payments and consumer welfare on one part and firm performance on the other. It interrogates the proposition whether consumer welfare and firm value increases on account of m-payment utilization.

Carton et al. (2015) derives a theoretical framework that takes into consideration both the technological dimension of M-payment services and the associated consumers 'value

proposition. The instruments promoted by banks are often costly, have inadequate decision support functionality and centralized. The ubiquity of M-payment platforms has led to a decentralized system for managing payment processes. On this basis, Carton et al. (2015) set out to elaborate the value proposition of consumers. The absence of a clear outline of the value proposition has stalled the development of a sustainable revenue model for M-payment systems. The study highlights that currently, consumers and merchants are being attracted by the convenience of M-payment solutions. The analysis derives a framework that juxtaposes customer value with payment integration. Customer value in this case relates to the benefit in return of payment made, while payment integration relates to the procedure through which payments are made. Through the framework, the study gets a practical and theoretical basis for assessing the benefits of m-payment technologies within the transactional chain. The framework derived was then used to discuss the components of an M-payment pilot project that was run on a trial sample of 250 campus students in Ireland. From this trial, the study highlighted the weaknesses in the value proposition for both merchants and consumers. In addition, the study highlighted the limitations of their research tool- the framework.

Carton et al. (2015) pays attention to the basic facets of m-payment integration and doesn't consider the strategic consumer welfare and firm performance outcomes. While the study highlights the value proposition of consumers it does not detail how mobile payments relate to consumer welfare. Also, it assesses the value proposition to merchants but does not highlight how mobile payments associate with firm performance. The current study seeks to close these gaps, it does a detailed assessment of the link between consumer welfare and the attendant firm performance impact. In addition, the current study links mobile payments to both firm performance and consumer welfare. The current study also extends the scope of the former, while the former study was conducted in Ireland, the current study focuses on mobile payments in Kenya.

Monica and Gordon (2019) highlight that dependence on technology is not hinged on the tool itself but rather the cumulative experience afforded by the complete solution. This work introduces the aspect of technology addiction into the study realm of consumer welfare. Their paper highlights that addiction to technology poses a genuine challenge to

consumer welfare. Data indicates that addiction to technology is a mental addiction, according to the report. Furthermore, the study states that not the technology but the accumulated experience it gives to customers is the focus of addiction. As such, this study is based on the negative effects that technology generally has on consumers. The study sensitizes policymakers' researchers and ideas that technology addiction poses a threat to the welfare of consumers.

While Monica and Gordon (2019) highlight the negative impacts of technology including mobile payments on consumer welfare, the current study spotlights on the general influence of mobile payments on consumer welfare. In addition, while the former study focuses on consumer welfare, the current study goes beyond consumer welfare to highlight the implication of mobile based payments to firm performance. The former study also focuses generally on technology and its negative impact on consumers, the current study however, focuses specifically on the mobile payment aspect of technology and its impact on consumer welfare and firm performance.

Williams and Naumann (2021), unlike any other of the studies stated above, aimed to examine possible links that exist between consumer satisfaction and metrics related to corporate outcomes. To arrive at this objective, the study used a longitudinal analysis of customer attitude surveys. The data used to arrive at the conclusion of the study was gathered over a five-year period and analyzed through correlational tests. The study established a fairly strong and significant relationship between consumer satisfaction levels and the financial performance of a firm. More precisely, the study found that there was a strong link between consumer satisfaction, and stock price, revenue earnings per share, and the ratio of a firm's assets market value to the asset's replacement expenses. While the study of Williams and Naumann (2021) links consumer welfare to various aspects of firm performance, it does not introduce mobile payments. The current study examines mobile payments and relates it to consumer welfare and firm performance. Also, the former study is limited to a sole firm in a single industry, the current study covers many organizations around Nairobi County and links consumer welfare attained through mobile payments to firm performance.

2.5 Summary of Empirical Literature

As evidenced by literature, the m-payment concept has been explored by various practitioners. Diverse implications of mobile based payments have emerged. Remarkably, mobile payments are ubiquitous in nature and entail multiple service elements offered by different providers. Table 1 below presents a summary of critical findings accruing from various empirical studies deemed comparable to the current study and the attendant knowledge gaps addressed through this study.

Table 2. 1: Summary of Empirical Literature and Knowledge Gaps

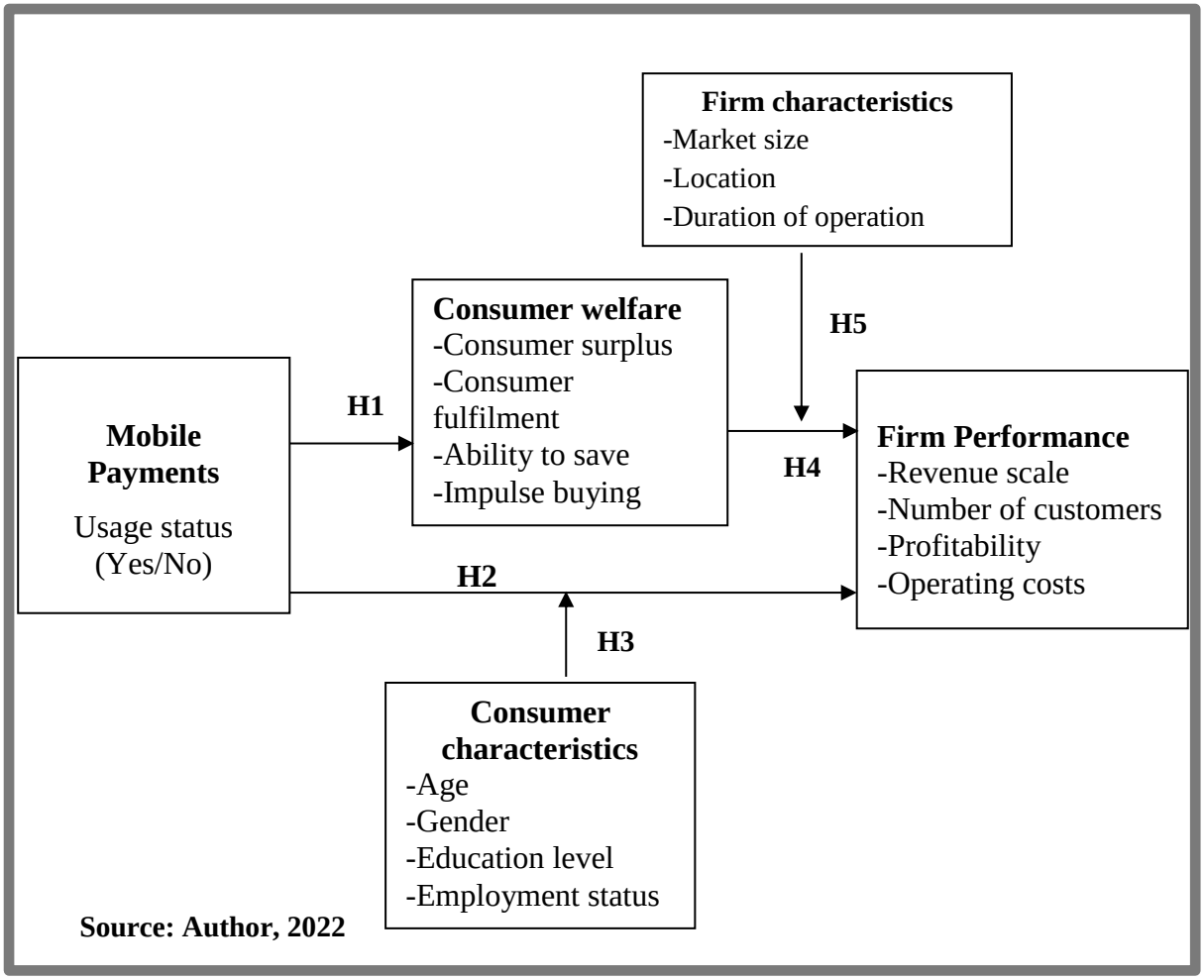
Researcher	Key Findings	Knowledge Gaps	How Knowledge Gaps are addressed
Sivithanu (2019)	Behavioral intention to use and innovation resistance affect the usage of digital systems.	Use of cross sectional design that limited by the geographical constraints.	The study considers use of descriptive design that analyzed the happening from their natural occurrence.
Mahakittikun (2021)	Competitive pressure, relative advantage and organizational innovativeness associate positively with firm performance.	The study focused on the two sectors in general without specific focus on a certain context.	The study focused on the supermarkets and generated knowledge that would benefit the sector **.**
Garett et al. (2014)	-Users of m-payments were more largely younger male minorities with above average incomes -Strong association between m-payment and financial management problems -Users major focus on expediency and might be disposed to impulse expenditure	Used quantitative data and focused solely on American consumers	This study considers whether the findings hold in the Kenyan context as well as implications to consumer welfare and firm performance
Adebiyi et al. (2013)	-Navigational complexity, security and confidentiality affect m-payment success	Study largely focused on the level of adoption and the attendant factors behind adoption.	This study extends the frontiers by analyzing the consumer welfare aspect within the Kenyan context
Arvidsson (2014)	-Security and usability considerations inform usage of m-payment service -Age and income implicated on scale of m-payment utilization.	Study only looks at the consumer attitude aspect as a driver to utilization	This study pays attention to the import of consumer welfare on firm outcomes
Eze & Beng (2010)	- Understanding consumers' perspective m-payment systems could enable organizations provide more purposeful m-payment apparatus that delivers customer needs -Greater consumer satisfaction with m-payment standards elevates the returns accruing to the firm utilizing m-payment.	Study is based on Malaysian consumers with the focus being on business and consumer features.	The current study delves into the nexus between consumer welfare and firm performance.

Kim et al. (2010)	-Complex authentication procedures impair the value consumers derive from using e-payment systems. -Transaction procedural challenges could dilute the overall benefits accruing from an e-payment system.	Study emphasizes on the perceptions of security and trust with a broad emphasis on e-payment systems	This study sharply and adequately focuses on transactional and operational implications of mobile payments on firm performance
Zhao & Kurnia (2014)	-Lifestyle compatibility and advertising by service providers identified as important stimulus for using m-payment	Study does not consider the influence of mobile payments on consumer welfare and firm performance	This study validates the proposition whether consumer welfare and firm value increases with respect to m-payment usage.
Carton et al. (2012)	-Consumers highly value the convenience afforded by m-payment. -Value proposition requires attention just as the technology solution.	Study concentrates on the basic facets of m-payment integration and doesn't consider the strategic consumer welfare and firm performance outcomes	This study undertakes a detailed assessment of the link between consumer welfare and the attendant firm performance impact.
Monica & Gordon (2009)	Technology dependence is hinged not on the tool itself but rather the cumulative experience afforded by the complete solution.	Study is configured around the negatives effects that technology generally has on consumers.	The current study analyzes consumer welfare within the mobile payment context.
Williams & Naumann (2011)	There are fairly strong and significant relationships between consumer satisfaction levels and the financial performance of a firm.	Study is limited to a sole firm in a single industry. Study does not introduce mobile payments in the relationship between consumer welfare and firm performance.	The current study investigates mobile payments and relates it to consumer welfare and firm performance. The current study covers many organizations around Nairobi county.

2.6 Conceptual Framework and Hypotheses

Based on the diverse perspectives derived from literature, the study variables are theoretically espoused and operationalized. A framework that contextualizes the relationships between mobile payments, consumer welfare, firm oriented characteristics and overall firm performance is conceptualized and the attendant hypotheses propounded accordingly. The control variables are not included in the conceptual framework since they are not the key variables of interest. The control variables used in the estimation are product innovation, mode of payment, monthly income and shopping budget.

Figure 2. 1: Conceptual Framework



2.6.1 Independent Variable: Mobile payments

The independent variable in this study is mobile payments. Mobile payments are a form of electronic payment that enables financial settlement for products without the use of paper cash, cards or physical medium of exchange. Thus, payments are made via wireless communication networks (Pagani, 2015). Kar (2020) points out that digital payments allow users to pay for

commodities without restriction, in terms of geographical barriers, physical proximity, or traceability of payments. Mobile payments platforms perform a crucial role in the digital transactional world (Grover et al., 2017).

For the provision, access, and diversification of financing firms, mobile payments hold great promise. New players are joining the stage, capitalizing on digitalization opportunities, in particular on decreased costs of transaction, a wider reach to additional and substitute data, and convenience with customer service. Many of the traditional hurdles in retail finance are mitigated by the versatile mobile payment solutions. Digital technologies improve productivity and economies of scale, while dramatically lowering costs. Increased use of mobile payments in conjunction with alternative options can boost purchase and sale activities, and also minimize risk and default for financial service providers. Due to productivity gains and competitiveness associated with mobile payments, potential users benefit from decreased costs for physical payments.

Businesses with limited management skills are suited to mobile payments in view of its ability to substantially minimize on the time and resources that go into the buying process. M-payments support simplicity and convenience hence suiting such types of ventures. Sub-Saharan Africa's financial system offers fertile ground for mobile money market. The region's financial market is expected to enlarge at an annual growth rate of 8.5 per cent by 2022 (BOG 2018). This is apparent from the nature of deployment of mobile payment platforms, whose pervasiveness and use is on an ever rising trajectory.

2.6.3 Measures of Consumer Welfare

Consumer welfare may be construed from various perspectives including consumer surplus, pleasure, savings, and purchasing momentum. When mobile payment is utilized, the cost of sending and receiving money is reduced, especially in situations where the transport infrastructure is inadequate. Transportation costs, travel time, waiting time, delays, and tax leaks, communication costs between consumers, companies and suppliers may be averted in view of the clear transactional trail that comes with mobile based financial interactions. Business payment channels that can be attributed to better consumer welfare equally can develop a strong reputation and become more attractive. This could potentially foster business profitability and productivity, which in the long term would likely contribute to economic development.

Consumer Surplus

Consumer surplus denotes the excess of a product valuation over the price actually payable (Seminica, 2018). Consumer surplus refers to the economic value deriving to a consumer at the conclusion of a given set of transactional activities. Consumer surplus as a measure targets the additional benefit that a consumer derives because they are paying a lesser amount for a product than they were willing to pay (Ndungu, 2018). It is generally expected that a customer is ready to incur an imaginary price for a given quantity of goods or services, based on the assumption of private profit. In certain situations, consumers spend less than they would have been ready to pay, resulting in a theoretical utility gain known as a market surplus (Mahmood, 2016). The difference between the maximum price a customer is comfortably willing to tender and the actual price they pay for a product or service is what constitutes consumer surplus. Based on the law of decreasing marginal utility, Mahmood (2016) argued that the utilization of mobile payments could decrease the price of goods, thereby increasing the surplus for consumers.

The foundational basis of consumer surplus is the element of marginal utility, which reflects the additional fulfillment that a consumer acquires from an extra unit of a product. The utility of a product, however, varies from an individual to another based on existing preferences. Typically, as consumers get more of a product, the less they are willing to spend for more of the same. This is due to the diminishing additional benefit they get from the product, an aspect referred to as diminishing utility. Fasoranti and Akindele (2015) associate consumer welfare to consumer surplus and subscribe to the notion that consumer welfare could be deduced from facets of consumer surplus.

Consumer Fulfillment

Consumer fulfillment is an intangible concept that expresses the satisfaction that a consumer derives from engaging with a given firm, typically in purchasing or using their products or services. Consumer fulfilment has been variously used interchangeably with consumer satisfaction, which is defined as the cognitive state of the buyer being rewarded for their sacrifice in buying a certain product, either adequately or inadequately (ODea, 2020). Researchers have outlined two forms of satisfaction: satisfaction overall and transaction specific satisfaction. Satisfaction overall refers to the assessment of fulfilment that a consumer derives from using a good or service while transaction specific is the assessment made after purchase of a specific good or service. Fulfilled consumers tend to engage in repeat purchase and exhibit greater customer loyalty. Loyal consumers are perceived to be less sensitive to

price changes and easier to serve (Elliot, 2019). As such, firms with more fulfilled consumers are likely to enjoy higher revenues and lower costs leading to better firm performance.

Literature is inconclusive on whether the use of mobile services yield consumer fulfilment. A dominant line of argument is that mobile payment platforms yields customer satisfaction when service efficiency exceeds customer expectations. Mobile payment satisfaction would result from the fast and secure transfer of money, regardless of geographical location and distance. Mobile payments are designed to empower customers digitally, reduce intermediaries by rendering businesses cashless, paperless, and somehow faceless. Dlodlo (2014) suggests that satisfaction may be calculated based on the degree to which a particular system attracts the customer and the extent to which it satisfies the desired requirement while providing characteristics such as fulfillment, positive interaction and pleasantness. Satisfaction can also be seen as the approval level of the system in use by the customer. Satisfaction is an essential indicator of consumer welfare, since consumers would simply abandon a system if does not produce the desired satisfaction and enjoyment.

Ability to Save

Consumer welfare is decipherable from various aspects of consumers 'ability to save. Generally, the increased ability to save for a consumer has a positive effect on consumer welfare. The situation could be different if the savings result from a corresponding fall in quality or product value. Mobile payments benefits emerge from the fact that it allows for quick, safe and reasonably priced money transfer options. Under four heads, these gains can be graded. Next, prices for purchases are reduced. Lower transaction fees mean that, at a greater speed, consumers can be able to engage in low volume transactions. Certainty and confidentiality are also gained since mobile payments have immediate settlement, which assures safety, privacy and eliminates potential losses within the payment delivery chain. It alleviates the challenge of saving and maintaining sufficient cash to meet the threshold needed to cover the remittance funds' fixed costs and raises the amount collected by the beneficiaries. Ordinarily, people either save or consume the money they earn. As such, increased savings on a constant income would lead to decreased money left to consume, denoting a lower marginal propensity to consume. According to Heitz (2018), a person's well-being is dependent not only on their current consumption but also how their current consumption compares to their past consumption. Consumers are likely to spend less and save more when they are uncertain about future income prospects. As such, this would impact on their consumption and welfare.

Impulse Buying

Sayid et al. (2015) highlight that shopping can be done for many other reasons besides the actual desire to obtain a particular good or service. This fact creates a need for deeper exploration into the buying behavior different from that of a rational consumer. Impulse buying has been characterized as an unplanned purchase (Zhou, 2013).Usually, impulse buying is as a result of promotional incentives, and hence this purchase action is not normally decided in advance. Impulse buying tends to be spontaneous and arises when a consumer unexpectedly proceeds to purchase a good or service instantaneously without prior anticipation. The desire to purchase a product on impulse triggers decisional conflict and is hedonically complex (Bourke, 2017).

Despite the complexity of impulse shopping, it accounts for a significant proportion of goods and services traded by firms. Given that impulse buying is triggered by pleasure seeking or hedonistic objectives manifested by an individual's compulsion to indulge, different studies have approached it from a behavioral perspective. There are contradictory findings on the outcomes of impulse purchasing and their utilitarian importance Some studies have found a positive relationship (Bangens & Soderberg, 2017), others have reported negative relationship (Moraro & Ngahu, 2017), while others assert a neutral relationship (Kigen, 2017). On the foregoing premise, it is important to determine whether mobile payment users have higher impulse purchasing habits, and whether it culminates in improved consumer welfare.

2.6.4 Dependent Variable: Firm Performance

Primarily, businesses endeavor to increase their productivity and scope of revenue, in every possible way. Firms that are able to innovate, and to transform in ways that correspond to evolving dynamics will most likely stay ahead of the pack. Thus, to understand and track results, measuring the performance of firms has always been imperative. For industry analysts and practicing managers, an objective assessment of market success in today's economic climate is crucial. Over time, researchers have increased their efforts to evaluate metrics for firm success.

Albar and Hoque (2019) aver that organizational performance is dynamic, hence requires judgment and interpretation. Traditionally, firm performance has always been associated with an entity’s efficiency, which fundamentally reflects the extent to which an organization’s systems are deemed fit for purpose. As a social structure with a constraint on resources, a firm is able to achieve its objectives through application of appropriate strategies. Thus

organizational performance is decipherable from a range of financial and non-financial metrics that point to the scope of accomplishment of objectives and the emergent results. Taouab and Issor (2019) associate firm performance to the crucial success aspects of organizational efficiency, competitiveness, profitability and institutionalization of quality as conditions for organizational excellence. From the perspective of Said (2014), a firm's performance revolves around the elements of effectiveness, efficacy and efficiency. In an efficient organization, rate, motivation, satisfaction and productivity levels are high, while the turnover costs and labor strife rates are low or missing. An organization's efficiency and effectiveness, which are critical components of overall organizational success, can be enhanced by optimizing all kinds of returns.

Weiser (2019) highlight various mistakes that ordinarily arise when undertaking performance assessment. These include lack of alignment between measures and strategy, inability to set the right measures and goals as well as use of metrics that lack statistical validity. According to Taouab and Issor (2019), organizations largely depend on the quantitative financial performance to ascertain their performance. In this case, the firms use their financials to gauge pertinent aspects of financial performance such as profit, growth, stock turnover, net sales among others in comparison with previous years and set financial goals. Govi (2017) contends that financial performance could be measured by considering four dimensions of performance notably, financial, non-financial, tangible, and intangible. To ascertain firm performance, in this case, organizations will get the aggregate performance in these four aspects using different measures. Performance measurement employs a concise set of measures that may be non-financial or financial. These sets of measures support the process of decision making in a firm by collecting, analyzing, and processing quantified performance data (Mazreku, 2015).

Selvam et al. (2016) underscore various performance indicators including, growth performance, profitability performance, customer satisfaction, social performance, employee satisfaction, environmental audit performance, market value performance of the organization, and corporate governance performance. In practice, the concept of organizational success focuses primarily on an organization's ability and capacity to effectively leverage the resources available to achieve objectives consistent with a firms conceived goals. Organizational performance is multifaceted and can be illustrated by using diverse models which explain how a set of actions can influence future outcomes.

Taouab and Issor (2019) recognize that performance is a function of productivity and effectiveness as blended with concepts such as growth, profitability, efficiency, and competitiveness. Needorn (2019) argues that as the aspects of piloting, assessment, production, efficiency, and consistency could anchor a firm's success. While different studies differ on firm performance, the upshot is that it is critical to evaluate whether or not a firm's strategies and goals are being attained.

2.6.5 Measures of Firm Performance

Revenue Scale

Revenue in a firm refers to the total monetary earnings accruing to a firm or organization on account of sale of products or services. Revenues can therefore be adjudged based on the price and quantity sold. From the calculation, firms can increase their revenues by selling their products at a higher price or selling more products or both. However, for the management of the firm, the ability to achieve even higher revenue is dictated by market behavior towards a firm's offerings. Huang et al. (2015) highlights that revenues have been used to measure performance and even to anchor staff compensation contracts. In addition, some studies note that revenue scale plays a critical role in overall firm valuation and pricing of equity (Lubua & Semlambo, 2017)). When accounting earnings is not adequately informative about the value of the firm, the sales revenue scale may be used (Srivastava, 2014). According to Wambua (2017), investors respond enthusiastically to revenue surprises especially when firms are in the preliminary stages of growth. In addition, the market places greater weight on valuation achieved through sales revenue (Kolaseni & Mandari, 2017).

Number of Customers

Number of customers is an aspect that is closely related to firm performance. Constantly, firms have profoundly appreciated the role of customers to a business. The customer base is the community of consumers that an entity markets and sells its products or services to. In order to boost sales, businesses must align their customer base in a manner that appeals to them to partake of the firm's goods and deals (Etale et al., 2016). In order to boost revenue, companies should relentlessly grow their customer base. A client base is also a demographic set or cluster of people with common or targeted interests thus making their attention to a product or service more likely. Repeat customers regularly return to a business that has successfully met their needs. Such repeat activity can make a firm's patronage by customer habitual and boost the revenue potential. By way of word of mouth, these clients also act as free marketing, providing

they remain happy. The number of customers may be broad or high. A business that has several clients making many small transactions is said to have a strong customer base. Wide consumer bases have a wide appeal and can consist on a regular basis of goods and services required, such as food, office supplies and cleaning items.

Companies that make fewer and larger transactions with a smaller number of clients are said to have larger customer bases. Tall customer bases need more care and nurturing of lead. The establishment of relationships with these significant clients is also part of the sales and marketing strategy of a company. Customer retention is key to firm performance, and could even be more profitable than customer attraction. According to Gichage et al. (2017) customer loyalty has proved to be the most effective strategy, since price can affect the medium- and long- term profitability of firms. In addition, price can affect the image of a firm negatively. The more the number of customers the better the firm performance.

Operating Costs

Operating costs are expenses incurred by an organization in due course of its business operations. Such expenses could manifest as direct trading outlays, marketing, storage, salaries, transport, maintenance, repairs, rent, and research among other overheads. (Tuna & Yildiz, 2016). Operating costs, however, exclude financing expenses such as investment, interest and foreign currency translation. Operating costs are closely related to revenue, they are deducted from revenue to obtain the operating income (Aron, 2018). Operating costs are also included in the cost of purchase of business products. This is also known as the price of the goods sold. These are the expenses that are subtracted from overall revenues to derive the gross sales numbers. Operating costs are then subtracted from this by taxes and interest on loans to calculate the net profit of the company.

One of the fundamental issues that organizations must address is how to minimize operating expenses without undermining the operational capacity or negatively affecting a firm's ability to compete with its competitors. Firms that successfully minimize operating costs tend to achieve a competitive edge and to improve profits. However, by reducing operating costs, the integrity and quality of operations can also be compromised. Though it might be challenging to strike the right balance, doing so could yield significant rewards. Adopting technologies such as mobile payments is one of the ways to reduce routine costs. There are a variety of online systems and software applications that can automate and streamline business operations

(Bourgoignon, 2019). Existing online systems can cover a variety of areas of service, including accounting, hosting websites, marketing partnerships, payroll, and more.

Technology is useful because it escalates productivity. With fewer mistakes, technology could enhance processes in the supply chain, generating ways to reduce recurrent cost elements. Operating income which is subject to operational expenses is reflected through the financial statements and is indicative of firm performance. Since operating costs impact negatively on the overall income, costs should be accrued in a targeted manner that aids investment. As such, operating expenses should be used in order to maximize a company's profitability, revenue and cashflow (Hamin & Hussin, 2014).

2.6.5 Moderating Variable: Firm Characteristics

Studies seem to conclude that business characteristics are correlated with company capital and organizational goals (Dioha et al., 2018). Structural and market oriented attributes, can be used to decipher a firm’s goals and prospects. Structural attributes include a firm’s enterprise dimensions, market size, and age. Industry type, environmental stability, liquidity and market dynamics constitute market related variables (Mgeni & Nayak, 2016). Firm size may be conceptualized in terms of number of workers, firm capital, customer spending, among other pertinent indicators. The size of an organization represents how big a company is in terms of infrastructure and jobs. Researches have largely concentrated on structural based business characteristics parameters because they are more predictive of organizational success compared to other attributes.

Firm characteristics refers to the managerial and demographic variables of a firm which compromises the internal environment of a firm. Firm features apply to the business and play a significant part in the ultimate organizational performance. Firm characteristics include scope of leverage, growth in sales, turnover, growth in assets, liquidity and infrastructural magnitude (Kogan & Tian, 2017). Dioha et al. (2018) explored the effect of company features on a firm's overall performance and found that growth in sales, leverage and market size significantly impact on the company's profitability. In contrast, firm profitability was not significantly affected by the firm liquidity and firm age. Organizational characteristics like liquidity, age, and size are also related with profitability and thus better performance (Mule & Mukras, 2015).

Dioha et al. (2018) explored the impact of organizational characteristics on profitability in Nigeria. The study featured eighteen listed consumer goods vendors. As the proxy for

profitability, return on sales was used, while firm features were indicated by firm age, scale, revenue growth, liquidity and leverage. Multiple regression analysis procedure was used to analyze the data. Size, growth in sales and leverage were found to have a major effect on profitability. However, there was no significant influence on age and liquidity.

Using regression analysis, Bist et al. (2017) studied the interaction between firm characteristics and financial results in Nepal. Results showed that leverage and growth coefficients were positive and meaningful at one percent level of significance. However, the diversification coefficients, length, liquidity and claim payments were found to be negative and marginal. Lasisi et al. (2017) analyzed the profitability determinants of Nigerian listed agricultural companies. The productivity of leverage, liquidity, income growth and operating costs were used as the independent variables. Using regression models, they examined the panel effects. Study results showed that liquidity and revenue growth had a positive and substantial profitability effect, that debt had a negative and substantial profitability impact, and that the output of operating expenditure had a slightly negative profitability impact.

Bhutta and Hasan (2013) interrogated the interaction between company features and financial productivity on Pakistan organizations. Debt to equity, tangibility, production and size were the firm-specific variables, and food inflation was the macroeconomic factor. A negative relationship was found to exist between size and profitability, while an insignificant negative correlation was observed between the debt to equity ratio and the profitability of the firms.

Chandrapala and Knapkova (2013) analyzed the effect of firm oriented variables on financial performance in the Czech Republic using data gathered from 974 firms. They found that from the increase in company size and revenue, there was a major positive impact on return on investment. The debt ratio and inventory, was found to have a strong negative impact on the return on sales. Kaguri (2015) interrogated the link between firm features and financial results in Kenya by exploring the characteristics of firm size, diversification, leverage, liquidity, age, premium growth experience. Based on regression analysis, all assessed variables were found to be statistically important. Drawing samples from insurance firms, Mishra and Swain (2018) examined company efficiency determinants in Ethiopia. Business characteristics explored were size, leverage, tangibility, loss ratio, premium growth, liquidity and age. Results of the regression analysis disclosed a positive, and statistically significant effect of tangibility, but a negative and significant, loss ratio effect. Premium growth, age and liquidity were emerged as statistically insignificant.

2.6.6 Measures of Firm Characteristics

Market Size

Generally, market size denotes the number of potential buyers in a given business segment. Strategic management and marketing studies appreciate the essential nature of market share towards the success of a firm. Market orientation gives a firm a competitive advantage (Cloninger, 2016). Understanding market size dynamics helps differentiate between the available market and the targetable market. Available market refers to the overall potential for sales open to a firm's products. Targetable market, is the portion or segment of an available market that a business would practically compete for with reasonable success prospects. By differentiating the two, a firm is more likely to satisfy the needs of its customers with better precision. Market size impacts directly on consumers since a large market size leads to a fierce competition among identical firms. Competition leads to decreased product prices to the advantage of consumers. The converse also applies, in the sense that a small market size leads to lesser competition and higher prices, to the benefit of the firm.

Location

Firm location refers to the area that a firm chooses to situate its business activities. Principally, a firm that seeks to perform better will locate where its distribution and production costs are minimized in comparison to revenues earned (Ovum, 2016). While in theory achieving least distribution and production costs is easy, it is often presents a tough balancing act for firms to achieve. Often, companies are faced with competing raw material sourcing options, in order to reduce production costs and also ensuring proximity to their market to reduce distribution costs. However, not all firms have latitude, some have little choice to make when it comes to location. Service companies for instance, are inevitably compelled by circumstances to locate near their market. Similarly, a mineral extracting company is only best placed near the source of raw materials. Nevertheless, some firms are relatively unrestricted, hence they wield greater freedom of choice in locating their operations though they would still consider relevant aspects such as the quality of infrastructure in the prospective area, the skill levels of available workforce and even general attractiveness of an area.

Duration of Operation

Duration of operation denotes the time or period that a firm has been in existence since commencement of operations. The dimension of duration has in the last few decades received attention from researchers. Nyawo (2017) for instance, note that experienced and old firms

often outdo younger firms in innovation and quality inventions. Firm age, according to Nyaga (2017), determines the creativity of a firm due to accumulated years of knowledge and experience. This implies that older firms, in comparison to younger firms, have higher innovation levels, hence the proposition that the age of firms moderates firm performance. Innovation is broad and may encompass, technological advancement, new payment methods, and easier production models among others. Innovation could then, increase firm performance.

According to Besovski (2016), a firm's age informs the degree of confidence and trust that consumers have in the organization and therefore their willingness to conduct business with the firm. The willingness of consumers to engage with a given firm translates to better firm performance. Pervan et al. (2017) advance the view that age of the firm negatively implicates on organizational performance. As such, as an organization gets older, it benefits from accumulated knowledge, skill, and talent in all the crucial aspects of its industry including financial costs, human capital, customer relations, supply channels and technology. These benefits are however overcome by the shortcomings of inflexibility, routines, and organization structure.

2.6.7 Moderating Variable: Consumer Characteristics

Consumer characteristics are the basic identifiable features of individual, organizational, and groups of consumers. These features are commonly used for market profiling and segmentation since individuals or entities with similar features often incline to choices that are distinct from those that wield a different orientation. Consumer characteristics may include gender, race, age, religion, occupation, income level, marital status, education level, family size among others. The adoption of mobile cash platforms is positively linked to perceived utility, perceived profit and individual knowledge (Abdinoor & Mbamba, 2017). Besides, consumer demographic characteristics have been proved to be significant moderating factors in adoption of mobile based services. On their part, Zhao and Kurnia, (2014) are emphatic that consumer characteristics including educational levels, experience, employment status, gender, and age are always deemed to be useful control variables.

Pointedly, young individuals who are relatively educated, with a fair income are typically more inclined to use electronic payment instruments. This is unlike older individuals and less educated persons with lower economic means, who tend to prefer conventional payment methods like cash. Research has also shown the influence of racial and cultural backgrounds on technology usage attitudes. Consumer patterns of use of payment instruments, for example,

are greatly influenced by the fraction of other citizens in the neighborhood, using the same payment form. These control variables often have influence on the adoption of mobile payments (Zhao & Kurnia, 2014). Tumaini (2016) also mapped a comparison between early and late adopters of mobile payments in their study. This comparison revealed that disparities exist between the user groups with a corresponding effect on the decision to use mobile payments. Further, Nielsen (2018)) points out that customer experience has an essential relationship with mobile payment adoption.

2.6.8 Measures of Consumer Characteristics

Literature on mobile payment apparently concludes that it is primarily the personal, transactional and situational characteristics and attributes of the payment instruments that decide the acceptance and usage of mobile money payment platforms. Price features and financial incentives are both important predictors of acceptance and implementation. Socio-economic and financial characteristics of customers have also emerged as influential to the choice of payments.

Gender

Various studies focused on TAM and UTAUT analyze how associations between behavioral intent and its predictors are moderated by user demographics. The personality characteristics that help clarify perceived usability and usefulness are expressed in personal creativity and perceived risk in the behavioral analyses. If the moderating effect of demographics of gender are not properly tracked, the impact of other variables in a study may be misstated. Thus, there is need for theoretical and practical analysis of the interactions between personal characteristics in terms of gender profiles and associated mobile payment traits.

Overall men and women differ in their attitudes towards computers and related usage behavior. Due to differences in cognitive and social aspects, different genders are bound to display different perceptions and behaviors towards mobile payments. As emergent from prior literature men and women have different views of emerging technologies. It is contended that men think more about a systems utility and relative benefit, while women may pay more attention to usability among other subjective utility features. Also observable is that women are typically more risk-averse than men who are likely to use new technologies in adventurous ways including gambling.

In India, both in urban and rural areas, the male members of the population are the predominant financial decision-makers, according to Chawla (2017). The research highlights that because mobile money is a financial decision, men in the nation have a higher potential to accept and make use of financial technologies. In a study, Rootman and Kruger (2018) explored the influence of gender as a moderating factor on the purpose of shopping online. The preference of customers to shop online emerged as closely related to use of mobile money platforms. Bhatiaseri and Naglis (2018), with regard to gender, found that males are more likely to adopt bank technology. Chiu et al. (2017) agreed that males were more inclined to use internet banking while Davis (2015), found that males were more likely to adopt mobile money than the females.

Gender has been used to explain technology adoption beyond mobile money transaction. Zhao & Zhang, 2015) for instance, reported that men demonstrated greater levels of perceived usefulness of available mobile chat services compared to women. Similarly, Suri (2017) conducted a study in Malaysia to establish whether age, education level and gender moderated online music adoption. The research found that males under 25 years of age and highly educated were more and more strongly influenced by perceived ease of use and perceived online music playfulness. Labans and Euske (2016) found that the attitude of retail banking users was affected significantly by gender. In addition, a study on a mobile coupon application in China showed that personal creativity in the use of IT activities had a more positive effect on the behavioral intent of men than women (Liu et al., 2015). There have been major disparities between female and male students in Malaysia in secondary socialization, financial socialization, and financial attitude (Needon, 2019). Also, Eliot (2019) reported that gender is a moderating variable between perceived enjoyment, intention to use and perceived ease of use. Therefore, gender could potentially sway personal innovation and consumer perception of mobile payment.

Age

User expectations and behavior towards mobile technology varies across age groups. Mobile payments involve use of fairly complex devices, yet the learning curve tends to be steeper as age advances. Age has been shown to render a moderating effect on effort expectancy and social influence. As they get more embedded into financial transactions, mobile payments are projected to follow a similar pattern of acceptance to that of online shopping, which age oriented disparities in usage patterns. Owing to risks and preferences, elderly users face more

barriers to online shopping relative to young adults (Zhang et al., 2018). Age, similar to gender, is likely to play a moderating role. Like gender, studies including mobile money payments in the field of technology adoption show that younger users or customers respond differently to technology based offerings as compared to the older ones.

Mishra and Swain (2018) note that older people have lower expectations of the productivity provided by technology possibly due to a limited exposure to technology, including cell phones, the internet and computers. As such, older users tend to be more laid back in terms of using technology to perform transactions than younger users. They are often very cynical about the technology and mostly stick to the transactions they are more familiar with. Bouasang, 2017)), points out that older people are more likely to undergo technological anxiety as compared to their younger counterparts because they are less creative and innovative in terms of technology. In reality, younger people are comparatively more adventurous and open to new technologies, goods and services. Shin (2015), recognized age as a moderating variable between technology use and expectations while Hamzah and Sha (2018) recognize that the degree of adoption is influenced differently by technology anxiety among various age groups.

Age enhances perceived device efficiency, perceived cost and perceived utility, as discoursed by Mallat (2017), and thus moderates the attitude towards the intention to use mobile money platforms. Faqih and Jaradat (2015) found the demographic variables of gender and age to have a moderating impact on the adoption of mobile technology systems in the healthcare sector. Chong (2013) found that age and mobile commerce use had a major relationship in a survey of Chinese respondents. Wang and Sun (2016) have found that emerging innovations were more hesitant to be accepted by older people. On an equal plane, Lee (2015) points out that demographics, such as income and age, have been found to have a moderating effect on the acceptance of mobile cash payments.

Education Level

Meaningful utilization of mobile technologies requires users to have some skills and abilities, hence levels of education make a difference in habits of adoption and usage. Education background and pertinent knowledge level is fundamental to the understanding of a system by the individual in terms of its usability (Zhang et al., 2018). In addition, the level of education has been found to be negatively associated with user anxiety while using computing devices. Therefore, education will confer certain qualifications and predispose users to characteristics associated with creative and risk-averse interaction with emerging technologies such as mobile

payments. Remarkably, qualification-related abilities builds competence, experience and renders improved productivity and user fulfilment. Users with lower levels of education and skills tend to perceive high barriers to online tools, relative to their more trained and professional peers (Beck et al., 2018)). A highly educated population would also demonstrate an even higher degree of knowledge and ingenuity with emerging technologies, thereby speeding up and easing early technology adoption. Kigen (2017) supports this view, emphasizing that more trained individuals are more likely to use emergent technology tools.

Porter and Donthu (2006) observed that early adopters of emerging technology also have high levels of schooling. Their research also exposited that, less educated individuals are less likely to learn and adopt new technology, thereby experiencing more technical anxiety. Pagani (2015) suggest that in the workplace, in the course of their schooling and in their everyday lives, people with higher education levels are more likely to be exposed to and utilize technology. As such, higher education levels translate to even better receptiveness to new technologies. Tossy (2018) proffer that the level of education of clients affects their attitude towards internet banking, a view supported by Chong (2013), who found that education levels have a major relationship with mobile commerce adoption.

Employment Status

Employment status in literature has been discussed as the state of being engaged in an economically beneficial activity. Proxies to employment status include occupation and income. Occupation refers to the activities that serves as an individual's or household's source of livelihood. On the other hand, income refers to the money earned by an individual or business after providing goods or services. Employment status is an important customer characteristic and it largely determines how different customers will behave in their purchasing activities. The relationship between employment status and behavior of consumers has been cited in different studies. A major factor that contributed to the adoption of internet banking in Nigeria was the employment status of individual customers (Yeboa, 2020).

Income Levels

Income levels also affect user behavior and attitude, determined by employment status. In their analysis on the role of demographics as a moderating variable in the adoption of mobile banking technologies, Jack and Suri (2016) found that lower income customers are the most concerned about expenses. These customers often perceive mobile banking technologies to be expensive relative to their usefulness since they need an access fee and even a device. High

income consumers, on the contrary, can afford, the latest technology, have better access to internet connectivity and therefore perceive mobile money technologies to be less costly relative to their usefulness. Omo (2015), in support of this view highlights that higher household income could mean, simultaneously, better opportunities for accessing mobile devices for use in mobile based payments and even greater motivation to save time.

In addition, the difference in perception between the two results in different levels of anxiety among the consumers. Low income consumers are seen to have higher anxieties as compared to their higher income counterparts. As such, low income consumers are less likely to adopt mobile money technologies. Leavy (2017) argues that, when performing online purchases, high-income consumers frequently perceive lower risks whereas low-income consumers perceive higher risks while buying products online. It is therefore reasonable to deduce that with higher income, correlated with enhanced employment status, expectations of performance, confidence, ease of use, and convenience with the introduction of new technology, customer use, actions, and purpose are moderated. This view is supported by Aron (2018) who found that as income levels increased, technology anxiety decreased.

In summary, the following are the hypotheses in this study which are justified/ supported in the explanations that follow:

H_{01}: There is no significant relationship between mobile payments and consumer welfare

H_{02}: There is no significant relationship between mobile payments and firm performance

H_{03}: Consumer characteristics have no significant moderating effect on the relationship between mobile payments and firm performance

H_{04}: There is no significant relationship between consumer welfare and firm performance

H_{05}: Firm characteristics have no significant moderating effect on the relationship between consumer welfare and firm performance

Cathrine and Margaret (2015) aver that the ability of a technological apparatus to generate savings is a critical determinant of usage. Much as most consumers will exhibit rationality in their purchase decisions, impulse purchases constitute a significant portion of consumers' shopping. Thus, analysis of impulse behavior could yield profound opportunities to firms that

are able to captivate prospective customers towards an impulse shopping spree. Accordingly, it is hypothesized that:

H_{01}: There is no significant relationship between mobile payments and consumer welfare

The scope and scale of m-payment utilization influences the overall firm performance as manifested through greater customer satisfaction, wider market outreach, higher revenue streams, enhanced profitability and reduced operational costs. The value-based merits that accrue from using mobile payments when weighed against the necessary sacrifice makes users perceive mobile payment platforms as useful. Accordingly, it is hypothesized that:

H_{02}: There is no significant relationship between mobile payments and firm performance

Prior studies reveal that demographics such as gender, age, income and education moderate important relationships (Koivu, 2015). According to Zhou (2013), gender differences may imply different exposure rates to technology or psychological differences. Research has shown that aging is associated with information processing challenges (Mutua, 2017). Elderly persons are observably slower in embracing new technologies, compared to younger persons. Income levels may also influence utilization of technological solutions especially where a cost element is involved. Where the perceived benefits are quite compelling, individuals with lower levels of education may put the necessary effort to surmount complexities relating to usability (Bourke, 2017). In light of the foregoing, it is hypothesized that:

H_{03}: Consumer characteristics have no significant moderating effect on the relationship between mobile payments and firm performance

A system with quick and easy navigability enhances the carrying out of mission critical processes thus minimizing operational lapses thus augmenting the cumulative customer experience. The versatility resulting from mobile payments reduces the effort implication on the user effectively boosting the value proposition associated with a firm's products. This sets the stage for greater adoption and innovativeness, essentially yielding a wider market share. Hence it was hypothesized that:

H_{04}: There is no significant relationship between consumer welfare and firm performance

Accessibility features, environmental aspects, geographical factors, have been shown to be reliable predictors of consumer choices and ultimately the overall firm returns (Dass, 2016)

stress that technology solutions should be beneficial and easy to use to succeed. From a strategic perspective, m-payments eliminate the elements of distance, locality and experience through embedded remote transaction capabilities (Leland, 2015). In view of the foregoing, the following hypothesis was suggested:

H_{05}: Firm characteristics have no significant moderating effect on the relationship between mobile payments and firm performance.

2.6.2 Dependent Variable: Consumer Welfare

Consumer welfare contributes to dynamic and profitable markets thereby nurturing business growth. Businesses are ordinarily expected to maintain fair prices and high quality of products and services, hence their innovation and growth strategies are inspired by client demand. Fasoranti and Akindele (2015) regard consumer welfare as the consumer benefits that one derives from purchasing an array of goods and services. Theoretically, consumer welfare refers to a person's own measure of happiness, based on the price of the product and the ultimate utility realized. Consumer welfare assessment therefore includes awareness of individual preferences. Porteus (2015) contends that the monetary valuation of a consumer is the best measure of the welfare impact. As such, since the measure is in monetary terms, individual valuation measures are largely commensurable and could principally be summed up to form a measure of the total or rather aggregate benefit to all consumers. This kind of valuation of utility points at the maximum amount that a consumer would contentedly pay for a product at any point in time, given the budget income and budgetary constraints of the consumer (Mallat, 2017).

Different studies have explored the link between consumer welfare to mobile based payments. For instance, Horisch (2014), asserts that technology addiction impacts negatively on consumer welfare. According to the study, technology including mobile payments pose a threat to the

welfare of consumers more so due to the experience they offer. Raina (2014) asserts that consumer welfare is a considerable factor in creating customer loyalty within mobile payment platforms in the form of user satisfaction. On their part Tellez and Zeadally (2017) argue that users may hesitate to use or reuse mobile payments if dissatisfied with transaction experiences with their service providers. In light of the evolving market dynamics ascribing to mobile payments, an in-depth understanding its ramifications on consumer welfare is imperative.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Chapter three outlines the study philosophy underpinning this research. The study design is then discussed followed by a description of the study population and sample, data collection approach and finally the analytical techniques.

3.2 Research Philosophy

Philosophical beliefs provide insights into the rationale behind choices anchoring data collection, interpretation, and conclusions. Zikmund (2013) suggests that stating the philosophy ensures the soundness of the research by ensuring that a study proceeds in an organized manner, thus enhancing the validity of its findings. Cooper and Schindler (2014) recognize four philosophical paradigms namely positivism, interprevitism, critical theory and post-positivism. Positivism implies that the phenomenon being analyzed has a stable truth that an objective observer can externally measure (Mahojan, 2017).

Interprevitism assumes the inseparability of the researcher and truth. Hence, from a subjective system of reference, interpretivists construe significance. Critical realism depicts all knowledge forms as partial, hence the possibility of alternative valid interpretations of phenomenon (Maxwell, 2011). A positivist analysis philosophy will be followed by this review. Positivist theory postulates that knowledge is based on observable evidence and that no individual's abstractions or subjective status are considered. Positivism thus derives a quantitative viewpoint that states that, with explanatory and predictive capacity, there is an objective truth that can be represented numerically.

Post-positivist research adopts pluralist methodological approach. It is founded on the supposition that the technique applicable to a study is one that corresponds to the research question under focus (Kotha, 2018). Since the focus of this study largely revolved around

exploration of variable relationships, the post-positivist philosophy was the most suited to this study. In order to obtain information on the basis of explanations as well as facts gathered from direct observations, positivism was chosen. The measurement was carried out empirically using a combination of statistical analysis and quantitative methods to not only allow the relationship between cause and effects to be generalized but also statistically elucidated. Briefly put, positivism makes it possible to evaluate theories using quantitative techniques.

Positivism argues that in the social world, there is only one fact on how things work and that reality is empirical. It is therefore necessary to base the analysis on objective quantitative methods rather than subjective qualitative ones. Positivism attempts to find causal relationships and, by using simple rules, to justify any irregularities. By using a large sample and quantitative techniques, the positivist attempts to generalize the outcome of the analysis. It is also notable that in the study, the researcher is independent of the entire process, which strengthens the result's objectivity. In this study, the positivist paradigm was used because the purpose of the study was to objectively collect a large amount of quantitative data using a structured questionnaire and analyze the data to enable the testing of a set of five hypotheses that were formulated *a priori.* The result would then enable the description of the study phenomenon and inference of the relationship between variables in the study.

The ontological position under positivism is that there is single reality whereas the epistemological position is that knowledge can be measured (Kothari, 2018). This study adopted positivism since it beliefs that there is single reality that is quantifiable via observable social realities; study outcomes can be utilized for generalization; it follows a well-defined structure during studies and discussion of findings; it relies on quantitative data and finally, hypothesis can be either proved or disapproved using statistical techniques (Porta, 2014).

3.3 Research Design

Cooper and Schindler (2014) contend that cross-sectional studies are most suitable for collecting data across multiple firms at a singular point in time. Accordingly, this study uses cross-sectional research design for surveys. This research design is justified since it allows data to be collected at one point in time; it is possible to establish the linkage between the study variables and equally permits hypothesis testing. Furthermore, the chosen research design offers a sound strategy that comprehensively integrates the different study elements in a systematic fashion at a specific point in time thus ensuring appropriate gathering and analysis of data to sufficiently address the research problem (Zikmund, 2013). To understand the

perspective and ideas about the problem, the study used a descriptive design approach. The descriptive method was deemed acceptable because, by selecting unbiased samples, it describes the characteristics of the population. In addition, new ways of understanding different aspects of an issue under investigation are versatile enough (Porta, 2014). The descriptive design helped to address the goals of the study and to test hypotheses. With regard to this research, in order to unravel the relationship between dependent variables and independent variables, the above-mentioned design was used to collect data, summarize the data, present the data, and analyze it.

3.4 Study Population

Sekaran and Bougie (2010) regard the population of a research as the complete group of subjects that the researcher seeks to investigate. In this case, the population of interest consisted of all supermarkets operating in Nairobi City County. Based on the Nairobi City County Government licensing data, there are 906 hyper supermarkets and 139 mega supermarkets in Nairobi. Thus, the total population of supermarkets at the time of the survey stood at 1,045.This study's population includes businesses working in Kenya.

3.5 Sample Size Determination

According to the Krejcie and Morgan (1970) scientific sample size determination formula, where the population is 1045, a sample size of 289 is requisite. The sample size was drawn from a target population of 1045 supermarkets in Nairobi County. The selection formula is as illustrated below:

$$N = \frac{N}{1+(N-1)e^2}$$

Where n = the required sample size; N = is the target population (1045 firms); e = accuracy level required; standard error = 5%

$$N = \frac{N}{1+(N-1)e^2}; \quad n = \frac{1045}{1+(1045-1)\,0.05X0.05} = 289 \text{ supermarkets}$$

However, with an aim to enhance diversity of responses, study samples were proportionately drawn from each of the 17 constituencies/sub counties within Nairobi City County (See appendix 2) using stratified sampling technique. Considering the need for divisibility, a sample of 17 was targeted from each of the 17 constituencies/sub-counties in Nairobi, yielding a total

sample size of 289. This constitutes 28% of the target population. Cooper and Schindler (2014) suggest that at 10% of the target population is appropriate for social investigations.

3.6 Data Collection

Neuman (2014) argues there are many quantitative data collection techniques: survey, experiment, and non-reactive (secondary analysis, content analysis, as well as existing statistics). Survey analysis continues deductively and starts with the conceptualization of variables as at least one survey query before each variable is operationalized. The current research features a cross-sectional survey where a psychometrically validated questionnaire was used to collect data.

The unit of analysis in this study was the individual supermarket. To gather information on the variables of interest, a formal questionnaire consisting of four parts was used for each supermarket. Sections A, B and C of the questionnaire gathered data from supermarket shoppers with respect to background information, mobile payment exposure and consumer welfare attributes. The shoppers were randomly selected. Data for Section D was obtained from managers and other responsible members possessing requisite knowledge in relation to the firm oriented aspects of the supermarket being surveyed. Prior to the final study, a pilot test was conducted to test all dimensions of the questionnaire, including content, structure and clarity. Appropriate revisions on the questionnaire were done based on the outcome of the piloting exercise (Bryman & Bell, 2015). The pilot test was conducted on few selected respondents from supermarkets of the target population which was not included in the final sample. The questionnaire was administered to shoppers and managers or other persons in possession of the required study information.

3.7 Reliability

In order to ensure the credibility of study findings, the reliability of measurement instruments ought to be established (Bryman & Bell, 205). Reliability establishes the extent to which latent construct indicators are internally harmonious and consistent. For this purpose, reliability of the instrument was tested. Reliability was examined using Cronbach's alpha coefficients. Cronbach's alpha depicts the extent to which all the variables in a scale are positively related to each other. Cronbach's alpha scores that rank above 0.70are indicative of sound internal consistency and reliability (Mahojan, 2017).

3.8 Validity

The validity of a research instrument denotes the degree to which it can accurately represent the intended underpinning construct (Kothari, 2018). Thus, validity relates to the extent to which an instrument measures what it is supposed to measure, and takes different forms depending on the context. For this study, research instruments were designed with appropriate safeguards to guarantee face, content, criterion and construct validity. Face validity requires that on the surface, an instrument should appear to measure the attributes of interest as informed by the study. Content validity was reflected in the research instrument through the various items which featured the content domain in sufficient proportions as necessary to track the desired responses. Criterion validity was underpinned by ensuring that the measurement items were at parity with other assessment formulations discernible from literature. Construct validity assured that indirectly observable attributes and characteristics could be sufficiently inferred.

3.9 Pilot Testing

Prior to the main survey, the research instrument was piloted using selected respondents. According to Zikmund (2013), pilot testing helps to isolate problem areas, reduce measurement errors, reduce respondent burden, determine whether respondents are interpreting questions correctly and ensure that the order of questions is not influencing the responses. In this study, pilot testing focused on all dimensions of the questionnaire including content, sequence, wording, layout, complexity and clarity of instructions. Discussions were also held with selected supermarket managers to generate further input and suggestions for improvement. Ultimately, refinements were done to the instrument based on feedback provided, rendering the study instrument fit for purpose.

3.10 Model Specification and Data Analysis

Analysis proceeded based on logistic regression model. Logistic regression estimates a probability (P) of an event occurring given set of independent variables (X) that indirectly determine P. Essentially, the odds ratio (P/1-P) as a function of some unknown index, Z (X), is the basis for the commonly used logistic regression formula. Expressing probability, P, as: $P = e^{Z}$, where, *e* is a mathematical constant, (approximately equal to 2.71828183, typically the base of natural logarithms), as Z increases, P increases exponentially (Wooldridge, 2013).

Since the odds ratio (P/1-P) can be expressed similarly:

(P/1-P) = e^Z; so that P = e^Z- e^ZP. Rearranging, we get P +e^ZP = e^Z

Simplified:
P (1+ e^Z) = e^Z; thus, P = e^Z/(1+e^Z),

Where, Z = bX + v, where, b is the coefficient of X and v is a random disturbance term.

The computational problem is to estimate b using the Maximum Likelihood Method (rather than the OLS – Ordinary Least Squares), because the expression for P cannot be linearized. Logistic model is estimated under the assumption that v has a logistic distribution. Thus, when the disturbance term, v, is logistically distributed, a Logistic Model (as formulated above) is estimated. However, when v is normally distributed, a Probit Model is estimated using a different expression (Chen and Tsurumi, 2010).

The expression (P = e^Z/(1+e^Z), can be simplified further to read:

P = (1/1 + e^{-Z})

Where, eZ is perceived, absolute value of the first option, and 1 is the absolute value of the second. When the two values are normalized with respect to the value of option 1 to obtain (P = (1/1 + e^{-Z}), 1 represents the value for option 1 relative to itself and e^{-Z} is the value of option 2 relative to that of option 1. Further, if b=0, i.e., X has no effect on Z, P is equal to 0.5, indicating that occurrence of the event in question is due to chance only. Significantly, the coefficient b, is not the effect of X on P but on Z (Wooldridge, 2013). Thus the marginal effect of X on P, i.e., the "mfx" is dP/dX = (dP/dZ*dZ/dX).

The logistic equation may also be derived through an alternative approach. Remarkably, the natural logarithm of the odds ratio is equivalent to a linear function of the independent variables. Hence:

ln (odds) = ln $\left(\frac{p}{1-p}\right)$ = $\beta_0 + \beta_{1X1}$

The antilog of the logit function makes it possible to establish the estimated regression equation as follows:

$= \frac{P}{1-P} = e^{\beta 0 + \beta 1X1}$

$P = e^{\beta 0 + \beta 1X1}$ (*1-P*)

$P = e^{\beta 0 + \beta 1 X1} - e^{\beta 0 + \beta 1 X1} * P$

$P + e^{\beta 0 + \beta 1 X1} * P = e^{\beta 0 + \beta 1 X1}$

$P\ (1 + e^{\beta 0 + \beta 1 X1}) = e^{\beta 0 + \beta 1 X1}$

Estimated regression equation: $\hat{p} = \frac{e^{\beta 0 + \beta 1 X1}}{1 + e^{\beta 0 + \beta 1 X1}}$

Letting $^{\beta 0 + \beta 1 X1} = Z$, we get the previously generated expression (i.e., $P = (1/1 + e^{-Z})$).

Scholars have previously applied the logistic model to estimate the probability associated with the various independent variables. According to Karp (1998), logistic regression offers sound insights on attributes and variables that aid prediction of outcomes within a study setting. Logistic regression technique is extensively employed since it is easier to interpret and implement, it does not make assumptions about class distribution, it can easily extend to multinomial regression and it classifies very fast the unknown records. The foregoing ought to be taken into account when interpreting the estimation results.

To appropriately address the study questions and realize the objectives of the study, suitable statistical procedures were applied. Table 3.1 below presents the summary of data analysis procedures employed in the study.

Table 3. 1: Summary of Data Analysis Procedures

Research Objective	Null Hypothesis		Analytical Approach	Scale
To establish the relationship between mobile payments and consumer welfare.	$\mathbf{H_{01}}$	There is no significant relationship between mobile payments and consumer welfare.	Logistic regression	Nominal
To determine the relationship between mobile payments and firm performance.	$\mathbf{H_{02}}$	There is no significant relationship between mobile payments utilization and firm performance.	Logistic regression	Nominal
To analyze the moderating effect of consumer characteristics on the relationships between mobile payments and firm performance.	$\mathbf{H_{03}}$	Consumer characteristics does not significantly moderate the link between mobile payments and firm performance.	Logistic regression	Nominal
To determine the relationship between consumer welfare and firm performance.	$\mathbf{H_{04}}$	There is no significant relationship between consumer welfare and firm performance.	Logistic regression Correlation analysis	Nominal
To establish the moderating effect of firm characteristics on the relationship between consumer welfare and firm performance.	$\mathbf{H_{05}}$	Firm characteristics does not significantly moderate the link between consumer welfare and firm performance.	Logistic regression Correlation analysis	Nominal

Based on the study objectives as well as the conceptualized relationships among the pertinent variables, the model specification is presented in the section below:

Objective One Model

To establish the relationship between mobile payments and consumer welfare

Consurp=$\beta_0+\beta_1$[Mobile_pay]+β_2[PrInnv]+β_3[lnBudget]+β_4[loct]+β_5[LnmrktS]+β_6[Gender] +β_7[Educl] +β_8[Emplst]+ ε_i

Where:

Consurp- The consumer purchases more items than budgeted, hence

$$\mathbf{Consurp} = \begin{cases} \boldsymbol{Yes} = \mathbf{1} \\ \mathbf{0}, \quad \boldsymbol{otherwise} \end{cases}$$

Mobile pay- The customer uses mobile payment services, Yes=1, 0 otherwise

PrInnv -Product innovation has resulted from use of M-payment Services, Yes=1, 0 otherwise

lnBudget –Logarithm of the average monthly shopping budget

Loct- The supermarket is located in Ruaraka =3 or Roysambu = 4 or Mathare = 5 or Embakasi = 9 or Dagoretti =10, 0 otherwise

LnmrktS- Logarithm of the number of the supermarket branches

Gender -The gender of the consumer, male=1, 0 otherwise

Educl - Education level is secondary = 3 or college = 4 or university =5, 0 otherwise

Emplst - Employment status is salary=1 or self = 2 employed, 0 otherwise

ε_i-the disturbance term

Objective Two Model

To determine the relationship between mobile payments and firm performance

Profit$=\beta_0+\beta_1[\text{Mobile\_pay}] +\beta_2[\text{PrInnv}] +\beta_3[\text{lnBudget}] +\beta_4[\text{loct}] +\beta_5[\text{LnmrktS}] + \varepsilon_i$

Where:

Profit- the profitability of the firm has increased since adoption of M-payment services, Yes=1, 0 otherwise

Mobile pay- The customer uses mobile payment services, Yes=1, 0 otherwise

PrInnv -Product Innovation has resulted from use of M-payment Services, Yes=1, 0 otherwise

lnBudget – The Average Monthly Shopping Budget

Loct- the Supermarket is located in Ruaraka = 3 or Roysambu = 4 or Mathare = 5 or Embakasi = 9 or Dagoretti =10, 0 otherwise

LnmrktS- logarithm of the number of the Supermarket branches

ε_i-the error term

Objective Three Model

To analyze the moderating effect of consumer characteristics on the relationships between mobile payments and firm performance.

Profit=$\beta_0+\beta_1$[Mobile_pay]+β_2[PrInnv]+β_3[lnBudget]+β_4[loct]+β_5[LnmrktS]+β_6[Gender]+β_7[Educl] +β_8[Emplst]+ ε_i

Where:

Profit- the profitability of the firm has increased since adoption of m-payment services, yes=1, 0 otherwise

Mobile pay- the customer uses mobile payment services, yes=1, 0 otherwise

PrInnv -Product innovation has resulted from use of m-payment services, yes=1, 0 otherwise

lnBudget –The average monthly shopping budget

Loct- The supermarket is located in Ruaraka = 3 or Roysambu = 4 or Mathare = 5 or Embakasi =9 or Dagoretti = 10, 0 otherwise

LnmrktS- Logarithm of the number of the supermarket branches

Gender -The gender of the consumer, male=1, 0 otherwise

Educl - Education level is secondary=3 or college=4 or university=5, 0 otherwise

Emplst - Employment status is salary=1 or self = 2 employed, 0 otherwise

ε_I -The error term

Objective Four Model

To determine the relationship between consumer welfare and firm performance

Profit=$\beta_0+\beta_1$[Impulb]+β_2[Consurp]+β_3[Mobile_pay]+β_4[Mode]+β_5[lnBudget]+β_6[lnIncome] +β_7[Gender] + ε_i

Where:

Profit- The profitability of the firm has increased since adoption of m-payment services, Yes=1, 0 otherwise.

Impulb - The consumer purchases more items than budgeted, Yes=1, 0 otherwise

Consurp- the consumer would still purchase the items bought if the price were higher, yes =1, 0 otherwise.

Mobile pay- The customer uses mobile payment services, yes=1, 0 otherwise.

Mode- the mode of shopping is mobile payment=1 or debit card=3, 0 otherwise.

lnBudget- Logarithm of the average monthly shopping budget.

lnIncome- Logarithm of the average monthly income.

Gender -The gender of the consumer, male=1, 0 otherwise.

ε_i- The error term.

Objective Five Model

To establish the moderating effect of firm characteristics on the relationship between consumer welfare and firm performance.

Profit$=\beta_0+\beta_1[\text{Impulb}]+\beta_2[\text{Consurp}]+\beta_3[\text{Mobile\_pay}]+\beta_4[\text{Mode}]+\beta_5[\text{lnBudget}]+\beta_6[\text{lnIncome}]+\beta_7[\text{Gender}]+\beta_8[\text{lnMrktS}]+\beta_9[\text{loct}]+\beta_{10}[\text{lnDurt}]+\varepsilon_i$

Where:

Profit- The profitability of the firm has increased since adoption of m-payment services, Yes=1, 0 otherwise.

Impulb - The consumer purchases more items than budgeted, yes=1, 0 otherwise

Consurp- The consumer would still purchase the items bought if the price were higher, yes=1, 0 otherwise

Mobile pay- The customer uses mobile payment services, yes=1, 0 otherwise

Mode- The mode of shopping is mobile payment=1 or debit card=3, 0 otherwise

lnBudget- Logarithm of the average monthly shopping budget

lnIncome- Logarithm of the average monthly income

Gender -The gender of the consumer, male=1, 0 otherwise

ε_i- The error term

LnmrktS- Logarithm of the number of the supermarket branches

Loct- the Supermarket is located in Ruaraka = 3 or Roysambu = 4 or Mathare = 5 or Embakasi = 9 or Dagoretti=10, 0 otherwise

lnDurt- Logarithm of the duration of operation of supermarket

ε_i- The error term

3.11 Ethical Considerations

Principles of ethical concern such as consent/anonymity of respondents, participant protection, data confidentiality, and research affiliations are an important facet of research practice, (Bryman and Bell, 2015). Correspondingly, Porta. (2014) indicate that any drawback such as humiliation or harm will be immoral for study participants/respondents to be exposed to. The current study ensured that the respondents participated voluntarily without any form of coercion or intimidation, while preserving their anonymity. The data generated by the respondents has been handled confidentially and used exclusively for research purposes. A letter of introduction explaining that the data collected was to be used for academic purposes was submitted in order to assure respondents' confidentiality and privacy in order to optimize responses. A goal of this research study was to guarantee the safety of the research participants. In addition, approval to conduct the study was obtained from the National Commission for Science, Technology and Innovation (NACOSTI).

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

4.1 Introduction

Chapter four is dedicated to the analysis as proposed in the previous chapter. The response rate, descriptive and inferential statistics are computed and tabulated. The logit model is used to analyze the variable relationship between mobile payments, consumer welfare and firm performance.

4.2 Response Rate

The response rate of the questionnaire was 100% as shown in Table 4.1 which surpasses the recommended average rate of 30%, as asserted by Saunders and Lewis (2012). All the questionnaires administered were duly filled and returned. Therefore, the data can be analyzed to draw inferences and predictions.

Table 4. 1: Response Rate

Constituency	Issued	Returned	Response rate (%)
Westlands	17	17	100%
Dagoretti North	17	17	100%
Dagoretti South	17	17	100%
Langata	17	17	100%
Kibra	17	17	100%
Roysambu	17	17	100%
Ruaraka	17	17	100%
Makadara	17	17	100%
Kamukunji	17	17	100%
Starehe	17	17	100%
Mathare	17	17	100%
Embakasi South	17	17	100%
Embakasi North	17	17	100%
Embakasi Central	17	17	100%
Embakasi East	17	17	100%
Embakasi West	17	17	100%
Kasarani	17	17	100%

Total	**289**	**289**	**100%**

4.3 Descriptive Statistics

Table 4.2 presents the descriptive statistics for the study and control variables. The mean, standard deviation, minimum and maximum are computed and tabulated.

Table 4. 2: Descriptive Statistics

Variable Name	Description of Variable	N	Mean	Standard Deviation	Minimum	Maximum
Mobile_pay	The customer uses mobile payment services, Yes=1	289	0.74		0	1
Consumer Welfare Variables						
Consurp	The consumer would still purchase the items bought if the price were higher, Yes=1	289	0.84		0	1
Confulf	The consumer is satisfied with the service received at the supermarket, Yes=1	289	0.94		0	1
Sav	Average Monthly Savings	273	7,350.84	10,471.26	100	80,000
Impulb	The consumer purchases more items than budgeted, Yes=1	289	0.60		0	1
Firm Performance Variables						
Rev	Average Revenue generated by the Supermarket in the previous month	289	14,900,000	43,200,000	20,000	400,000,000
Cust	Average customers served by the Supermarket in the previous month	289	7,208.48	12,656.41	300	105,000
Profit	The profitability of the firm has increased since adoption of M-payment services, Yes=1	289	0.77		0	1
Oprc	Average operating cost incurred by the Supermarket in the previous month	288	9,288,481	27,600,000	5000	270,000,000
Consumer Characteristics						
Age	Age of the consumer in years	287	33.83	7.92	17	60
Gender	The Gender of the Consumer, Male=1	289	0.48		0	1

Educl	Education level is Secondary=3 or College=4 or University=5	289	0.93		0	1
Emplst	Employment Status is salary=1 or Self=2 employed	289	0.91		0	1
Firm Characteristics						
MrktS	The number of the Supermarket branches	289	5.62	12.93	1	62
Loct	The Supermarket is in Ruaraka=3 or Roysambu=4 or Mathare=5 or Embakasi=9 or Dagoretti=10	289	0.83		0	1
Durt	The Duration of Operation of Supermarket	288	6.92	3.68	7	25
Control Variables						
Price	The price of the Mobile Phone	288	21089.13	28841.34	800	300000
Servp	The Subscribed Mobile Service plan, Prepaid=1	289	0.78		0	1
Mode	The Mode of Shopping is Mobile Payment=1 or Debit card=3	289	0.66		0	1
Budget	The Average Monthly Shopping Budget	287	13223	21227.96	700	225000
Income	The Average Monthly Income	283	51994.7	83763.38	500	800000
Custst	Customer Satisfaction has Improved since adoption of M-payment Services, Yes=1	289	0.93		0	1
PrInnv	Product Innovation has resulted from use of M-payment Services, Yes=1	289	0.89		0	1

From the results in Table 4.2, a proportion of 74% of the sampled customers used mobile payment services. Additionally, 84% of the consumer's reported that they would still purchase the items bought despite the prices being higher. Moreover, 94% of the consumers reported that they were satisfied with the services received at the respective supermarkets. The sampled consumers indicated that the average monthly savings was Kshs. 7,350.84 with a standard deviation of Kshs. 10,471.26. The minimum monthly savings reported was Kshs. 100 while

the maximum was Kshs. 80,000. Nevertheless, 60% of the customers purchased more items than budgeted per month.

Regarding the firm performance, the average revenue generated by the supermarkets in the previous month was Kshs. 14,900,000 with a standard deviation, minimum and maximum of Kshs. 43,200,000, Kshs. 20,000 and Kshs. 400,000,000 respectively. Moreover, the average customers served by the supermarkets in the previous month was 7208 with a standard deviation of 12656. The minimum customers served was 300 and the maximum customers served was 105000. Additionally, 77% of the firms reported increase in profitability since adoption of M-payment services. Further, the average operating cost incurred by the supermarket in the previous month was Kshs. 9,288,481 with standard deviation of Kshs. 27,600,000. The minimum operating cost was Kshs. 5,000 and the maximum was Kshs. 270,000,000.

With a standard deviation of 7.92 years, the average age of customers was 33.83 years. A proportion of 48% of the consumers were male while 93% of consumers had attained secondary, college and university education levels. Nevertheless, 91% of the sampled consumers were either salaried or self-employed. In addition, with a standard deviation of 12.93 and a minimum of one branch and a maximum of 62 branches, the supermarkets had an average of 5 branches. Moreover, 83% of the supermarkets were in Ruaraka, Roysambu, Mathare, Embakasi and Dagoretti. Further, the results implied that the supermarkets had been in operation for an average of 6.92 years with standard deviation, minimum and maximum years of operation of 3.68, 7 and 25 years, respectively.

The average price of the mobile phone amongst the sampled customers was Kshs. 21,089.13 with standard deviation of Kshs. 28,841.34. The minimum price of the mobile phone was Kshs. 800 and the maximum price was Kshs. 300,000. Moreover, 78% of the sampled customers were subscribed to the prepaid mobile service plan while 66% used mobile payment and debit card as their mode of shopping. The average monthly budget and income was Kshs. 13,223 and Kshs. 51,994.70 with standard deviation of Kshs. 21,227.96 and Kshs. 83,763.38 respectively. Further, the minimum monthly budget and income was Kshs. 700 and Kshs. 500 while the maximum was Kshs. 225,000 and Kshs. 800,000 respectively. Finally, 93% of the

customers indicated that customer satisfaction had improved while 89% of the supermarkets had noted product innovation since adoption of M-payment services.

4.4 Validity and Reliability

Since the measurement items employed in the study instrument were derived from existing conceptual and empirical literature, their validity was appraised through comparisons with instruments used in comparable studies. Validity was further enhanced through further refinements informed by responses derived from the pilot study. Based on the feedback obtained, scales and measurement items were revised prior to administration of the questionnaire to study respondents.

The reliability of the scale items was assessed by inspecting the internal consistency values and the loading of the items on their corresponding constructs based on the Cronbach's alpha, which is a robust criterion for assessing internal consistency and reliability (Cronbach, 1951). The table below provides a summary of the Cronbach's alpha test loadings:

Table 4. 3: Cronbach's Alpha Test

Construct	Number of items	Cronbach's alpha coefficient
Mobile Payment	4	0.8526
Consumer Welfare	7	0.7304
Firm Performance	3	0.7222
Consumer Characteristics	4	0.7304
Firm Characteristics	4	0.7972

As discernible from table 4.3 above, all indicators were found to be reliable taking into account that the Cronbach's coefficient ranked above 0.7 which is the recommended threshold.

4.5 Correlation Analysis

To enable understanding of the relationships between various variables, a matrix featuring the correlation coefficients between various variables is presented in table 4.4 below. Correlation coefficients depict the linear association between two variables and its value lies between -1 and 1. -1 implies a perfectly negative linear correlation, 0 indicates no correlation, while 1 indicates a perfectly positive linear correlation between variables. The further the correlation coefficient is from 0, the stronger the relationship between the variables in question.

4.5.1 Relationship among Mobile Payments, Consumer Welfare, Consumer Characteristics, Firm Characteristics and Firm Performance

The relationship between pairs of variables was assessed using correlation analysis. The magnitude and direction of association of firm performance, consumer welfare, mobile payment, as well as consumer and firm characteristics are assessed.

Table 4. 4: Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Profit	1													
2. Mobile_pay	0.16***	1												
3. Consurp	0.07	0.19***	1											
4. Impulb	-0.06	0.01	0.16***	1										
5. Gender	0.12**	0.02	0.05	0.11*	1									
6. Educl	0.03	0.03	0.11*	0.06	0.04	1								
7. Emplst	0.02	-0.05	0.23***	0.09	0.08	0.06	1							
8. lnMrktS	-0.02	0.07	-0.01	0.01	-0.05	0.001	0.07	1						
9. loct	-0.07	0.03	-0.07	0.02	0.07	0.02	-0.02	-0.17***	1					
10. lnDurt	-0.08	-0.10*	-0.002	0.14**	-0.03	-0.04	-0.05	-0.25***	-0.004	1				
11. Mode	0.09	0.03	0.01	0.15**	-0.003	0.04	0.13**	-0.02	0.10*	-0.06	1			
12. lnBudget	0.08	0.02	0.11*	-0.01	0.10*	-0.06	0.11*	0.01	0.01	0.02	0.14**	1		
13. lnIncome	0.08	0.08	0.04	0.01	0.01	-0.08	0.13**	0.06	0.02	0.05	0.16	0.10	1	
14. PrInnv	-0.05	-0.04	0.06	-0.05	0.04	-0.01	0.08	-0.08	-0.02	-0.03	0.02	-0.04	0.051	1

The sample size is 289 supermarkets in Nairobi City County. *, ** and *** denote significance at the 10%, 5% and 1% levels respectively.

Correlation coefficients measure the strength and direction of the relationship between two variables. Understanding of inter-variable relationships aids to predict the tendency of variables to vary together. The greater the absolute value of the correlation coefficient, the stronger the relationship. Correlation coefficients also support hypothesis testing by making it possible to evaluate mutually exclusive propositions expressed in the form of null and alternative hypothesis. Correlation analysis serves as a diagnostic for logistic regression to the extent that it reveals potential multi-collinearity problems. Multi-collinearity arises when two independent variables are highly correlated rendering it difficult to interpret the results of regression.

The null hypothesis posits that no relationship exists between two study variables, hence observed results are due to chance and are not significant in terms of supporting the issue under investigation. Conversely, the alternative hypothesis on its part posits that the independent variable has an effect on the dependent variable, thus the results are significant in terms of supporting the theory under investigation. As such observations are not due to chance.

A probability value (p-value) depicts how likely it is that data observations could be due to random chance; hence the null hypothesis is true. Statistical significance is usually expressed as a p-value between 0 and 1. The lesser the p-value, the stronger the evidence that the null hypothesis should be rejected. At 99% confidence interval, a p-value less than 0.01 is statistically significant, while at 95% confidence interval, a p-value less than 0.05 is statistically significant. In both cases, the p-value indicates strong evidence against the null hypothesis, as there is less than a 1% and 5% probability respectively that the null is correct that is to say, the results are random. In such a case, the null hypothesis is rejected and the alternative hypothesis accepted. However, if the p-value is below the set threshold of significance the null hypothesis is rejected.

From the results on Table 4.4, the dependent variable (profit), a proxy for firm performance was observed to be positively and significantly related with Mobile pay- a proxy for mobile payment ($r = .16$, $p < .01$). Additionally, there was a significant and positive correlation between firm performance (Profit) and consumer characteristics proxied by gender ($r = .12$, $p < .05$). Further, a positive and significant relationship was noted with consumer welfare (measured by consumer surplus) and the mobile payments usage status (Mobile pay) ($r = .19$. $p < .01$). A positive and significant association was established between consumer surplus and impulse buying ($r= .16$, $p < .01$). Consumer welfare denoted by consumer surplus is significantly correlated with consumer characteristics - education level, employment status and

average monthly budget (r=0.11, p<.01; r=.23, p<.01; r=.11, p<.1). Further, a negative and significant association between mobile payment usage status and duration of operation of the supermarkets was established.

Impulse buying was positively and significantly correlated with gender (r = .11, p < 0.05), duration (r = .14, p < 0.05) and mode of payment (r = .15, < 0.05). Gender was positively and significantly correlated with the budget (r = .1, p < 0.1). Employment status was positively and significantly correlated with mode (r = .13, < 0.05), budget (r = .11, < 0.1) and income (r = .13, < 0.05). Marker share was negatively and significantly correlated with the location (r = .17, < 0.01) and duration (r = .25, < 0.01). The location was significantly and positively correlated with the mode (r = .1, p < 0.1) whereas mode on the other hand was significantly and positively correlated with the budget (r = .14, < 0.05).

4.6 Influence of Mobile Payment on Consumer Welfare and Firm Performance

Logistic regression was used to examine the influence of mobile payment on consumer welfare and firm performance, and the moderating effects of consumer welfare and firm characteristics on the relationship between mobile payments and form performance. The next section presents the results of the logit model estimations which show the effect of mobile payment on consumer welfare and firm performance. Additionally, the results of the moderating role of the consumer and firm characteristics are presented.

4.6.1 Influence of Mobile Payment on Consumer Welfare and Firm Performance

The results of the logistic regression consumer welfare and firm performance on mobile payments are presented in Table 4.5. Specifically, the influence of mobile payments on consumer welfare (consumer surplus) and that of mobile payments on firm performance (measured by profitability, profit) are shown.

Table 4. 5: Effect of Mobile Payment on Consumer Welfare and Firm Performance

	Model 1:**Consumer Welfare** (Cons_surplus)		Model 2:**Firm Performance** (Profit)		Model 3:**Firm Performance** (Moderated)	
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
	Coefficient	Marginal Effects	Coefficient	Marginal Effects	Coefficient	Marginal Effects
Mobile_pay	1.35***	0.17***	0.87***	0.15***	0.87***	0.15***
	(0.387)	(0.057)	(0.319)	(0.060)	(0.323)	(0.060)
PrInnv	0.07	0.01	-0.48	-0.07	-0.50	-0.07
	(0.549)	(0.055)	(0.526)	(0.063)	(0.529)	(0.061)
lnBudget	1.11***	0.11***	0.31	0.05	0.24	0.04
	(0.289)	(0.027)	(0.220)	(0.033)	(0.232)	(0.035)
Loct	-0.85*	-0.07*	-0.63*	-0.08*	-0.67*	-0.09*
	(0.598)	(0.037)	(0.453)	(0.053)	(0.453)	(0.051)
lnMrktS	-0.42***	-0.04***	-0.19	-0.03	-0.17	-0.03
	(0.167)	(0.016)	(0.145)	(0.022)	(0.146)	(0.022)
Gender	-0.11	-0.01			0.57*	0.09*
	(0.371)	(0.036)			(0.314)	(0.046)
Educl	0.61	0.07			0.15	0.02
	(0.623)	(0.089)			(0.561)	(0.092)
Emplst	1.28***	0.18***			0.05	0.01
	(0.503)	(0.095)			(0.528)	(0.082)
Intercept	-9.78***		-0.91		-0.67	
	(2.587)		(2.045)		(2.070)	
No. of Observations	287		287		287	
LR $\chi^2(8)$	47.55***				15.79**	
LR $\chi^2(5)$			12.28**			

Model 1 presents a logit model of mobile payments on consumer welfare (Consurp) while model 2 presents a logit model of mobile payments on firm performance (Profit). Model 3 estimates the logit model for moderating influence of consumer characteristics on the relationship between mobile payments and firm performance; robust standard errors in parenthesis account for heteroscedasticity. Further, *, ** and *** denote significance at the 10%, 5% and 1% level respectively.

Mobile Payments and Consumer Welfare

The first null hypothesis (H_{01}) postulates that *there is no significant connection between mobile payment and consumer welfare*. From model 1, the marginal effects for *Mobile pay* are positive and significant ($\beta = .17$, $p < .01$). Therefore, the null hypothesis (H_{01}) is rejected and a conclusion made that mobile payments influence consumer welfare. Hence, using mobile payment increases the probability of having consumer surplus by 17.0 percentage points hence increasing consumer welfare. The foregoing findings point to the ability of a mobile based technological apparatus to generate consumer welfare- savings is a critical determinant of

usage. Moreover, the marginal effects for the average monthly budget and employment status are positive and significant. Thus, the probability of having consumer surplus increases by 0.11 due to 100% increase in average monthly budget while being salaried or self-employed increases the probability of having consumer surplus by 18.0 percentage points. After controlling for covariates in the model, namely mode of shopping, shopping budget and market share, mobile payments still have a strong influence on consumer welfare. Nonetheless, these variables are only utilized as controls since they are not the specific variables of interest in the model.

Mobile Payments and Firm Performance

The second null hypothesis (H_{02}) posits that *there is no significant relationship between mobile payments and firm performance*. From Model 2, the marginal effects for *Mobile pay* are positive and significant ($\beta = .15$, $p < .01$). Therefore, we reject the null hypothesis (H_{01}) and conclude that mobile payment influence firm performance. Hence, using mobile payment increases the probability of increasing profitability of the firm by 15.0 percentage points. Further, the marginal effects for location of the firm are negative and significant. Based on the findings, locating the supermarket away from Ruaraka, Roysambu, Mathare, Embakasi and Dagoretti increases probability of higher profitability or better performance by 8.0 percentage points. After controlling for covariates in the model, namely mode of shopping, shopping budget and market share, mobile payments still have a strong influence on the performance of supermarkets. Nonetheless, these variables are only utilized as controls since they are not the specific variables of interest in the model.

Moderating Effect of Consumer Characteristics

The third null hypothesis (H_{03}) posits that *consumer characteristics have no significant moderating effect on the relationship between mobile payment and firm performance*. From Model 3, the marginal effects for mobile payments are still at 0.15, implying that jointly, personal characteristics do not have a moderating effect on the relationship between mobile payments and performance of supermarkets, and therefore we fail to reject the null hypothesis. However, as it can be observed from the model, gender coefficient is significant at 90% confidence interval. Further, the marginal effects for the gender are positive and significant. A male shopper using mobile payment to pay for products, increases the probability of a firm making profit by 9.0 percentage points, relative to a female shopper.

4.6.2 Influence of Consumer Welfare on Firm Performance

The result in Table 4.6 espouses on the link between consumer welfare and firm performance.

Table 4. 6: Effect of Consumer Welfare on Firm Performance

	Model 4: **Firm Performance** (Profit)		Model 5:**Firm Performance** (Moderated)	
	Column 7	Column 8	Column 9	Column 10
	Coefficient	Marginal Effects	Coefficient	Marginal Effects
Impulb	-0.65*	-0.09**	-0.62*	-0.09*
	(0.346)	(0.046)	(0.351)	(0.046)
Cons_surplus	0.34	0.05	0.20	0.03
	(0.437)	(0.074)	(0.446)	(0.070)
Mobile_pay	0.84***	0.14**	0.92***	0.15***
	(0.331)	(0.060)	(0.341)	(0.062)
Mode	0.53	0.08	0.57*	0.09
	(0.339)	(0.055)	(0.344)	(0.055)
lnBudget	0.15	0.02	0.13	0.02
	(0.260)	(0.038)	(0.263)	(0.037)
lnIncome	-0.21	-0.03	-0.17	-0.03
	(0.205)	(0.030)	(0.208)	(0.030)
Gender	0.64**	0.09**	0.65**	0.09**
	(0.323)	(0.046)	(0.329)	(0.046)
lnMrktS			-0.16	-0.02
			(0.163)	(0.023)
loct			-0.84*	-0.10**
			(0.494)	(0.048)
lnDurt			-0.16	-0.02
			(0.275)	(0.039)
Intercept	1.19		2.12	
	(2.446)		(2.571)	
No. of Observations	282		281	
LR $\chi^2(7)$	16.37**			
LR $\chi^2(10)$			20.37**	

Model 4 presents logit models of consumer welfare proxied by impulse buying, on firm performance while model 5 estimates the logit model for moderating effect of firm characteristics on the relationship between consumer welfare and firm performance. Robust standard errors in parenthesis account for heteroscedasticity. *, ** and *** denote significance at the 10%, 5% and 1% level respectively. After controlling for covariates in the model, namely mode of shopping, shopping budget and market share, consumer welfare still has a strong influence on the performance of supermarkets. It should be noted that mobile payment has been included among the control variables because it's critical to the performance of the firm in the current study context. Gender was included among the control variables since literature reveals significance of gender in firm performance.

Consumer Welfare and Firm Performance

The fourth null hypothesis (H_{04}) forecasts that *there is no significant relationship between consumer welfare and firm performance*. From model 4, the marginal effects for impulse buying are negative and significant ($\beta = -0.09$, $p < .05$). Therefore, we reject the null hypothesis (H_{04}) and conclude that consumer welfare influences firm performance. Hence incurring impulse expenditure decreases consumer welfare and decreases the probability of increasing firm performance by 9.0 percentage points. This may be attributable to the fact that impulse buying occasions diversion of shopping budget to items that were not in the initial priority list. In the end, the shopper ends up with a reduced degree of consumer welfare which may dissuade the shopper from making greater purchases in future. In the long run, reduced shopping or lower consumer spending on commodities is bound to reduce a firm's revenue streams, thus leading to lower firm performance.

Moderating Effect of Firm Characteristics

The fifth null hypothesis (H_{05}) suggests that *firm characteristics have no significant moderating effect on the relationship between consumer welfare and firm performance*. From Model 5, the marginal effects for impulse buying are still at -0.09, implying that jointly, firm characteristics do not have a moderating effect on the relationship between mobile payments and performance of supermarkets, and therefore we fail to reject the null hypothesis. However, as it can be observed from the model, location coefficient is significant at 95% confidence interval. The marginal effects for the location are negative and significant. Consequently, the location of supermarket in Ruaraka or Roysambu or Mathare or Embakasi or Dagoretti decreases the probability of increasing firm performance (profitability) by 10.0 percentage points.

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.1 Introduction

This chapter features a discourse on the outcomes of the preceding data analysis and puts the findings into the perspective of the study objectives. Findings are espoused in the context of prior related studies and relevant gaps appropriately addressed. Fundamentally, the study set out to determine the significance of mobile payment on consumer welfare and further delved into the relationship between mobile payment and firm performance. Additionally, the study explored the link between consumer welfare and firm performance. Further, the moderating effects of consumer and firm characteristics on the established relationships were evaluated.

5.2 Mobile Payments and Consumer Welfare

According to GSMA (2021), there are over 5.2 billion subscribers across the globe, providing the mission critical user base for mobile payment innovations. With an ever-rising demand for remote and contactless payments, mobile payments have become part of a daily routine for consumers and businesses. In Kenya, the use of mobile telephone financial platforms has exponentially increased. This is after an initial expansion from person to person to include person to business, a shift that has been enabled by the use of various mobile money solutions within the telecommunications landscape. The COVID 19 pandemic has discernibly bolstered the use of mobile payments as consumers and firms endeavor to limit person to person transactions and thereby enhance the ideals of social distance believed to curtail the spread of the virus.

Mobile payments have revolutionized transaction settlement and found extensive use among the population from paying individual bills to payment of salaries by employers (Abdullah & Khan, 2021). In Kenya, there has been a significant mobile payment use among individuals. Consequently, small and medium enterprises have constantly been encouraged to adopt mobile payment as a way of carrying out their transactions. This was particularly, primarily for retailers which have significant contribution to developing countries' economies. Businesses in Kenya have steadily embraced mobile payment with reported increase in use (World pay, 2021). Evidently, mobile payments have traversed the retail sector into facilitating the digitalization of the entire business supply chain with numerous positive outcomes to consumers.

In terms of increased usage and overall company performance, success depends heavily on mobile payments, providing a complete experience of added value for users who are customers. If consumers fail to equate mobile payment with such forms of rewards, such as savings, satisfaction, surplus, and the impulse to purchase using the payment service, the traditional use of cards and cash may not be obsolete. Mobile payments should not be seen by administrators as merely a purchase option. Mobile payments go beyond the operation of transactions and can be leveraged to build a sense of welfare benefits to the consumer. In order to bring more value to mobile payment networks, companies should incorporate services such as incentives, deals, gifts, coupons, and discounts with mobile payment systems. Findings that the monthly budget of customers increases market surplus lead to the recommendation that savings in the order, receipts, sales, and data of customers may be important for them in developing budget instruments for their use.

The lack of access to financial goods and services in developed countries has been a typical problem for the majority of the people in the population. In addition to the direct obstacle to the ability to borrow and invest, the associated high cost of making transactions by individuals who were unable to access the required financial infrastructure was also associated. The financial exclusion gap in developing countries is being bridged by a new financial service, mobile money, which allows users to make financial transactions through mobile phones. The history of cell phones is very brief and few systematic attempts have been made to assess if mobile phones have had a major impact on economic growth. Survey data at the level of the household, business, and national economy has been given preference for the bulk of the empirical emphasis. The empirical research bar is high in order to have credible results on the economic benefits of mobile payments, that made it important to examine the appropriate 'stakeholders' that are the users in this case.

Mobile payment is a subset of mobile money that is both noble and is rapidly growing, creating a big business. Mobile cash adoption in Kenya has seen tremendous growth since its inception in 2007. As Aron (2017) states, however, rising concerns about its potential benefits to the customer are not readily profitable. This paper examined, in response, the welfare effects associated with the use of financial technologies by analyzing the use of mobile-based payments by supermarket customers in Nairobi. The

study findings found out that consumer welfare and mobile payment are intertwined. Consumer surplus, a proxy of consumer welfare is significant contributor of mobile payment usage. Hence, it is sensible to divulge that consumer surplus motivates consumers to embrace mobile payment. Attributable to this discovery is the aspect of mobile payment convenience to consumers hence preferable to other payment means.

Controversies in the mobile money market with regard to customer prices and service providers' terms makes a case for empirical assessment of consumer welfare. There are diverse studies exploring the consequences of the use of mobile platforms on households, individuals and firms. Use of mobile has been shown to minimize travel costs at the level of households and people, improve health care, help mitigate unnecessary income shocks and improve safety (Jack & Suri, 2014). Mobile payments have also been shown to boost remittances, encourage financial inclusion, and increase the economic empowerment of women (Munyegera & Matsumoto, 2016). Convenience is one of the key advantages of businesses using mobile cash and declining bank dependence in terms of time savings and increased protection. Mobile money has also been shown to be associated with a reduction in wage control costs (Blumenstock et al., 2015) and amplified access to various finance outlets, such as trade credit and improved business efficiency.

Mobile payments are in competition with formal structures initially provided by banks, as well as cash-based and informal systems. The capacity of these platforms to disaggregate the historically offered services into inexpensive and open platforms is to increase the penetration of mobile cash and generally electronic payments (Zollmann & Cojocaru, 2015). Importantly, the parameters on which mobile payment viability relies extend beyond quality aspects such as reliability, comfort, safety, and accessibility (Robb & Vilakazi, 2015) to consumer welfare aspects such as surplus, satisfaction, savings, and purchasing impulse.

The rising body of empirical micro-economic literature has been constantly attempting to measure the potential benefits of access to mobile payments. The study finds evidence that consumer surpluses arise from the use of mobile payments in supermarkets. Therefore, the inference is that mobile payments boost the welfare of consumers. Therefore, the rates that customers are prepared to pay by mobile payments are typically higher than the market price, which implies that customers of mobile

payments gain a 'theoretical' added profit through purchasing products or paying at the offering price for services.

5.3 Mobile Payments and Firm Performance

One of the foundations of firm growth is increased revenues from sales made from purchases. This view was generally accepted by earlier economic development models. For instance, the rate of market growth in demand is in tandem with the rate of firm growth. That is, profitability of increased profits is directly related to growth in production. In existing empirical literature, the relationship between market share and firm growth was also at the heart of economic development models.

Consequently, many factors can lead to firm performance and thus to overall growth and development. These factors include efficient financial systems including mobile payment options. In theoretical models, the effects of data and transaction costs are mitigated by financial systems, thus altering the incentives and constraints facing economic agents. However, technological advancement and, thus, long-term growth rates are affected by capital markets, institutions and instruments. This view is corroborated by a wealth of empirical literature. Better functioning financial structures minimize hindrances from finances from the outside that constrain business growth, indicating that this is one of the means that needs growth for financial development.

One of the recurring concepts of organizational and company management is business success of the organization. Performance therefore, which is the main interest of any business manager or owner is attracting a lot of focus from practitioners and researchers in organizational management makers of laws. The organization's corporate output can be conceptualized as the capacity of the enterprise to produce appropriate results and deeds. The bulk of previous studies in various parts of the definition of success seems to agree with this conceptualization because similar metrics have been used to assess market performance regardless of the nomenclature used by them. Generally, there are three distinct levels of performance within organizations namely; financial performance, market performance and productivity of the company, although the latter has subsequently been named organizational performance. As it deviates from most of the previous studies on this topic, this seems to be a specific conceptualization.

Most of the studies reviewed interchangeably use market performance, company performance and organizational performance to show that there are no gaps in conceptualization between the three principles. As used in this report, the term business performance involves the ability of the enterprise to achieve satisfactory results in line with the organizational objective. This study looks at business success in terms of the organizational outcome, i.e. when organizational production is substantially increased, it implies efficiency of the entire organizational structure. The definition of market success, organizational performance and company performance are used interchangeably terms along this line of thought to mean the same thing.

Study findings revealed positive and significant link between mobile payment and firm performance. Consequently, transactions through mobile payment as per study findings make no economic sense thus enterprise owners may not be motivated to adopt mobile payment in their transactions. Borrowing from the transaction cost position that an organization's objective is to minimize the cost of exchanging resources within the environment and within the organization, it is deducible from the discovery of the study that mobile payment generates no value for the company, so it is not a viable venture economically. Digital developments such as digital payments will display dynamic trajectories of growth and meet more clients than the corresponding traditional financial services. The latter can be attributed to low operating costs and the convenience that they accord the users. This calls for closer observation to the financial systems in terms of research.

Everywhere in the world, digitalization is one of the key forces of social change. Digital technologies, in particular, are expected to have a major effect on the economic growth prospects of developing countries. There are many ways in which digitalization of business transactions will be beneficial to the economy. Other than facilitating real time information to farmers in the rural areas, digital technology will offer individuals who can’t access banking services a platform for financial inclusion through mobile money platforms stimulating the business activities of small firms. Overall, the digital technology innovations will reduce the cost of transactions, increase their transparency therefore increasing the like hood of purchases from potential buyers which will definitely increase firm performance. However, digitalization of financial sciences has been faulted for allowing for large scale automation that may lead to the layoff of many

routine employees. It also allows for oligopolistic economies that can lead to vast accumulation of wealth among few individuals at the detrimental effects of the welfare others in the society.

A big enabler of economic growth is a vibrant and growing private sector which thrives with dynamic firms. It is important for the introduction of information technology to increase the return of entrepreneurship as economies step through the innovation-driven stage of economic development (Davis, 2015). Current research in Sub-Saharan Africa shows that high-growth enterprises, such as simply owning a website, are characterized by the use of internet and communication technology (ICT) technologies (Mallat, 2017). East Africa's mobile money movement is a vivid example of the high adoption of digital technology in the last decade.

Mobile cash adoption in emerging economies can be a windfall for the private sector. In particular, as Jack and Suri (2014) suggested, companies would reap significant benefits from the adoption of mobile cash with the reduction of transaction costs induced by mobile money. This research examines one such advantage in Kenya, the relationship between mobile payment, firm performance, and consumer welfare. Other than reducing transaction costs, mobile money deployment would improve trade credits and make a reimbursement action information database, thus plummeting the asymmetry of information. From all these sources, increased business investment will benefit. A reduced-form version of the relationship between mobile money and firm performance is empirically documented by this analysis.

However, in Africa, such scrutiny remains elusive. This is despite the continent being a frontrunner in terms of mobile payments and showing significant changes. It is likely, the market shifts caused by digital payments is not necessarily a complete abdication of traditional means of payment but rather a form of coexistence. This is by digital technologies creating market niches within the existing traditional consumer bases. Therefore, the digital shift in Africa may not be an indication of a complete take over from traditional modes of payments.

Pretty much across the board, there is a great deal of doubt regarding the effect of the financial technology on firm performance. Some scholars contend that, even if financial technology has impact on the financial systems of firms in respective countries, it has

not been as disruptive as initially thought. Efficient financial systems, however, are far from being used by the same countries. On the standards of developed countries, developing countries in Sub-Saharan Africa have a less developed financial system. This is despite the tremendous progress that countries like Kenya have made in the previous two decades (Allen et al., 2014). In attempt to promote financial inclusion, Sub-Saharan countries have put enormous efforts in promoting mobile money by encouraging mobile payment services.

The effect of financial technologies on firm performance can therefore be said to be gradual. However, a unique aspect of mobile money trend in Africa is that it is has been quickly adopted with respect to other regions. This perspective raises a pertinent question on who is lagging behind the digital shift so as it can translate into a financial milestone. Possibly, regulators have to strike a balance to allow innovation by reducing risks and increasing their credibility and stability for wider application in financial systems. It is probable for regulators to initiate practices like mandatory reporting to increase the incentives that are related to on-time payment. The latter decreases chances of over-indebtedness and fraud. The result is an overall increase in the efficacy of the system through enhanced integrity and stability.

This research expanded the scholarship on the link between mobile payment and firm performance. For business results, mobile payments were not important. Therefore, the mobile payments did not improve the profitability of the business, the sales size, the acquisition of customers or lower operating costs. This is contrary to Joseph et al. (2018) findings that found cashless payments to increase sales among Kenyan supermarkets while reducing recurrent costs. We assume that when mobile payment systems outperform fixed cost investments, they contribute to firm benefits. Most of the fixed investment in the establishment of mobile payment infrastructure is in the information technologies that come in form of software licensing and licenses by the third party.

Joseph et al. (2018) further acknowledge that in establishing cashless payment methods as well as investing in platform protection against fraud and theft, supermarkets incur enormous money. Consequently, the investment has to be followed at the consumer and business level by a network impact. There should be ample value flowing through to

the network in order for mobile money to positively affect company results. As a consequence, with the growth in value flows, the unit cost declines.

5.4 Moderating Effect of Consumer Characteristics on the Relationship between Mobile Payment and Firm Performance

Some of the most significant factors determining both the use and adoption of mobile payment systems are demographic factors (Garret et al., 2014). In developing countries, demographic factors are also likely to be a major factor in deciding on the use of mobile payments, thereby affecting the organization's efficiency. Subsequently, the moderating impact of market characteristics between mobile payments and firm output was assessed in this analysis. Consumer characteristics emerged as not having a significant moderating effect on the relationship between mobile payments and performance of supermarkets. Nevertheless, gender was found to be significant with the use of mobile payment to pay for products by male shoppers increasing the probability better firm performance, relative to female shoppers.

Consumers with a higher monthly income led to increased use of mobile-based payments based on our findings. This customer segment could be able to finance high-end communication devices that provide a range of mobile payment options for them. Mobile payment transaction costs are also likely to be high and these people can happily incur the costs associated to enjoy the convenience.

Regarding consumer characteristics, the study established that consumer characteristics positively affects the association between mobile payment and firm performance. Increase in consumer’s monthly income translates into rise in the rate of mobile payment since consumers mobile account balances are loaded thus an increased urge to embrace mobile payment. As per the study, there is a noticeable upsurge of mobile payment transactions elicited by increased consumer’s age. Therefore, this discovery indicates that older individuals appreciate mobile payment over and above the young individuals or the number of older persons in possession of mobile devices necessary for effecting mobile payment offsets the number of young persons with mobile devices.

Contrary to the findings in the existing literature, we found that customers’ age increased mobile payment transactions, which attributes the young age group to higher levels of computer literacy, thereby promoting the adoption and use of emerging

technologies. We attribute our observation to the optimistic attribution of mobile payments to income levels and deduce that the current high levels of unemployment among young people in Kenya leave them with little disposable income. Finally, in embracing mobile payments, salaried and self-employed individuals were hesitant. Salaried and self-employed individuals as per study findings are deemed to be reluctant to embrace mobile payments which is attributable largely to individual ignorance, anti-change attitude and sophistication of mobile payment. Since this customer segment is engaged in economic activity and revenue generation, their profession may have affected their option not to use mobile payment. As a result, it is clear to mobile payment companies that their existing services and products do not support salaried and self-employed people.

5.5 Consumer Welfare and Firm Performance

Again, the study discovered that operating costs, a proxy for firm performance are negatively related to consumer welfare. Thus, if operating costs of the firm increases, consumer surplus, a facet of consumer welfare declines drastically. In financial sense, for firm owners to compensate for lost profit due to increased operating costs, they opt to increase prices of commodities therefore shifting the costs to consumers. Consumers end up paying more than their expectations and these results to decline in their welfare. Based on the study results, reduced consumer welfare leads to poor firm performance.

5.6 Moderating Effect of Firm Characteristics

Further, the study established that jointly firm characteristics did not have any moderating effect on the relationship between consumer welfare and firm performance. However, location of the supermarket was found to have a significant influence on the overall firm performance. Strategic location of firms is essential for their cost-effective operations. Firms need to be located closer their suppliers to reduce on transportation cost and the risk of wear and tear of perishable commodities. Firms located remotely normally charge higher prices in comparison to those located at the outskirt of major towns. As such, consumer surplus, a proxy for consumer welfare is hugely reduced in the case of consumers located in remote areas and the reverse is true. Market size is also a vital aspect in the sense that, large market size triggers fierce competition among identical firms to the advantage of consumers since prices tend to decline. The vice-

versa is true for small market size where firm performance outweighs consumer welfare due to high prices of commodities.

This study also ventured to assess the relationship between the company's structural features and firm performance. Previous research on the determinants of firm success tends to slightly link company features with organizational performance. This is attributable to an underestimation of its effect on the organization's business performance. Nonetheless, other studies have found contradictory findings on the relationship between company features and business success of SMEs.

The variance in the results in the current literature on the relationship between the systemic characteristics of the company and the market output of small and medium-sized enterprises indicates the absence of concession findings. This means the results of a study should not be translated into a larger context, because the findings of each study are generalizable in their own context. Although adequate studies have been carried out elsewhere, little is known about the relationship between the organization's structural features and the market performance of companies in Nairobi. Thus, data from this study adds into this existing information gap.

There is empirical substantiation at the market level that mobile payments, in particular debit cards, appear to generally replace paper-based payment methods and boost card-based devices with respect to POS payments. The size of the effect is not very important, however. These effects mostly remain constant with regard to individual retail and services payments, but differ in magnitude and symbol. However, the fact that data on mobile payments are often not statistically relevant shows that existing individual payment systems do not impact mobile payment technologies and are often determined by other factors. There seems to be a highly repetitive and unconscious use of payment tools, which may in turn discourage the adoption of imaginative payment items. Moreover, supply-side constraints, i.e. non-acceptance by merchants of mobile payments, may constitute a barrier to the growing use of mobile payments.

5.7 Organizational Implications

This research makes essential theoretical contributions to the research on current mobile payment benefits. Essentially, the principle of stakeholders encourages organizations

to recognize a wide variety of people and groups that may impact the plan. Earlier management theories did not take into consideration all the influencers and others who might be impacted by the actions of the company. Researchers accept that in recognizing the consequences of modern-day market developments, a larger variety of groups should be considered. The theory of stakeholders has important ramifications for business technology and customer relationships. The eminence of stakeholders has not been fully exploited in customer relationships with technology, let alone in the general stakeholder literature. In view of the non-explicit debate, the principle of stakeholders is an implicit aspect of the welfare of stakeholders.

The need for a deeper understanding of the impact of technology on organizational outcomes, such as financial performance, has strengthened the attention gained by transaction cost theory in the analysis of mobile payments. The study used the transaction cost theory to derive postulations on the relationship between mobile payments and company outcomes. We found that individual transaction costs were related to company output on the basis of this theory. The linkage has, however, been mediated by elements of market characteristics. Our findings reinforce current mobile payment literature adopted by businesses to boost company efficiency by improving transactions in terms of increased capacity and decreased costs.

As for the function of technology, its general economic advantage is that its use can lead to static and dynamic gains in efficiency. Static benefits are sporadic, which derive from more productive use of scarce resources, enabling higher consumption today. Improvements in operational or output performance as well as reduced transaction costs may involve more effective use of resources, although the logical boundary between these two avenues might not always be difficult and easy. Dynamic benefits stem from higher growth, theoretically rising the entire future demand stream. Dynamic benefits stem from higher growth, theoretically rising the entire future demand stream. Simply freeing up existing capital by lowering transaction costs will lead to higher growth. In this case, only a modern channel can achieve the advantages of lower transaction costs. By allowing new goods and services, IT productivity gains can also come about. In several situations, the new good is related to something already available, but is delivered in a way that lowers prices and increases the size of the market. On the other hand, the effects of transaction costs for development might be less evident. A unified

conceptual framework for defining IT benefits for mobile payments in developing countries is what has been largely lacking from the debate about the function of IT in fostering growth and development. Through economizing on the use of capital in business processes as well as in consumer transactions, IT will increase competitiveness for public and private supplies.

As the society becomes ever more digital and increasingly reliant on technology, business operators need to carefully consider its potential and pitfalls in all domains. By providing individuals with the opportunity to pay via mobile for goods, mobile technologies have the potential to minimize the need for both physical payment as well as conventional supply chains. Likewise, block chain integration in mobile payments can allow a set of loosely connected people rather than formal organizations to perform complex tasks such as tracking and verifying transactions.

As various researchers have pointed out, these emerging innovations such as mobile payments present many possible risks, such as the infringement of privacy and the possibility of fraud, and they also have great potential to significantly reduce the cost of coordinating and tracking transactions. To date, transaction cost theory has been almost exclusively used by strategic and channel scholars to explain conventional business to business topics such as buyer-seller relationships, salesforce integration, and channel contracts. Yet, the transaction cost principle as demonstrated has the ability to play an important role in understanding and forecasting these transactions as individuals take on more of the transactions historically carried out by businesses (Davies & Kim, 2015).

Mobile money solutions like M-Pesa and Airtel Money among others, are disrupting many conventional industries and putting people in positions traditionally held by businesses. Transaction cost logic may help explain the essence of the shared economy and other emerging types of transactions, such as self-transaction such as mobile payments and the role of block-chain in marketing transactions. In addition to changing its emphasis to individuals, firms may also need to reconsider the position and significance of utility within their business strategy matrix(Rindfleisch,2019). In today's technological, social, and economic environment, it is impossible to look at the changes currently taking place and not believe that conditions are in fact changing. The anticipation in this research is that its findings will help organizations reconfigure their

strategy with an appropriate understanding of how mobile payments can be exploited to counter revolving aspects of transactional costs, thus enhancing the bottom line.

From the exploration, it was clearly observed that mobile payment is subjective to consumer surplus, if consumers perceive an improved consumer surplus through mobile payment, they could opt for it because of their rational nature. Mobile payment was revealed to have significant relationship on organizational outcomes by the research findings. However, it is imperative to note that firm performance is a multi-dimensional aspect and the best measure used to determine organizational performance. As such, it depends on the type of organization measured and the targeted lines of assessment. Firm performance includes three particular areas: financial performance such as profitability and investments, performance of the product market including the volume of sales, return of shareholders as expressed through cumulative return to shareholders as well as economic value added. Therefore, it is natural for majority of firm owners to consider firm performance since they are convinced in a positive manner on the economic gain of opting for mobile payment. The study also suggest that consumer surplus has a negative association to firm performance due to the inherent benefit on all participants to a transaction.

Mobile payment systems globally, promote financial inclusion and provide an incentive for growth for companies. Mobile payment services are common phenomena in conventional and emerging markets, providing inexpensive, easily accessible financial services. However, during the early stage of implementation of mobile payment systems, corporations experience paltry returns, a reality attributed to the high costs incurred during the deployment processes. Overall returns would need to surpass both operating and commercial costs for mobile payment systems to be deemed plausible. By providing a mechanism that supports a wide customer base without corresponding rise in cost, mobile payments offer solid promise to increased firm performance.

Mobile payment service providers and their clients are the prime players in the mobile payment services industry. Consumers, traders, financial institutions and telecom operators are different parties that play these positions in the industry. In the course of time, mobile payments will be expected to play a central role in the cross-sector transactional ecosystem that features stakeholders from various industries including

customers, traders, mobile network operators (MNO), financial institutions, producers of goods, suppliers of services, as well as regulators (Dahberg et al., 2008).

How technology and other tools are orchestrated into mobile payment systems and how these services are offered and used by the market influences the perceived scope of utility and potential scope of returns. Mobile payment systems constitute a novel alternative to paying for mobile services. Furthermore, mobile payment systems compete against other modes including cash and electronic payment for the attention of clients and other parties. To be compellingly attractive, mobile payment systems would, have to provide additional value and match or possibly exceed the performance standards of competing payment options.

Discernibly, mobile payment does not completely replace cash or physical payment cards, but is likely to reduce the demand for paper-based payment methods such as cheques. As a consequence, it is expected that mobile payment apparatus will evolve further and turn out to be more innovative. The success of the mobile payment application depends on an appropriate business model that can yield real benefits, including value proposition, market contribution and act as a revenue source. It can be seen that mobile payments are moving progressively across boundaries towards diversification and convergence. Additionally, the value proposition of service providers should concentrate on customer priorities and augmenting their service delivery models with appropriate mobile payment integrations. In the end, the prime beneficiaries of mobile payments would be those that strategically respond to customer aspirations in order to gain a competitive advantage within their sphere of operation.

CHAPTER SIX: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of the Key Findings

This chapter presents the summary of findings, conclusions, recommendations as well as policy implications. Limitations impacting on the study are also highlighted and suggestions for further research espoused. Primarily, the study sought to assess the relationship between mobile payments and consumer welfare; and the relationship between mobile payments and firm performance. The moderating effect of consumer characteristics on the relationship between mobile payments and firm performance was also assessed. Further, the study investigated the relationship between consumer welfare and firm performance, as well as the moderating influence of firm characteristics on the relationship between consumer welfare and firm performance.

The first null hypothesis, (H_{01}) postulates that there is no significant linkage between mobile payments and consumer welfare. From model 1 the marginal effects for *Mobile pay* are positive and significant. Therefore, the null hypothesis is rejected and a conclusion made that mobile payments increase the probability of enhanced consumer welfare based on the consumer surplus indicator. Hypothesis two, (H_{02}) posits that there is no significant relationship between mobile payments and firm performance. From model 2, the marginal effects for Mobile pay are positive and significant. Accordingly, the null hypothesis is rejected and a conclusion drawn that mobile payments lead to better firm performance. Utilization of mobile payments increases the probability of increased profitability hence putting the firm's performance on a higher pedestal.

The third null hypothesis (H_{03}) posits that consumer characteristics have no significant moderating effect on the relationship between mobile payments and firm performance. From model 3, the marginal effects of firm performance and the moderated effects remain constant indicating that consumer characteristics do not moderate firm performance. Consequently, we fail to reject the null hypothesis and make a conclusion that individual demographics jointly, do not exert significant moderating effect on the relationship between mobile payments and firm performance. The marginal effects for gender are positive and significant. Mobile payment usage by male shoppers increases the probability of enhanced firm performance buttressed by improved profitability.

Null hypothesis four (H_{04}) forecasts that there is no significant relationship between consumer welfare and firm performance. From model 4, the marginal effects for impulse buying are negative and significant. Thus, the null hypothesis is rejected and a conclusion entered that consumer welfare influences firm performance. Hence, the prospects of impulse buying decrease consumer welfare but conversely increase the probability of better firm performance accruing through profitability by 9.0 percentage points.

Null hypothesis five (H_{05}) envisages that firm characteristics have no significant moderating effect on the relationship between consumer welfare and firm performance. This study found no moderating effect of firm characteristics jointly, on the relationship between consumer welfare and performance of supermarkets. However, location was found to have a significant influence on supermarkets located in high density areas such Ruaraka or Roysambu or Mathare or Embakasi or Dagoretti decreases the probability of profitability induced firm performance by 10.0 percentage points.

The first objective of the study was to establish the relationship between mobile payments and consumer welfare. The results evidenced a statistically significant influence of mobile payments on consumer welfare in so far as the consumer surplus indicator is concerned. The evidence however did not show any statistical significance on the relationship between mobile payments and consumer welfare attributable to the consumer fulfilment and consumer ability to save.

Secondly, the study sought to determine the relationship between mobile payments and firm performance. From the results, there was evidence of a statistically significant relationship between mobile payments and firm performance in so far as profitability is concerned. Results did not show statistically significant evidence on the relationship between mobile payments and consumer welfare deriving from the rest of the indicators notably revenue scale, number of customers and operating costs.

Objective three sought to analyze the moderating effect of consumer characteristics on the relationship between mobile payments and firm performance. The results did not evidence a statistically significant moderating effect of consumer characteristics jointly, on the relationship between mobile payments and firm performance. Nevertheless, the

marginal effects for gender were found to be statistically significant. Employment status and the age of the consumer were established to be significant constructs of the consumer characteristics. The level of education was also found to be a positive construct of the consumer characteristics.

The fourth objective sought to determine the relationship between consumer welfare and firm performance. Findings provided sufficient statistical evidence to affirm the relationship between consumer welfare and firm performance from the facet of impulse buying which accentuates a firm's profitability prospects. Objective five sought to investigate the moderating influence of firm characteristics on the relationship between consumer welfare and firm performance. Results yielded insufficient statistical evidence to affirm existence of a joint moderation effect. However, location of an organization was found to have a considerable moderating effect, while the indicators of market size and duration of operation yielded insignificant results.

6.2 Conclusions

On the basis of the empirical findings, numerous conclusions can be drawn. First, mobile payments improve the consumer welfare since it makes the transactions to be prompt and easily thus ameliorating trade. In addition, mobile payments improve the profitability or overall performance of the firm. It eases trade by facilitating faster settlement for goods and services offered, it makes it easy and possible to track the payment process and reduces operational costs of employing addition staff since mobile payments bridges this gap. Consumer welfare also improves firm performance since satisfied consumers will approve and support the entities operations.

The link between mobile payments and firm performance varies with consumer characteristics. The usage and success of mobile payments largely depends on the user's gender, educational levels and employment status. Additionally, the nexus between consumer welfare and supermarket performance also varies slightly with firm characteristics.

6.3 Contributions of the Study

The significance of mobile payments within the context of consumer welfare and firm performance has being overlooked in previous studies. Anchoring the research on the stakeholder theory and the concept of transaction costs, this study offers useful insights

into the link between mobile payment and consumer welfare as well as firm efficiency. In order to minimize transaction costs, organizations must consider that implementation of mobile payments decreases exchange costs and raises income for all parties if the implementation outlay is lower than the expenses that are incurred to facilitate transactions. Pertinently, there is need to understand the financial and economic implications of mobile payments within the transactional spectrum. Findings demonstrate that mobile payments constitute a formidable tool for boosting the efficacy within the transaction environment. Findings agree that the adoption of technology appear to be beneficial for the economic organization of exchanges.

This study contributes to understanding of the link between mobile payments, consumer welfare and firm performance by riding on supermarket based evidence while also drawing relevant parallels from prior findings with discernible similarities. Previous studies have largely focused on adoption and usage patterns of mobile payments. On its part, this study examined various variables and interrelationships thus bringing to the fore better understanding of the cumulative effect of pertinent constructs underpinning the value of mobile payments within organizations.

Most of the previous related studies have been conducted in developed countries; hence the findings may not be squarely applicable to organizations domiciled in developing countries owing to contextual diversity. Thus, the findings of this study are highly pertinent to the Kenyan environment since they are premised upon realities within the local business landscape. Considering the high rate at which supermarkets have embraced mobile payments within their operational ecosystem, it is self-evident that firms have come to appreciate that mobile payments possess business ingredients that could lead to superior organizational outcomes. To a large extent, supermarkets have incorporated mobile payment functionalities within their processes as a tactical response to the evolving business dynamics which are increasingly characterized by ubiquitous operations. Thus mobile payments represent a logical tool that would enable organizations to cope with the exigencies of remote and versatile needs of the modern shopper.

It emerges that in order for firms to reap the full benefits of mobile payments, they must raise their technological game plan and invest over an extended period of time. The downside of this strategy is that businesses can suffer short-term losses. However, by

sourcing long-term investors, drawing from their reserves, or forming alliances, firms can tactically counterbalance the enormous investments that are needed to sustain sound mobile payment platforms. Findings that young adults, salaried and self-employed individuals have shown a measure of hesitation towards mobile payment solutions require product initiators to engender payment features targeted at these particular segments of consumers. As with all other information systems, the acceptance of mobile payments depends highly on usefulness and perceived scope of efficacy. Firms should therefore focus on mobile payment integrations that yield continuous improvements in quality, customer demand and both consumer and service provider benefits at favorable expenditure levels.

Despite the seemingly obvious value proposition accruing from mobile payments, findings reveal that a significant segment of firms and a large portion of consumer population have not embraced mobile payment. Individuals' knowledge about how and where to use mobile payments has been found to be a strong predictor of intention to adopt mobile payment systems (Jung, Kwon & Kim, 2020). Therefore, there is need to enlighten both firm owners as well as consumers on the convenience and the benefits that come along with mobile payment. Both salaried and self-employed individuals possess an enormous potential to take mobile payment related returns to a higher level. Therefore, stakeholders involved in mobile payment evolution should strive to ensure these individuals are ingrained with confidence to trust and utilize mobile payments for diverse purposes. A similar approach may be employed to target the youthful population segments who are seemingly outnumbered by the older generation on matters of mobile money payment. Slade et al. (2015) affirmed that consumer perception of mobile payments as a trustworthy and dependable is an important predictor of intentions to adopt the service. Accordingly, mobile service providers to upgrade their service delivery to ensure that delays during the execution of mobile payments are reduced of possibly eliminated. This will go a long way in building trust in the service among the consumers thereby boosting the number of mobile payment transactions with the attendant impact of increased consumer welfare and elevated firm performance.

6.4 Recommendations

The research results demonstrate that mobile payments significantly relate to consumer welfare and firm performance. An implication of this finding is that appropriation of mobile payment innovations is a plausible strategy of improving firm performance. Further organizations should strive towards exploiting mobile payment induced consumer welfare attributes to generate better organizational outcomes. The findings revealed a statistically significant relationship between mobile payments and consumer welfare. This implies that if firms strategically implement mobile payment solutions, consumer welfare will be bolstered with a ripple effect on firm performance. Further, the research findings revealed that consumer characteristics, jointly do not moderate the relationship between mobile payments and firm performance. In light of the foregoing realization, firms ought to structure their consumer networks in a manner that enables them to maximize on the opportunities that could be derived through such linkages.

The mobile payment effect on company results can be affected by government regulatory interventions. In particular, regulations may affect the ability of a business to offer certain services, nurture a customer base or to establish the requisite infrastructure and capacity. Regulators, for example, should recognize that tariff structures of mobile payment products implicate on the consumer usage prospects. Whereas making mobile payments services affordable through price moderation may be perceived as reducing the profit margins, it could yield a better firm position in the very likely event that it would result in an expanded customer base.

Besides, legislative aspects that result in higher taxes of mobile based services occasion additional transaction costs as well as the overall operational overheads. Policy makers should embrace prudent legislative roadmaps that have potential to put mobile payments on a positive trajectory of growth. This would further enhance digitally propelled financial inclusivity and development. It is also imperative for respective governments to promote skills among their citizens as prerequisite for the effective utilization of mobile payments. In order to accelerate and extend its beneficial effects, policymakers have to consider the prospects and challenges that arise from the many types of financial technologies, while maintaining proper legislations to reduce the detrimental effects with an objective of promoting economic development and

enhancing social stability. Academic institutions have a role to play by developing learning packages, teaching programs, and training modules aimed at enhancing mobile payment oriented skills. Refined skills in financial and digital operations are useful towards the full utilization and enjoyment of mobile payment solutions.

6.5 Limitations of the Study

This study has some limitations. In this analysis, responses were obtained from 289 exclusively urban supermarkets in Nairobi. It is believed that this sample, being largely drawn from urban dwellers who are relatively more educated and technologically refined might offer results that are different from those derivable from a rural setting, Therefore, the results of this study, being largely anchored on a community that is technologically receptive coupled with a high usage of mobile payment are possibly biased.

Lastly, the findings relate to Kenya's dominant mobile payment platform (M-Pesa), the user behavior of which may be severely skewed. Third, this study did not assess the variations in characteristics among the differently branded mobile payment solutions based on specific mobile payment service provider. This could have some ramifications considering that each of the choices for mobile payments has different transaction costs, ease of use, availability, security measures, and convenience.

Despite the above limitations, the quality of the study was not compromised. Therefore, the study makes an immense contribution to the existing body of knowledge especially in the field of mobile payments, consumer welfare and firm performance links which have not been adequately explored before.

6.6 Suggestions for Further Research

Mobile payments are a fairly dynamic concept within the digital technology ecosystem which continues to evolve at exponential pace Therefore, as previously unconsidered areas are consistently explored and new approaches emerge, the mobile theme will continue to present very interesting areas for study. It is expected that studies related to mobile payments will still require enhancement and further analysis. Second, the welfare of customers could be perceived differently depending on the dimension of examination. For instance, elements of consumer protection that may be important in one geographical setting, may be irrelevant in another and vice versa. It is also

important for a given consumer variable to shift with changing economic, social, and political variables over time. In addition, research may also analyze mobile payments with particular groups of users, at various levels of the payment process and over long periods of time. This study focused on the retail sector, specifically the supermarkets. Future research may be targeted at a different sector or sectors to determine possible variations in responses and outcomes. Subsequent research could also introduce further variables other than consumer welfare and firm performance. Studies could also be conducted using other consumer and firm characteristics as moderators in order to unravel further insights on the mobile payment-consumer welfare-firm performance relationship.

Our study results are focused on supermarkets that are hyper and mega. There are other organizations that make use of mobile payment options. The situation in these other organizational types may be investigated by future research. In addition, our research was performed in Nairobi County. Essentially, most of the supermarkets in the sample were urbane. Further analysis may be concentrated on firms that are within a rural set up, that do not have a heavy concentration of information and technology skills. This study was carried out on supermarkets in Nairobi City County thereby excluding supermarkets in other counties. Therefore, a study that incorporates more counties would render the results more generalizable and reflective of a broader state of mobile payment affairs. Another fundamental dimension of exploration relates to timing. Study findings may be prone to fluctuations dependent on economical seasonal changes. In order to explore the impact of financial regulations on mobile payments and firm results, future studies in that domain would be ideal. Besides, there is need to carry out such a study across the entire year to capture all the consumer's behavioral characters. Finally, an in-depth analysis of mobile payments and company-specific business and operating costs would greatly enhance the overall understanding of trends and prospects of the mobile payment industry segment.

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APPENDICES

APPENDIX 1: QUESTIONNAIRE

MOBILE PAYMENTS, CONSUMER WELFARE AND FIRM PERFORMANCE

The purpose of this survey is to collect data that is needed to examine the relationship between mobile based payments, firm performance and consumer welfare as intended through this study. All the data to be collected is purely for academic purpose and will not be put to any other use.

RESEARCH QUESTIONNAIRE

The Questionnaire consists of four sections. Sections A-C should be filled by individual supermarket shoppers, while Section D should be filled by the supermarket managers or other responsible officers.

SECTION A: BACKGROUND INFORMATION

Q1. Time of shopping _____ am / pm

Q2. Please describe the nature of your occupation

Salaried employment [ ] Self-employed [ ] Unemployed [ ]

Q3. Please tick your current level of education

None [ ] Primary [ ] Secondary [ ] College [ ]
University [ ]

Q4. Please tick your Gender Male [ ] Female [ ] Other [ ]

Q5. What is your age (in years) _____

SECTION B: MOBILE PAYMENT EXPOSURE

Q6. Please indicate the price at which you acquired your mobile phone (in Ksh)

_____

Q7. To which mobile service plan are you subscribed to? Prepaid [ ] Postpaid [ ]

Q8. Do you use mobile payment services? Yes [ ] No [ ]

Q9. If your response is yes in Question 8 above is "yes", please describe the services you use

_____

Q10. When do you make use of Mobile payments more often?

In the residential neighborhood [ ] Away from the residential neighborhood [ ]

Q11. For how long have you been using mobile payment services (in years)?

_____

Q12. At present, how often do you use mobile payment services? (Please provide only one answer)

Not at all [ ] Once per month [ ] a few times a month [ ]

Once a week [ ] a few times a week [ ] Other(please specify)_____

Q13. Do you utilize mobile payment services for shopping? Yes [ ] No [ ]

Q14. How did you pay for your shopping?

Mobile Payment [ ] Cash [ ] Debit card [ ] Credit card [ ]

SECTION C: CONSUMER WELFARE DIMENSIONS

Q15. What is your average shopping budget per month

Ksh._____

Q16. Did you spend less amount of money than you had budgeted? Yes [ ] No[ ]

Q17. Did you spend more amount of money than you had budgeted? Yes [ ] No[ ]

Q18. Did you purchase more items than you had initially budgeted? Yes [ ] No[ ]

Q19. Would you still purchase the items you bought if the price was higher?

Yes [ ] No[ ]

Q20. What is your average income per month

Ksh._____

Q21. How much money do you save on average per month?

Ksh._____

Q22. Are you satisfied at the service you received at the supermarket? Yes [ ] No [ ]

SECTION D: TO BE ADMINISTERED ON SUPERMARKET MANAGERS OR OTHER RESPONSIBLE OFFICERS

Section D: Firm Performance Indicators

Q23. Location of supermarket_____ Sub-county /Constituency

Q24. Number of branches _____

Q25. Duration of operation _____ Years

Q27. On average how much revenue did this supermarket generate last month?

Ksh. _____

Q28. How many customers on average were served in this supermarket last month?

_____

Q29. On average how much was your operating cost?

Ksh._____

Q30. Please indicate whether you agree with each of the statements below. (Tick "yes" if you agree and "no" if you do not agree.)

i. The sales revenue of your firm has increased since adoption of M-payment services Yes [ ] No [ ]

ii. The profitability of your firm has increased since adoption of M-payment services

Yes [ ] No [ ]

iii. The market reach of your firm has increased since adoption of M-payment services. Yes [ ] No [ ]

iv. The customer satisfaction in your firm has improved since adoption of M-payment services. Yes [ ] No [ ]

v. The operational costs of your firm have reduced since adoption of M-payment services. Yes [ ] No [ ]

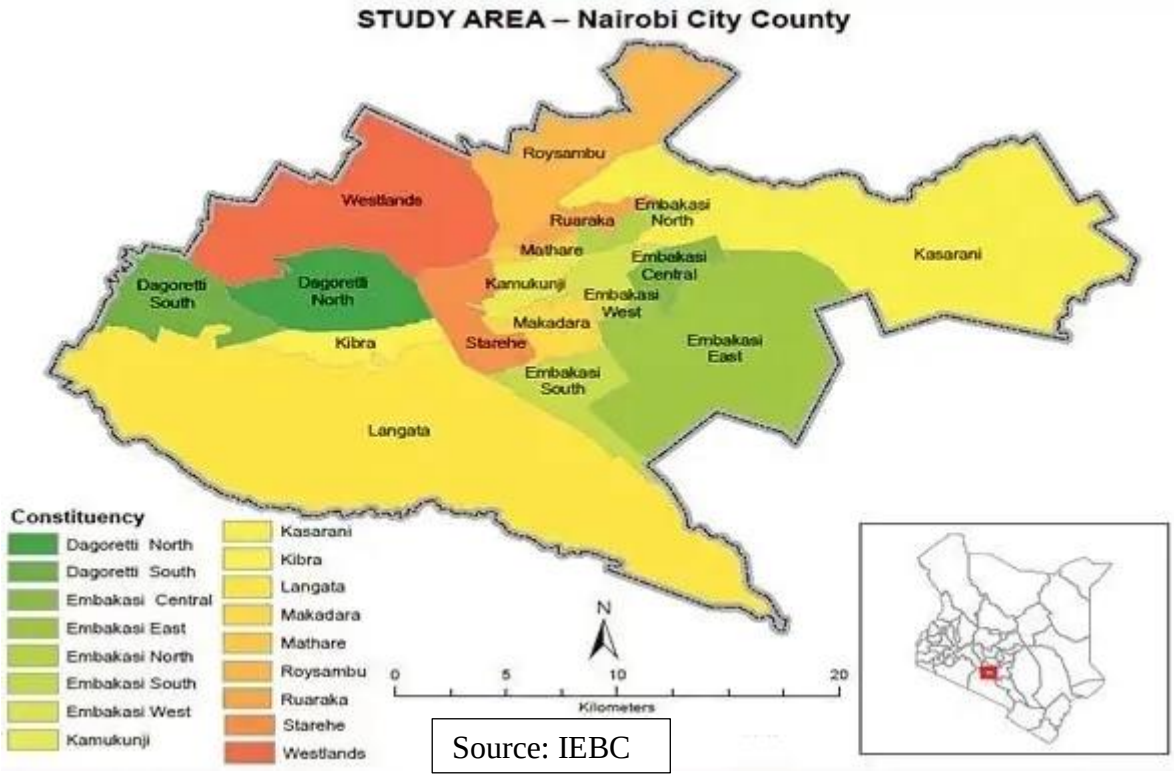
vi. Use of M-payment services has led to greater product innovation.

Yes [ ] No [ ]

Thank you for your time and cooperation.

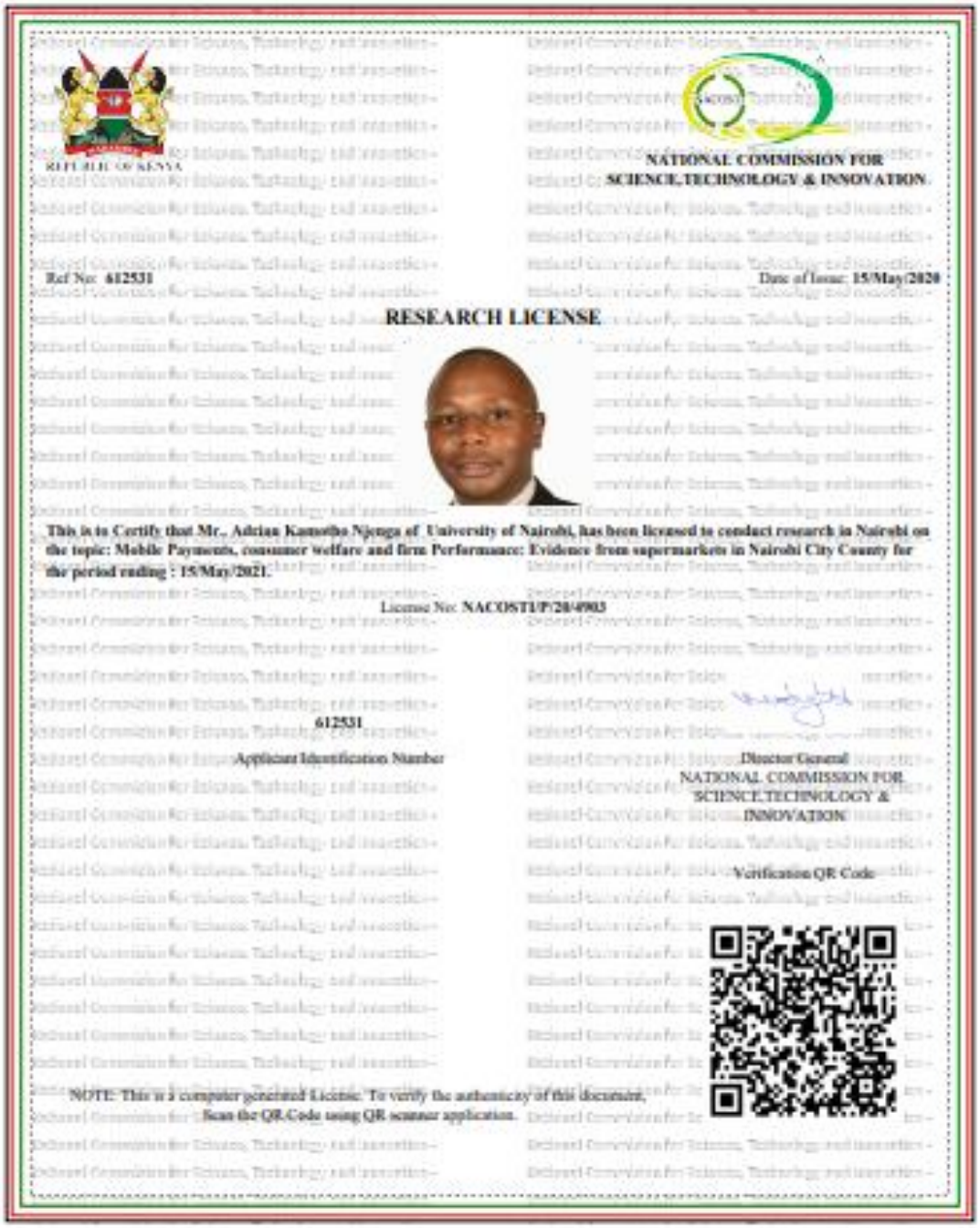
APPENDIX 2: STUDY AREA

NAIROBI CITY COUNTY CONSTITUENCIES/SUB-COUNTIES		
Nairobi West & South	**Nairobi North & Central**	**Nairobi East**
Westlands	Roysambu	Embakasi South
Dagoretti North	Ruaraka	Embakasi North
Dagoretti South	Makadara	Embakasi Central
Langata	Kamukunji	Embakasi East
Kibra	Starehe	Embakasi West
	Mathare	Kasarani



Source: IEBC

APPENDIX 3: NACOSTI PERMIT



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