

**EFFECT OF FINANCIAL INNOVATION ON FINANCIAL PERFORMANCE OF
DEPOSIT TAKING SAVINGS AND CREDIT COOPERATIVE SOCIETIES IN
KENYA**

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DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

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I do hereby confirm that I have examined the Master's Dissertation of **Geoffrey Mwangi Mugunyi** and I certify that all Revisions that the dissertation panel and examiners recommended have been adequately addressed.

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ABSTRACT

The Savings and Credit Cooperative Societies (SACCO) in Kenya are today facing stiff competition emanating from the mainstream banks, microcredit institutions, and recently, digital credit, due to the modern-day technology, stringent regulatory requirements and the dynamic customer demands. These have caused the declining membership in majority of the cooperatives. Despite boasting of huge membership, their earnings cannot be compared to those of commercial banks which post credible profits at the end of financial years. Cooperative societies have therefore devised innovative ways in their operations to enhance their competitiveness. The aim of this study was to investigate the effect of financial innovation on the financial performance of cooperative societies in Kenya. The specific objectives of the study were to examine the effect of product innovation on the financial performance of cooperative societies in Kenya, assess the effect of service innovation on the financial performance of cooperative societies in Kenya and to determine the effect of process innovation on the financial performance of cooperatives in Kenya. The study adopted a descriptive research design in which the population will be the 175 licensed deposit taking cooperatives by Sacco Society Regulatory Authority in Kenya. The study samples 120 cooperative societies using simple random sampling and thereafter the general managers from each of the selected cooperatives were selected purposively. The study targeted the general managers of the cooperatives. Both primary and secondary data were collected. Prior to actual data collection, the questionnaires were piloted for validity and reliability. Data was analysed using descriptive statistics namely percentages, measures of central tendencies and frequency distribution. The researcher also used multiple regression analysis to determine the relationship between the dependent and the independent variables. The findings were presented in figures and tables. The study found that all the contracts of financial innovation positively influenced the financial performance of the SACCOs. The study found that the service innovation had the strongest influence followed by process innovation. Among the innovations were the electronic funds transfer, new deposit accounts, mobile banking, internet banking, automatic teller machines and the front office service activity among others. The study therefore concludes that financial innovation have positive effect on the financial performance of the cooperative societies. The study recommended that the management of cooperatives should adopt more product innovation, service innovation and process innovation to enhance the financial performance of the societies. The study also recommended that the regulator should formulate policies that will enhance use of financial innovation by the cooperative societies such as use of incentives to encourage innovation or tax waiver on technology that purchased by the societies for the purposes on enhancing their operations. Further, the regulator should develop its surveillance structure to incorporate the adoption of financial innovation by the societies particularly those struggling financially so as to boost their efficiency and hence financial performance.

DEDICATION

I dedicate this research to my families and Chai Sacco who have been supportive to me financially and especially in funding my education all through. Their support and care have given us a positive transformation in life and may the almighty God bless them abundantly.

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LIST OF ABBREVIATION AND ACRONYMS

ATM:	Automatic Teller Machines
CBK:	Central Bank of Kenya
FOSA:	Front Office Service Activities
ICT:	Information and communication technologies
KCB:	Kenya Commercial Bank
POS:	Point of Sale
ROA:	Return on Assets
ROE:	Return on Equity
SACCO:	Savings and Credit Cooperative Societies
SASRA:	Sacco Society Regulation Authority
ERP:	Enterprise resource Program

DEFINITION OF OPERATIONAL TERMS

Financial Innovation: refers to the commercial or industrial application of something improved, an improved product, process, or method of production; an improved market or sources of supply; a improved form of commercial business or financial organization (Frame & Lawrence, 2001).

Financial Performance: refers to the monetary terms of measuring the results of the entities operations and policies, intended to evaluate the overall financial health of the firm over a given period (Drake, 2006).

Product Innovation: is the introduction of fairly improved goods and services with respect to its characteristics or target users (Suzuki, 2016).

Process Innovation: is the implementation of either significantly improved or new delivery methods or product such as changes in techniques, equipment and/or software (Reinartz & Ulega, 2008).

Service Innovation: refers to developing new service or renewal, modification of existing services during innovation process which are valuable to customers. This may include change in service delivery, new knowledge that enhance service delivery (Durst, Mention & Poutanen, 2014).

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The financial sector including the savings and credit societies (SACCO) have been revolutionized owing to the changes in the global financial system occasioned by the globalization and liberalization of economies and technological advancements (Gorton & Metrick, 2010). These new changes have exposed the SACCOs to stiff competition both locally from other financial institutions such as commercial banks, microfinance institutions and recently mobile app lenders and internationally (Mbogoh, 2013; Maorwe, 2011; Mutuku, 2014). Innovation known to be changing the face of business and improving the conditions by creating value for the shareholders. Grey (2016) notes that modern consumers place a premium on innovative products, quick delivery, and high-quality service (Muteke, 2015). SACCOs must therefore utilize innovative tactics to appropriately respond to changes in their environment if they hope to survive and accomplish their strategic goals.

Financial innovation is defined as a strategy for creating and disseminating new financial institutions, markets, and technologies (Lerner & Tufano, 2011). Financial innovation is the development of new technologies that have an overall impact on the effectiveness and model operations of the organization. It consists of novel goods, novel manufacturing techniques, novel services, and novel organizational structures (Ngari & Muiruri, 2014). They specifically impact an organization's revenue and risks by either increasing or decreasing them, which has an impact on the organization's overall success (Mobility,

2019). According to Tidd, et al. (2012), new distribution channel systems, the internet, and mobile banking have all contributed to financial innovation in the financial sector.

Financial innovation's importance has been greatly praised. Miller (2016) and Merton (2012), two prominent scholars, stressed the significance of novel financial goods and services, at times referring to them as the "engine of economic expansion." According to Solow (1956), innovation is the sole factor that affects growth, and that economic development is ultimately impossible without it. According to Blach (2011), without financial innovation, the development of technology and the economy would be much slower, and as a result, the wealth of nations would also be much slower. In order to promote development and expansion in the business sector and raise shareholder value, financial innovation is therefore essential.

It is possible to understand how financial innovations function in a manner similar to the general-purpose technologies identified by Bresnahan and Trajtenberg (2012) and Helpman and Trajtenberg (2011). Not only have these innovations been shown to pay off for the creators, but they also have the potential to have a significant impact on the overall economic system. Financial innovation, according to Frame and White (2012), involves changing the financial system by lowering costs and risk or by improving the good/service to better meet customer demands. The employment of technology to creatively supply financial services, or Fintech, as noted by Trovimon, Aris, and Ying (2018), has changed the worldwide competitive climate in which financial institutions operate. According to Terziovski (2010), financial innovation is essential in organizational efficiency since most often than not, it enables an organization use new innovations to build growth and enhance returns.

As noted by Haddad and Hornuf (2019) Germany has had the best financial innovation ever, which puts it top in Europe and the world, as over 70% of the traditional banks are fully operating on Fintech. Across Africa and particularly the sub-Saharan Africa, Africa's largest economy Nigeria has witnessed a surge in the use of financial technology. The financial institutions including cooperative societies in Kenya have not been left behind in the financial technology adoption as the sector has heavily embraced Fintech (Mwariri & Awuor, 2020). Financial innovations are available in a number of forms including of mobile phone applications, mobile money wallets, as well as payroll borrowing (Ngari & Muiruri, 2014). The services often involve short-term, high-interest loans. Today financial institutions use the client cell phone information including social media, transaction history of mobile, short message records and calls for the evaluation of credit scores and loan amounts (Mohamed, 2018).

The SACCOs like the rest of the other sectors have encountered change in that financial intermediary since the 2007/08 global financial crisis (Onwonga, 2016). SACCOs to a great deal adopted financial innovation so as to achieve financial inclusion and deepening, all aimed at offering financial services to its members. Innovation has also become a strategy adopted by SACCOs to overcome a myriad of operational challenges they face (Sang, 2019). For instance, SACCOs are fast adopting the Front Office Service Activities (FOSAs) to their members as a reactionary to the threat posed by commercial banks (Tsuma et al., 2015). More recently, the SACCOs particularly, deposit taking has adopted financial innovation to enhance the service delivery to their members and to reach more unbanked persons besides improving on their financial performance and maintaining

effectiveness in the market (Misati, Kamau, Kipyegon & Wandaka, 2017). The societies are also coming up with innovative ways of financing their activities instead of relying on the traditional members' deposits (Maorwe, 2011). The study aim of this study is the find out how the financial innovation has affected the performance of SACCOs in Kenya.

1.1.1 Financial Innovation

Financial innovation, according to Ducker (2010), is the process of giving financial organizations new, improved capabilities or more utilities for improved performance. Financial innovation is the unexpected enhancement of a range of financial products and instruments that is prompted by unanticipated changes in client demands and preferences, tax policy, technology, and regulatory impulses (Karanja, 2011). It is the positive change by the financial intermediaries or simply put, financial system. It can further be defined as the process by which the financial institutions create and market their new types of products and services. Financial innovation is drives an efficient firm that is responsive (Kihumba, 2008). As put by Akhatar (1984 cited in Durst, Mention & Poutanen, 2015), financial innovation leads to reduction of the transaction cost for instance, the automation of teller services has minimized the cost of hiring so many tellers. Therefore, financial institutions are able to minimize costs while maximizing returns with financial innovation. Frame and Lawrence (2011) notes that financial innovation exists into three types namely: product process and institutional innovations.

Service innovation can help overcome the problem of saturated markets same as the problem emanating from circumstance of commoditization (Reinartz & Ulega, 2008). Firms can benefit from service-based strategies such as excelling in service offering, delivery systems as well as cost structure and technology (Durst, Mention & Poutanen,

2014). Service innovations include introduction of new services or incremental improvement of existing services.

Process innovation is the introduction of new corporate procedures intended to increase productivity or open up new markets. They include such processes as the use of computer software for customer data management and accounting as well as office automation. These processes are associated with automation, increased use of technology, restructuring and downsizing. Others are flattening the hierarchy, TQM, de-layering among others (Owino, 2018).

Product innovations are financial products/services which are new or modified by the organization. They include such services/products as debit cards, leasing, credit card, introduction of new deposit accounts, hire purchase among others. These are responses to because of changes in market demand, or as a result of need to enhance work efficiency and deregulate the essential part of it (Suzuki, 2016).

1.1.2 Financial Performance

Financial performance is the indicator of a company's capacity to maximize revenue when it effectively makes use of its resources (Nwaolisa & Chinjindu, 2016). In terms of the monetary components of an organizational operational processes and policies, it is the extent to which the firm's financial objectives have been met. It is a gauge of how effectively a company creates value for its shareholders. The degree to which the company has achieved its stated purpose, vision, and core values can be seen in its financial performance. A company's financial performance is important since it demonstrates its viability (Swain & Patniak, 2013). It reveals whether a company will continue to operate or not. It's an indication of whether a firm is a going concern or not. This is a major factor

in the investors' decision of whether to invest in a firm or not. This sector is critical not only to the few selected individuals or firms but to the whole sector as well as it's an indicator of how the economy is performing (Ayano, 2016).

The primary indicators of financial performance include ROA, which measures the ratio of a company's total assets to its total revenue (Sebhatu, 2012). The ROA measures how effectively a company manages its resources to produce net income for the organization (Khrawish, 2011). The higher the ROA, the more efficient the company is at exploiting its resources (Wen, 2010). The other is ROE, which measures how much of overall profit is financed by equity (Itiri, 2014). Profitability, a measure of an organization's economic performance, is another way to describe organizational success (Porter & Kramer, 2011). Financial ratios analysis, benchmarking, performance against budgeting, or a combination of these approaches have typically been used to gauge the financial performance of banks and other financial organizations (Ahmad et al, 2011).

The ability to repay loans, solvency, profitability, and working capital management are among the ways that many SACCOs gauge their financial performance. Most crucially, SACCOs gauge their financial performance by their capacity to satisfy the financial needs of their members, which are more affordable and dependable than those of commercial banks (Wanyama, 2009). The criterion for assessing financial performance in this study was the Sacco Societies Regulatory Authority's (SASRA) rating of deposit taking SACCOs based on total assets, member deposits, loans granted, total capital, and the surplus shown in financial statements.

1.1.3 Relationship between Financial Innovations and Performance of SACCOs

Financial innovation is utilized to outperform rivals and is crucial to preserving and enhancing competitors' effectiveness and success in the market (Batiz & Woldeesenbet, 2016). The current business world requires firms to continuously develop processes and products so as to align with the dynamic customer needs and desires for maximization of its objectives increase, profitability and market share (Grundiche, 2009). Performance is measured in terms of efficiency, spread flexibility and quality (Kimani, 2016). Organizational learning and quality speed operations is boosted by continued efforts in innovation and higher performance. Therefore, innovation advancement can easily lead to enhanced quality and better performance (Coad & Rao, 2008).

Financial innovation has a variety of root reasons, such as decreased regulatory expenses and tax benefits, personalization, more transparency, less moral hazard, and decreased cost of bankruptcy (Partnoy, 2016). (Gorton & Metrick, 2010; Batiz-Lazo & Woldeesenbet, 2016). A hostile condition is a recipe for the thriving of novelty which create a competitive position which lead to advancement of the performance (Roberts & Amit, 2003). This kind of development is only possible through a constant modernization and development of procedures and creation (Porter, 2011).

Financial innovation increases the ability of the organization besides enhancing their competitiveness in the market (Naidoo, 2010). Similarly, according to Yildirim and Philippatos (2007), the introduction of additional technologies, administrative techniques and modern skills are the reason for the intensified aggression, the improvement of the products as well as stimulation of financial innovation. Diversification of the business risks

is a prerequisite for starting up variety of projects, which is determined by the size of the firm (Corrocher, 2013). Hence, every segment of the modern economy require innovation.

As a result of the intense rivalry in the modern business environment, firms are only able to gain sustainable competitive advantage by innovating, and as such they have to implement systems and actions which advance novel products as well as improve existing ones (Udegbe & Udegbe, 2013). Innovation process quality have a positive influence of the product development and performance of the organization (Udegbe & Udegbe, 2013). However, Extensive as well as ready access to electronic news and information with regard to the financial and economic developments available have reinforced innovation process (Ngumi, 2013).

1.1.4 Savings and Cooperative Societies

A cooperative organization is a voluntary group of people who came together to protect their shared economic interests on the principles of equality and cooperation (Bwana & Mwakujonga, 2013). They are created by a group of people known as members with the intention of offering quick loans and encouraging people to save money. Compared to other major financial institutions like commercial banks, members of these groups receive attractive conditions that are tailored to their needs (Singla, 2008). It is a legitimate organization that complies with cooperative laws (Cooperative Act and Cooperative Regulations 1991). As a result, SACCOs' main goal is to ensure member empowerment through the mobilization of savings and the distribution of loans (Ofei, 2011).

Over half of all cooperatives are SACCO, and as financial organizations they play a crucial role in financial intermediation, primarily focusing on personal growth (SACCOs Review, 2012). The SACCO sub-sector is generally experiencing expansion. For instance, the

SACCO sub-total sector's assets in December 2012 were Ksh. 216 billion, up 11% from the Ksh. 194 billion recorded in 2009. While loans and advances made up 73% (or Ksh.158 billion) of the total assets during this time, member deposits and share capital, at Ksh.164 billion, provided the majority of the funding for asset growth. According to the regulator's most recent report, the COVID-19 pandemic caused the asset base to increase to 622 billion shillings in 2020 from 5.1 billion dollars in 2019. The regulator's posting also reveals that the SACCO's deposits increased to Sh540.5 billion in the year 2020 during the review period when they provided loans worth Sh523 billion, leaving members with a combined net wealth of Sh17.5 billion.

However, despite their significant contribution particularly in the empowerment of majority poor and significant government interventions through legislation to enhance the performance of the cooperatives, a significant majority of the SACCOs (more than 50%) have either performed dismally financially or have ceased their operations (Matompa, 2016). This high failure rate of SACCOs continues to frustrate Millennium Development Goals (MDGs) and Vision 2030 objectives of increasing financial inclusion (Pollet, 2013). Based on these contextual facts, this study investigated how the financial innovations employed by the SACCOs have influence the financial performance of the SACCOs in Kenya.

1.2 Statement of the Problem

Researches have linked financial innovation to positive financial performance of the firms (Kitutu, 2019; Makur, 2014; Njenga, Kiragu & Opiyo, 2015; Ngure, 2017; Ouma, 2019; Nandwa, 2016; Sang, 2019). The SACCOs therefore like many others in the financial sector in Kenya are fast adopting financial innovations such as Front Office services and

activities (FOSA), as well as embracing technology such as the use of mobile and internet banking among others, in order to ensure their survival in an increasingly competitive environment. According to KUSCCO (2021), even though the SACCO sector boasts of a remarkable market share in terms of investment, assets and loan portfolio, the total assets of the SACCOs increasing from Kenya Shillings 216 billion in 2010 to 622 billion in 2020, SACCOs undergo severe liquidity difficulties and a majority are incapable of satisfying their clients' needs in terms of loans and withdrawals of savings. There is also the challenge of paying dividends to the shareholders (Nekesa & Olweny, 2018). According to Muriithi (2016) SACCOs are also struggling with the raising numbers of non-performing loans indicated growth in credit risk, particularly due the aftermath of COVID 19 and the economic downturn or slowdown. This leads to the question as to what effect has the financial innovation had on the SACCO's financial performance?

In Kenya, there exists studies done on the financial innovation and performance. For instance, Nekesa and Olweny (2018) sought to determine how the financial performance of SACCOs in Kajiado were influenced by the financial innovation. Similarly, Tsuma, Musiega, Odhiambo and Musiega (2015) did a similar study to Nekesa and Olweny, but on the Kakamega Teachers' Co-operative Society Ltd. Another study still in the effect of financial innovation of financial performance of SACCOs was by Njeri (2013), study was however, focused in Nairobi County while Ngure (2017) looked at a similar study but in Kirinyaga County. Study by Omwega (2010) was however done on Commercial banks in Kenya. These studies though beneficial to the researcher, they were either narrowed to particular counties (Nekesa & Olweny, 2018; Njeri, 2013; Ngure, 2017) or to a particular SACCO (Tsuma, Musiega, Odhiambo and Musiega, 2015) or on commercial banks in

Kenya (Omwega, 2010), none of the study examined the entire cooperative societies in Kenya, hence a knowledge gap. As such this study sought to fill the gap by establishing the effect of financial innovation on the financial performance of SACCOs in Kenya.

1.3 General Objective

The general objective of the study was to investigate the effect of financial innovation on the financial performance of SACCOs in Kenya.

1.3.1 Specific Objectives

The following were the specific objectives of the study:

1. To examine the effect of product innovation on the financial performance of SACCOs in Kenya
2. To assess the effect of service innovation on the financial performance of SACCOs in Kenya.
3. To determine the effect of process innovation on the financial performance of SACCOs in Kenya.

1.4 Hypothesis

H₀₁: Product innovation has no significant effect on the financial performance of SACCOs in Kenya

H₀₂: Service innovation has no significant effect on the financial performance of SACCOs in Kenya

H₀₃: Process innovation has no significant effect on the financial performance of SACCOs in Kenya

1.5 Scope of study

This study covered all the 175 SACCOs licensed by SASRA. The study was limited to product innovation, process innovation and service innovation. The financial performance

of the SACCOs was measured by the return on investment and return on assets. This study was done in the month of November 2021.

1.6 Significance of the Study

It is anticipated that the study will be beneficial to the following categories of people

1.6.1 Management of SACCOs

The management of SACCOs in Kenya will benefit from the study in that they will gain understanding of how the financial innovation can enhance the financial performance of their societies. They may therefore use the information to develop their products based on a need from the market thereby making a connection with potential and existing customers and increasing the uptake of financial innovation. The study intends to benefit the financial industry by illustrating some of the primary effect of financial innovation on financial performance of SACCOs in Kenya.

1.6.2 Government and Policy Makers

The study will highlight on how financial innovation have been used to enhance the financial performance of SACCOs. The policy makers in government will therefore gain insight and formulate informed policies that will enhance the effectiveness of financial innovation in Kenya.

1.6.3 Researchers and Academicians

This research forms a platform for scholars who may wish to evaluate the effects of financial innovation on the financial performance of SACCOs; as well the research seeks to give financial stakeholders insight on formulation of policies in an effort to improving the growth of the cooperative societies. This study also provides information that can be used as literature review to other researchers.

1.7 Limitations of the Study

The study was taking place during the normal working hours where the respondents were busy with their duties and as such may not have given the study the needed attention. Further, some of the respondents did not feel comfortable particularly discussing about the delinquency and particularly the strategies to address the problem as they feared that this may be used by their competitors against their company. And lastly, the financial constraint as the researcher had to engage research assistants to collect data. All these limitations were mitigated against by assuring the respondents of the confidentiality of the information given and involving volunteer and collect data.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature on financial innovation and financial performance cooperative societies. The chapter begins with a discussion of the theoretical framework in which the researcher presents the theories upon which the study is anchored. This is followed by the empirical review where various studies are similar to the current study are reviewed with the view of identifying a gap. Finally, the researcher presents the summary of the literature review and identification of the possible gaps and subsequently the conceptual framework.

2.2 Theoretical Framework

The study was anchored on three theories namely the Resource Based Theory, Transaction-cost Innovative Theory and Diffusion of Innovation theory.

2.2.1 Resource-Based Theory

This resource based view (RBV) has been researched by numerous scholar from diverse areas (Peteraf, 1994). The RBV postulates that firms are able to gain competitive advantage only if their capabilities and resources are appropriately matched to the environmental opportunities (Day, 1994). According to this theory, both the firms capabilities and its resources are heterogeneous across organizations, and thus the organizations which hubour superior resources (that is these resources are both non-substitutable and non-imitable) will gain sustainable competitive advantages. Organizations will therefore use their capabilities to generate more profits by developing these rent-generating resources and matching to external conditions (Harmancioglu, 2009).

In the RBV both the influence of internal and external factors are incorporated in conducting the firms' business and competitive actions. According to this theory, innovation is seen as a reaction to the changes in the market and technology, both attitude taken and the adjustments firms are making (Garcia & Calantone, 2002). Firm need to learn more and change are this is the only way to get the right resource mix to be innovative and to develop new products both to the market and the firm, and there is also the uncertainty involved. It is only through market information processing and external orientation that the uncertainty can be reduced. This theory is applicable to this study as it explains how the firms use innovation as a resource to enhance competitive advantage and as a result gain profitability.

2.2.2 Transaction-Cost innovative theory

Forwarded by Hicks and Niehans (1983), the transaction innovation theory argues that financial innovation is aimed at cost minimization in the organization. The argument goes further that the cost minimization has ripple effect leading to enhanced efficiency in service delivery. They further noted that financial innovation is aimed at maximization of profits and as such increase shareholder's earnings. Financial innovation in SACCOs such as use of internet banking, Agency banking, mobile banking and use of advance accounting program has (Njenga, et al., 2015).

However, the critics of this theory are of the opinion that the goal behind innovation is not only to increase the firm's efficiency or profitability citing examples of adoption of ICT which they noted that besides contributing to the reduction of costs resulting from efficiency in the use of innovation, it transformed the operations in the organization. It is

noted that financial innovation greatly minimized the cost of operations in the firms (Hicks & Niehans, 1983).

Hicks and Niehans (1983) in their view were of the opinion that financial innovation was the main cause of the decline in the transaction cost, while in actual fact, the advancement in the technology is what gave birth to financial innovation which then caused the reduction in the transaction cost. Financial innovation and financial performance enhancement is a resultant of transaction cost reduction. The theory best suits this study as it explains how the firm's performance is influenced by innovation.

2.2.3 Diffusion of Innovation Theory

Everest Rogers (1962) is the architect of the Diffusion of innovation theory. The concept of diffusion of innovation is all about how new ideas and or technologies are spread. The theory states that it is the process through which innovations of the organizations are communicated to the public through social system. The innovation dissemination strategy is affected by four elements according to the theory. They include innovation itself, time, channels of communication and social system (Rogers, 1983). For sustainability therefore there must be a wider adoption of innovation.

According to Rogers, the characteristics of innovation is such important as it determines the how the diffusion takes place and the rate of adoption of such diffusion. Rogers notes that the perceived characteristics of innovation by the potential adopters of innovation is what is important (Kunreuther & Pauly, 2012). The organizational growth and development is dependent on the rate of technical innovation usage. Rogers (1995) notes that innovation exists in form of hardware and software. The hardware refers to the tools, representing technology as physical object. On the other hand, the software is the

information part of the hardware. There are five critical features of innovation influencing diffusion namely: complexity, compatibility, relative advantage, observability and trialability. The theory of diffusion of innovation best fits the study as it is helping to understand how the embracing of technical and process innovation by the SACCOs is contributing to the firm's financial performance.

2.3 Empirical Review

2.3.1 Product Innovation and Financial Performance

Product innovation is the development of new or modified financial services including debit and credit cards, hire purchase, new deposit accounts and insurance among others (Haliassos,2013). Organizations can respond to the changing customer demands, competition, and even technological advancement by introducing a new product in the market as for its survival (Brown & Eisenhardt, 2009). Firms should not just be limited to new products but there is need for continuous improvement of the existing products. Product innovation is important for enterprises as a response to changing demands in the marketplace and enhancement of the efficiency in the organization (Maulana, 2016).

Herstad and Brekke (2012) did a study on the effect of the mode of innovation and regional knowledge diffusion on growth of enterprises. Multi-regression analysis was used on time series data. The study established that increased use of innovation activities played key role in development of small business enterprises in the knowledge-oriented economies and transformation. Further according to the findings there was a positive effect of research and development (R&D) on of small enterprises. The small enterprises which are keen on growing develop new products as well as business models which have resulted to their prosperity. According to the study findings, new firms are likely adopt radical-

market products which give them an edge over the existing ones. This study however was limited to new establishment only focusing on the effect of R&D on the growth of SMEs. Herstad and Sandven (2015) studied the effect employee competence on the innovativeness of the firm. According to the findings, innovation had direct effect on the growth of the firm. The study went further to explain that the two ways in which innovation affected growth were through direct response from the market and secondly is the indirect effects occurring due to knowledge and learning accumulation.

Research by Nzove (2013) was on the effect of financial innovation mainly service and product innovation on SME growth in Nairobi. Descriptive survey design was used in which 11 banks and 478 SMEs in Nairobi were studied. Questionnaires were used to collect data which were analysed using multiple linear regression to test the relationship between the variables. The study established that service innovation influenced the SME growth the highest.

Triguero et al. (2014) studied the effect of innovation on the profitability of Spanish firms. The study used ordinary least squares (OLS) method to analyze the data where it found that patent rights and skilled workforce had direct effect on the firm's profitability unlike the firms with low skilled workforce and patent rights. Heung and Gu (2012) sought to determine the effect innovation had on customer perception with regard to the design and surrounding and how this affected the profitability of hotels and restaurants. The research design was descriptive and cross sectional data collected from 500 enterprises. According to the study, innovation had direct effect on the development of restaurant sector. Innovation was also found to have a positive effect on the customer perception. These findings were similar to the observations by Chen (2011) in which he

noted that the quality of the restaurant quality of service, atmosphere and the price level positively influenced customer perception.

Letangule and Letting (2012) using both regression and descriptive methods of analysis, examined what effect innovation had on the performance telecommunication firms. According to the findings, firm's adoption various innovative strategies which greatly affected the performance of firms. However, the limitation of the study is that no evidence of control of endogeneity which is a common problem of the OLS and hence cannot be relied upon.

Gakure and Ngumi (2013) investigated on how profitability of commercial banks was affected by bank innovations. The study employed descriptive research design where 44 banks were targeted from where 20 were sampled to participate in the study. The link between the variables was examined using multiple regression analysis. Primary data were gathered through questionnaires, and secondary data came from bank financial documents. The study found that the profitability of Kenya's commercial banks was positively impacted by bank innovation.

Mwihaki (2017) study was on the effect of innovation management on performance of small enterprises in the Hospitality industry in Nairobi in which 100 participated in the study. The study employed regression analyses. Market and process innovation management were found to play critical role on the small enterprise performances. Further, that the management of supplier innovations positively affected the performance of the hotels.

Adelowotan (2016) looked at the determinants of growth of branch network of commercial banks in Nigeria and its effect on their performance between the periods 1981-2013. The data was analysed using regression where it was found that there the relationship between bank branch network growth was direct.

Musyoka (2011) sought to determine the factors influencing branch network spread and its effect on commercial banks in Kenya performance. The determinant variables were asset size, the total capital ratio and number of branches. The study adopted a descriptive research design. The study established that the branch network of the firms had a direct influence on their financial performance.

Assessing the influence of financial innovation on the deposit taking SACCOs performance, Njeri (2013) used descriptive research design where the variables under investigation included the customers doing mobile banking, branch network, installed ATMs and the expenditure on ICT. According to the results, financial innovation of customers doing mobile banking, branch network, installed ATMs and expenditure on ICT impacted positively on the SACCOs' financial performance.

Warucu (2001) found in his study that product differentiation and focus differentiation were among the significant strategies that majority of commercial banks were adopting to remain competitive. In Kenya for instance, among the products that have been used by the SACCOs are agency banking, internet banking, plastic, debit and credit cards, electronic banking among others. The study found that among the innovative services that have been used by the SACCOs include lending, deposit and financial advisory.

Makur (2014) studying how the financial innovation influenced performance of banks in South Sudan between 2009-2013 in which a total of 16 banks participated in the study. The variables under study included ATM, number of transactions using phones and access to accounts. The study found that South Sudan banks performance was strongly influenced by innovation.

Karaba (2012) studied the determinants of competitive advantage of the standard chartered Bank Kenya. The variable under study included technology, leadership, training and service provision. The research design was descriptive research. According to the study, established that the bank adopted strategies that yielded competitive advantage. However, the limitation of this study is that it failed to show how the complete advantage with the firm's financial performance.

Tamale (2017) looked on the impact business diversification had on Kenyan bank's performance. The researcher combined quantitative and descriptive research design in her study. Location, investment, channel and product diversification, as well as stakeholder perceptions of the banking industry, were the variables under examination. The financial performance of medium-sized banks was found to be considerably impacted by site diversification.

Ngari et al (2014), investigated the influence of mobile banking, agency banking, credit cards and internet banking on the performance of banks in Kenya. 40 banks licensed by the CBK were targeted from 2008-2012. Secondary data was used retrieved from financial statements. The results revealed that innovation enhanced the financial performance of the participating banks.

Jingqin, Ying, Kaodui and Osei-Assibey (2019) did a study on the relationship between profitability of the banks and financial innovation where innovation was measured in terms of electronic banking. The study was done in the period between 2015 and 2018. Dynamic panel data methods were used where the analysis was done using regression model. The study found that financial innovation had a positive effect on both ROE and ROA. In particular, ATM and cards positively influenced the financial performance of the banks.

Nkem and Akujinma (2017) sought to determine the effect of financial innovation on the efficiency of the banks in Nigeria between the years 2006 and 2014. The source of data was the statistical bulletin of the Central Bank of Nigeria. The study performed a unit root test to test for stationarity of the data. The study used multiple regression analysis to determine the relationship between the variables. The study established that there existed a negative relationship between the transaction value of the point of sale (POS) and ATM and efficiency ratio. The study further established that the mobile banking and web/internet had a positive relationship. However, only the web/internet had a significant effect (p -value, 0.05). The study however found evidence that the efficiency ratio of the bank statistically impacted value of transaction on ATM.

A positive association between the product innovation and process innovation implementation and business performance was found by Gopalakrishnan (2016). Further, Reichstein and Salter (2016) found process innovation and the sale portion to have a positive effect on the performance of the business. Organizational innovation was found to provide a helpful factor other forms of innovations by elaborating the space thus attracting fresh skills and technological ideas which are advanced (Lam, 2014)

2.3.2 Process innovation on financial performance

Process innovation involves implementation of enhanced production or delivery method. They are change in techniques, software, equipment, and delivery product. The intension of process innovations is unit cost of production or delivery reduction, enhancement of the quality and the production and delivery of new products (OECD, 2015). It encompasses adoption of new business process leading to increased efficiency and market expansion among others. Among the examples of process innovation are automation, data management systems among others (Schrieder and Heidhues 2010)

Process innovation can be viewed as the use of improved products of methods of delivery. These include significant change in software, equipment and techniques. Through process innovation, firms can minimize the production of delivery costs unit price. Through it, firms may increase the quality or be able to products of higher quality besides offering best services (Oslo Manual, 2012). According to López-Mielgo et.al, (2009) process innovation has a positive effect on the organizations TQM efforts. However, Peter (2008) notes that not all processes of innovation result in cost saving, but may allow the enterprises to market at competitive price. Therefore, it can be said that process innovation results in firms performance (Gunday et al., 2011). According to Gunday et al (2011), the process innovation entails elimination of non-value activities in the delivery and production processes, the speed in logistic processes and output quality changes in manufacturing process.

Gunday et al., (2015) sought to establish how financial innovation affected firms' performance. The variables included product, marketing and process innovation. A total of 184 manufacturing companies participated in the study. The study found that the financial

innovation and firm's performance were positively correlated. The study further found that process innovation has the highest influence of the firm's performance.

A study by Hafferman et al., (2008) in which 1100 British financial institutions participated found that the performance of the institutions was influenced by the firm size, expenditure on R&D and the employee education besides availability of finance. The study however, did not show how the financial innovation under study affected the financial performance of the financial institutions.

Okonkwo, Obinozie, and Echekeba (2015) examined the relationship between ICT and financial innovation and the performance of commercial banks. Eleven commercial banks in all were chosen to take part in the investigation. The study used annual reports from 2001 to 2013 to gather secondary data. The impact of e-banking and ATM services on the operation of commercial banks was examined using the ordinary least squares method. According to the report, the effectiveness of commercial banks is significantly impacted by ATM and e-banking services.

Ndwiga and Maina (2018) evaluated the impact of process and product innovation on the financial performance of Kenyan commercial banks that trade shares. Questionnaires that were emailed to the respondents were used to collect the data. To analyze the data, multiple linear regression was performed. The study discovered that process innovation had a favorable and considerable impact on the financial performance of the companies under investigation. Product innovation and financial performance, however, did not significantly correlate.

Nekesa and Olweny (2018) were driven to learn how the financial innovation affected the performance of the SACCOs in Kajiado County. Product and process innovations were

among the elements of financial innovation. 36 SACCO employees participated in the study, which used a descriptive design, and they submitted information using questionnaires. Secondary data was also gathered by the researcher from the societies' annual reports and libraries. According to the report, SACCOs' financial performance was considerably impacted by financial innovation.

In their 2015 study, Songoro et al. focused on the Kakamega Teachers Co-operative Society Limited to examine the impact of financial innovation on the financial performance of SACCOs in Kenya. The study used primary data and a descriptive research design to ascertain the relationships between the variables. 53 employees of Kakamega Teachers Savings and Credit Co-operative Society Limited made up the study's population. The study included a sample of 44 employees, and the findings were generalized. A closed-ended survey was used to get the data. Both descriptive and inferential statistics were used to analyze the data. The study's conclusions showed a positive correlation between process innovations and financial performance. However, this study was solely restricted to one society, whereas the current study reviews the entire sector.

Sum and Memba (2016) investigated the effects of financial innovation, as assessed by service, product, and process innovations, on the financial performance of cooperative societies in Kiambu County. Eleven cooperative societies took part in the study, which tested the link between the variables using multiple regression. The findings show that all of the financial innovation constructs have a significant impact on the financial health of cooperative organizations. Thus, the study came to the conclusion that financial innovation had an impact on the financial success of cooperative organizations.

Gichungu and Oloko (2015) aimed to ascertain how innovations affected the performance of Kenyan commercial banks. The financial performance of Kenyan commercial banks was used to measure the impact of innovation in the form of internet banking, agency banking, ATM banking, and mobile banking. 43 commercial banks' published annual reports from 2009 to 2013 were used to gather secondary data. To ascertain the link between the variables, data were analyzed using correlation and regression techniques. According to the study, financial innovation improved the financial performance of commercial banks.

Mabrouk and Mamoghli (2010) examined how product innovation and process innovation impacted the performance of commercial banks while examining the impact of financial innovation dynamics on banks' performance. According to the study, product innovation increased banks' profitability. Additionally, it was discovered that the process innovation had a favorable impact on efficiency and profitability.

Malhotra and Singh (2010) conducted a study in India on how financial innovation, particularly internet banking, affects bank performance. The study compared the performance of banks that have been using internet banking for a while with those that have only recently started using it to see if there were any changes. The study in which data on financial performance for the years 1998 to 2007 was gathered involved 82 commercial banks in total. Multiple regression was used in univariate analysis of the data. According to the survey, there was no statistically significant difference between the performance of inexperienced banks and experienced banks in terms of internet banking.

In their 2017 study, Gunday, Ulusoy, Kilic, and Alpkın attempted to understand how innovation—as defined by market, product, and process innovation—affected an organization's success. A total of 184 Turkish manufacturing companies participated.

Innovation improved the performance of manufacturing companies.

In a 2016 study, Kamau and Oluoch looked at the causal relationship between financial innovation and the performance of commercial banks. The analysis was based on factors such as agency banking, credit cards, ATMs, and mobile and internet banking, as well as the financial success of the banks. Correlational research strategy was employed in the study.

Data was gathered mostly from published annual financial reports for the years 2012 to 2015, which are considered secondary sources. The link between the independent and dependent variables was examined using regression and correlation analysis. The results show that credit cards, agency banking, internet and mobile banking, and ATMs all had a big impact on Kenya's commercial banks' performance.

Njogu's (2014) research examined the impact of innovation on the financial results of manufacturing small businesses in Nairobi County from 2011 to 2013. Investigational variables included net income, demographics, and total assets. ANOVA and regression were used to evaluate the data. According to the report, innovations have a favorable impact on the performance of SMEs. Additionally, operational, market, and product improvements had a favorable impact on financial success.

Adhiambo (2014) examined the impact of product innovation on the monetary results of Kenyan commercial banks. Prestige banking, credit cards, the introduction of insurances, and retail banking were the variables under examination. Multiple regressions and analysis of variance were used to analyze the data. According to the study, formal product

innovations have a negative impact on the banks' financial performance. The study also discovered that the impact on profit margin was not sufficiently obvious.

Kariuki (2011) studied the effect technological innovation had on the performance of Kenyan Banks for the period 2001-2010. Questionnaires were used in data collection and analyzed using computers SPSS. The study found that the bank continuously employed various technological innovations, thus enhancing its financial performance measured by sales, ROE and profits.

Gitau (2011) study was on the influence financial innovation had on commercial banks financial performance. A Quasi-experimental research design was adopted. Data collection was both qualitative and quantitative. Descriptive statistics and multiple linear regressions were used to analyze the data. Commercial banks were found to have adopted product, institutional and process innovation. Product innovation included adoption of unsecured loans, credit cards and business clubs. The study established that the Institutional innovations employed included CRB, Islamic banking and insurance services. Lastly, the process innovation included internet and mobile banking and RTGS.

Gunday, Ulusoy, Kilic & Alpkan (2011) sought to determine the influence innovation has on the performance of organizations. The variables under focus included marketing, process, and product innovation. The study was an empirical study in which 184 firms in the manufacturing in Turkey participated. According to the study, innovations had a positive significant effect on firm performance.

Tsuma et al. (2015), in their study on the SACCOs in Kenya financial performance was influenced by the financial innovations and using descriptive research design and questionnaires used to collect data, established that a majority of cooperative societies

embraced financial innovation. Additionally, the study established that a strong positive relation between process innovation the firm's profitability. Further, technological innovations minimized the operational costs. However, while there are other innovations which may impact the performance of the societies, the study was limited to process innovation.

Heung and Gu (2012) conducted a study on how innovation influenced the profitability of the restaurant and hotel sector. The study was a descriptive study design where 500 enterprises participated. The study found innovation in design and surrounding to be of great importance for the development of the sector. Further, the study found that innovation on the atmosphere of the hotel has a positive effect of the perception of the customers. Similarly, Chen (2011) restaurant atmosphere quality the service quality and level of price positively impacted customers' perception about the organization which have an influence on the its profitability.

2.3.3 Service Innovation and Financial Performance

According to Conway (2013), service innovation is the provision of services grounded on techniques known to increase profits to its designer. The innovations are known to have a characteristics of influencing buyer ability to discern business and service based on the satisfaction resulting from use. Battisti et al (2013) opine that service innovation likened to the social media is influenced by ICT infrastructure, research and staff training.

According to Den Hertog et al. (2010) service innovation is a complicated multi-dimensional construct encompassing various approaches and perspectives (Rubalcaba et al, 2012). Ostrom et al. (2010) views service innovation as beneficial to the customers, the society, the human resource and other stakeholders, through improved service products,

process and business model. Some authors argue that the difference between product and process is not easily noticeable (Gallouj, 2012). However, Shang et al. (2009) thinks otherwise and notes that the two services are separate dimensions.

Similarly, service process innovation has been described by Zomerdijk and Voss (2011) as a radical change in the delivery channel of the process change leading to unique new experience of the service or continuous improvement of the existing service delivery process which seem new to the customers. In their investigations, Damanpour and Gopalakrishnan (2011) found service product innovation to be more appealing to most of the financial institutions and as such was more adopted by the banking service.

According to Kazmi (2011), laid emphasis on the need to reward consumers whom he described as dynamic was only achievable through service innovation for enhanced organizational performance. Organization are therefore embracing service innovation in order to please their customers' needs and to keep them loyal and thus achieve sustained performance.

In previous research to investigate the SME Development Strategy and Product Innovation (Beynon, 2018), it was discovered that various financial institutions may invest in modern technology to increase the quality of services provided. This may be achieved through methods such as acquiring new machinery to automate business processes, training of staff to improve on their skill, marketing of their products online to reach a wider client base and the creation of organizational levels to manage and address different issues within the institution. The study concluded that variables such as the size of the organization, number of staff and branches, influence the level of service innovation within an institution. The researcher concluded that these independent variables have an overall influence on the

performance of SMEs. In Kenya, service innovation in SACCOs can be noted in areas such as process automation, data analysis, online marketing and banking and the strategic location of the institution to enable their target customers to access their services. Various financial institutions have opted to shift from an analogue era to a digital era by adopting an electronic mode of transactions (Beynon, 2018). This may be noted through the adoption of SAPs such as Oracle, by large financial institutions, to connect various branches and help managers monitor branches easily.

Analizing how the performance of deposit taking SACCOs was affected by the financial innovation Ouma, Omagwa and Ngaba (2018) establishes that new products and services had direct effect on the financial institutions' performance. Yet in another study by Ngumi (2014) on the effect of financial innovations on performance of lending institutions, the variables under investigation were ATMs, Electronic funds transfer, internet banking and mobile banking. The study revealed that there was a significant positive relationship between financial innovations and performance of the firms.

2.4 Summary of Literature Review and Gaps

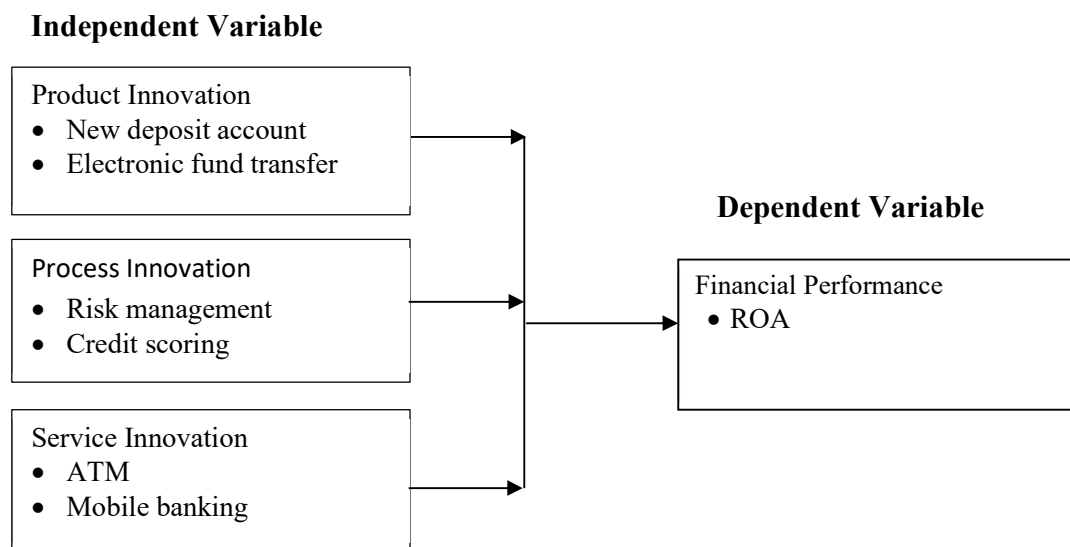
The reviewed literature that financial innovation has a significant effect on the financial performance of the organizations. For instance, Triguero et al., (2014) sought to determine how innovation related with profits of firms in Spain and found that profits were likely to be generated by patent rights and skilled workforce. Mihaki (2017) sought to establish the innovation management's role on SMEs performance in the hotel sector in Kenya, where market and process innovation management were found to have critical role on SMEs performance. Musyoka (2011) sought to determine the effect of branch network on financial performance of banks in Kenya and found that the number of branches indeed

affected the organizations' financial performance. Njeri (2013) study on how the financial innovation affected the performance of deposit taking SACCOs and found a strong relationship between financial innovation and financial performance. Most of these studies were however done to specific county in Kenya, and not on the entire SACCOs in Kenya

2.5 Conceptual Framework

The following is the conceptual framework of the study:

Figure 2.1: Conceptual Framework



2.6 Operationalization of Variables

Objective	Variable	Indicators	Measurement scale (5 point Likert scale)
To examine the effect of product innovation on the financial performance of SACCOs in Kenya	Independent product innovation	– - New deposit account - Electronic fund transfer	Ordinal
To assess the effect of service innovation on the financial performance of SACCOs in Kenya.	Independent service innovation	– - ATM - Mobile banking	Ordinal
To determine the effect of process innovation on the financial performance of SACCOs in Kenya.	Independent process innovation	– - Risk management - Credit scoring	Ordinal
	Dependent Financial Performance	– - ROA	Ordinal

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter the researcher proposes the procedure for conducting the research. This includes the research design, the target population, sample size and sampling technique, data collection instruments and procedure and lastly, data analysis.

3.2 Research Design

The researcher adopted a descriptive research design to determine the effect of financial innovation on the financial performance of SACCOs in Kenya. The choice for a descriptive design is because it is flexible and expansive enough to various field challenges that could arise during administration of questionnaires and data interpretation (Kombo & Tromp, 2006).

According to Bryman (2003) descriptive design is a scientific methods by observing and describing behavior of subjects without interfering with it and phenomenon are not influenced under investigation. Descriptive survey design usually seeks to describe the study subject characteristics without interfering with the study environment. As such, descriptive research designs involve measurement, classification, analysis, comparison and interpretation of data. Further, descriptive studies are the best methods in the collecting information and demonstrating the appropriate relationships. Finally, similar studies such as Wangui (2018), Sang (2019), Simiyu and Olweny (2018) and Maleto (2016) used descriptive research design.

3.3 Target population

Target population in the definition of Cooper and Schindler (2006) is an element with the desired information. The target population of the study was 175 deposit taking SACCOs that are licensed by SASRA as at 31st December 2021.

3.4 Sample Size and Sampling Technique

The study did a multi stage sampling method in which first simple random sampling was done to select 120 deposit taking SACCOs from the existing 175. The study the used purposive sampling method to select 120 managing directors of the selected SACCOs. This is because, the managers are the CEOs of the SACCOs and thus have the information on the financial innovation and the firms' financial performance, and if they do not, are more likely to delegate to the right person with the right information. The study sampled 120 SACCOs using the sample size method by Bertlett, Kotrilik and Higgins, (2001) and emphasized by Mugenda and Mugenda (2008):

$$n = \frac{z^2 p(1 - p)}{d^2}$$

Where:

n -: the desired sample size.

Z -: is the corresponding standard score with the probability of error at 0.05 and a confidence level of 95%, which is 1.96.

p -: is the occurrence level of the phenomenon under study and is equal to 0.5 where the occurrence level is not known.

d -; is the selected probability of error of the study corresponding with 95% confidence level in this case 0.05. Substituting for the values:

$$n = \frac{1.96^2 \times 0.5(1 - 0.5)}{0.05^2}$$

$$n = 384$$

However, since the target population to the study (175) is less than 10,000, the final sample size estimate could be adjusted as recommended by Mugenda and Mugenda (2008).

$$fn = \frac{n}{1 + n/N}$$

Where:

fn = is the sample size when population is less than 10,000

n = the sample size when the population is above 10,000

N = the population of the target sub-population

Substituted for the values, the final sample size is:

$$fn = \frac{384}{1 + 384/175}$$

$$fn = 120$$

3.5 Data Collection Instruments

The study used both primary and secondary data. The primary data was collected using semi structures questionnaires. The questionnaires comprised both open and closed ended questions. According to Kothari (2004), the cheap way to obtaining information from a large population is questionnaire. Data on financial performance was collected from secondary sources sourced from the financial reports and SASRA supervisory reports for the period 2017-2021.

3.6 Pilot Test

The researcher pre-tested the questionnaires prior to the actual data collection. The questionnaires were piloted to test relevance, accuracy and understandability of the questions. Pre-testing helped ascertain the reliability of the tools. The tools were piloted on 10 operations managers (5.7% of the sample size), drawn from 10 SACCOs. The pilot study was not included in the study. The respondents were purposefully selected since statistical conditions are not essential in the pilot study.

3.6.1 Validity Test

According to Creswell (2003) validity is the extent the results incarnate the phenomenon under study. Validity exists in two forms namely, face and content validity. Face validity is the probability that the question is misunderstood or misinterpreted. Content validity on the other hand is the degree to which a measure depicts all facets of social construct. The study used content validity. The researcher sought the opinion of the experts in the field of research and mostly the supervisor was used to validate the instruments. The researcher also improved the validity by piloting the instruments and changing any unclear question.

3.6.2 Reliability Test

Reliability refers to the extent the research instruments produces consistent results. The researcher measured the internal consistency to test the instrument reliability. This was done by use of Cronbach's Alpha whose recommended value is a coefficient of 0.6 to 0.7 for normality and 0.8 or higher for a good reliability (Greener, 2008). The results of the test are presented and discussed in the next chapter.

3.7 Data Collection Procedure

It is significant for the study to inform the respondents that the instruments applied would ensure confidentiality and that the information only for the purposes of the study. Additionally, an introductory letter was solicited from the University. Then, the questionnaires were administered both physically and electronically. For the SACCOs within Nairobi, the researcher used drop and pick later method due to the fact that the respondents could have been busy and thus, this method allowed them time to complete the questionnaire at their own free time. For the SACCOs in other parts of the country, google forms were used because it was impractical for the researcher to reach out physically given the limited resources. The researcher collect the completed questionnaires after one week.

3.8 Data Analysis

The collected data were cleaned and arranged into main contents from where unique codes were assigned to the questions in a code sheet. This was then entered into the computer for analysis with the aid of data analysis tool, Statistical Package for Social Sciences (SPSS). Data was analyzed using both descriptive and inferential statistics. The findings were presented in distribution tables, figures and charts. The study tested the hypothesis using multiple regression analysis (standard)

The following multivariate regression model will be used:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$$

Where:

Y = Financial Performance;

β_0 = Constant Term;

β_1 , β_2 , and β_3 = Beta coefficients;

X_1 = Product innovation;

X_2 = Process innovation;

X_3 = Service innovation;

ε = Error term

The study used 95% confidence level. A 95% confidence interval reflects a significance level of 0.05. A p-value below 0.05 means that there is a significant effect of independent variable on the dependent variable.

3.9 Diagnostic Tests

Prior to the running of the regression analysis, the researcher did a diagnostic test so as to ensure non-violation of the assumptions of the classical linear regression model. This is because estimating the equation when the assumptions of the linear regression are violated runs the risk of obtaining biased, inefficient and inconsistent parameter estimates (Brooks, 2008). Hence normality, multi-collinearity autocorrelation and heteroscedasticity tests were carried out to ensure clear specifications of the analytical mode.

3.9.1 Normality Test

To test for normality, the Kolmogorov-smirnov test shall be used to test the error terms. There are several methods available to check the assumption of normality of the population. Two procedures available are graphic and the Kolmogorov-Smirnov tests. Most statistics books suggest the use of the chi Square test for the goodness of fit. However, because the Kolmogorov-Smirnov test is more powerful and is commonly found in computer statistical packages, it was preferred in this study.

The Kolmogorov-Smirnov test (Stephens, 1974) for goodness of fit is a computational procedure which allows us to compute an observed frequency distribution with the expected normal distribution. This test is most reliable when the number of observation is greater than 50. The test yields a Z-statistics and two tailed probability levels for Z. The hypothesis that the data are normally distributed is rejected for the larger values of Z. The $PROB > Z$ ranges from 0 – 1 which is the likelihood of obtaining a Z-value greater than one printed. In other words, as long as $PROB > Z$ is equal to or greater than 0.90 we can readily accept the hypothesis that the observed distribution is not different from the normal distribution.

3.9.2 Test for Linearity

Linear regression assumes linear distribution of data and is not robust to violation of the same. Linearity test show that two variables x and y are related by a mathematical equation linear regression $y=bx$ where b is a constant number. This assumption was tested using scatter plots. In a normally distribution, the points in the P-P normal plot cluster around the horizontal line.

3.9.3 Test for Multicollinearity

Multi collinearity is a high degree of correlation among independent variables. It is common in regression models with large number of independent variables. Reason being some of the variables may measure the same concepts. A perfect multi collinearity violates the assumption that X matrix is full ranked, making OLS impossible.

The study tested for multicollinearity using the variance inflation factor (VIF). It is the reciprocal of the Tolerance value. When the tolerance is low, then the VIF is high. With the value of the VIF, the study is able to know how the instability of the coefficient

estimates has increased as a result of the multicollinearity (Freund & Littell, 2000). In a nut shell, VIF tells how the variance of coefficient is inflated as compared to what it would be if uncorrelated with other variables in the model (Allison, 1999). If $VIF < 5$, then this indicates the absence of multi collinearity.

3.9.4 Test for Heteroscedasticity

Heteroscedasticity is of concern in regression because it invalidates statistical tests of significance, assuming that the modelling errors are uncorrelated and uniform. Heteroscedasticity help examine whether there are differences in the residual variance of the observation period to another period of observation. This study used the Test Glejser. If the value significance > 0.05 , then there is no problem of heteroscedasticity.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter contains data analysis, presentation of the findings and interpretations as per the research objectives. The researcher further interpreted the findings and made discussions based on the reviewed literature.

The researcher gave out 120 questionnaires to the respondents and out of these 105 responses were received back having been duly completed. This gave a responses rate of 87.5%. According to Babbie (2007), 50% is adequate for analysis and reporting and response rate of 70% and over is excellent and hence the response rate in this study was excellent to make inferences and conclusions.

4.2 Reliability Test

The pre-testing involved 10 staff drawn from 17 SACCOs (10% of the sample size). The test was conducted among the SACCOs found within Nairobi. The respondents were purposively selected as the operations managers were targeted. This was done to test the reliability of the instruments. According to Bryman and Cramer (1997) reliability of 0.70 is normally accepted in a basic research. The results in Table 4.1 show that the Alpha coefficients ranged between 0.841 and 0.885. Thus based on the results, the items tested were deemed reliable for the study

Table 4.1: Reliability Coefficient of Study Variables

Financial Innovation	Number of Items	Reliability Cronbach's Alpha	Comments
Product innovation	8	0.885	Accepted
Service innovation	8	0.858	Accepted
Process innovation	6	0.863	Accepted
Financial performance	3	0.841	Accepted

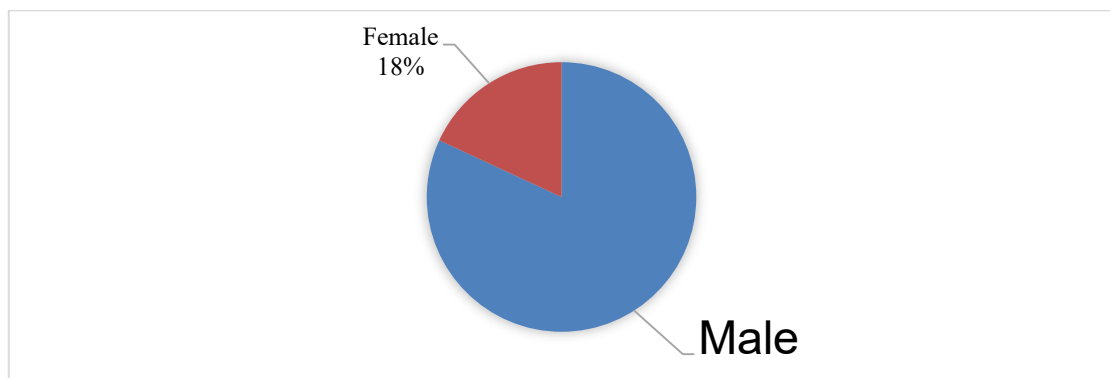
4.3 Background Information

The researcher sought to determine the background information of the respondents. The respondents were therefore asked to state their gender, age, level of education, professional training, category of the SACCO, the department they worked in and the duration they have served in the organizations. The results are presented in the subsequent sections.

4.3.1 Distribution of respondents by Gender

The respondents were asked to state their gender. The results are presented in Figure 4.1.

Figure 4.1: Distribution of Respondents by Gender

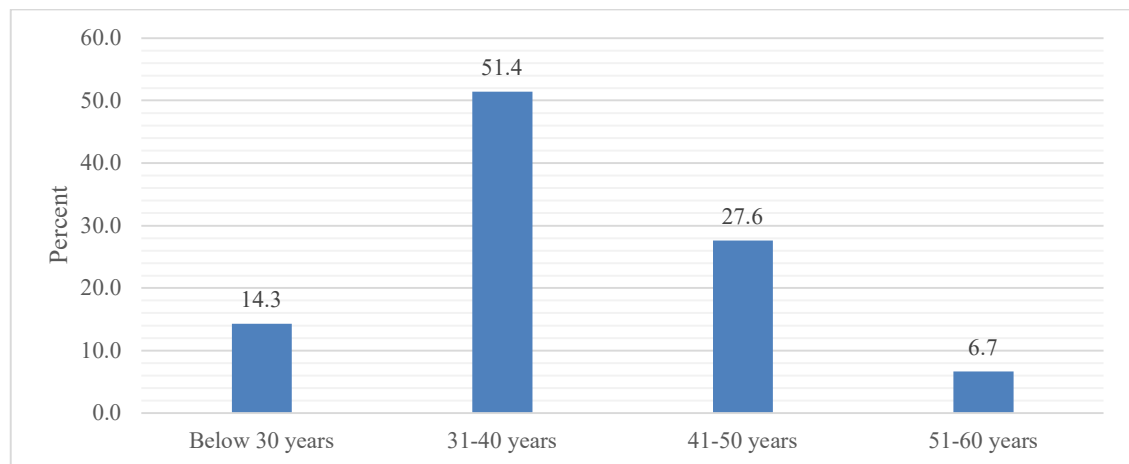


The study findings show that the men dominated the management of the SACCOs as women respondents were only 18% were women.

4.2.2 Distribution by Age

The study sought to establish how old the respondents were. The findings are in Figure 4.2.

Figure 4.2: Distribution of Respondents by Age

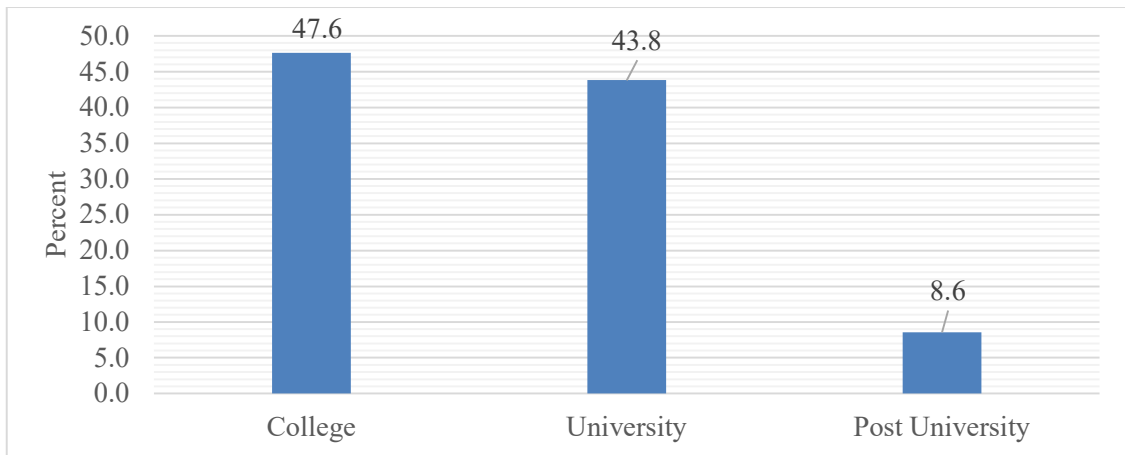


According to the results, most of the respondents (51.4%) were in the age of between 31 years and 40 years. The results further show that 27.6% of the respondents were in the age bracket of between 41 years and 50 years. The results thus mean that the respondents were majorly in the middle age.

4.2.3 Level of Education

The respondents were asked to state their level of education. The results are as presented in Figure 4.3. According to the results, most of the respondents (47.6%) were college graduates. The results further show that 43.8% of the respondents were university graduates. The findings mean that most of the respondents were fairly educated, thus the information obtained from the respondents is more informed.

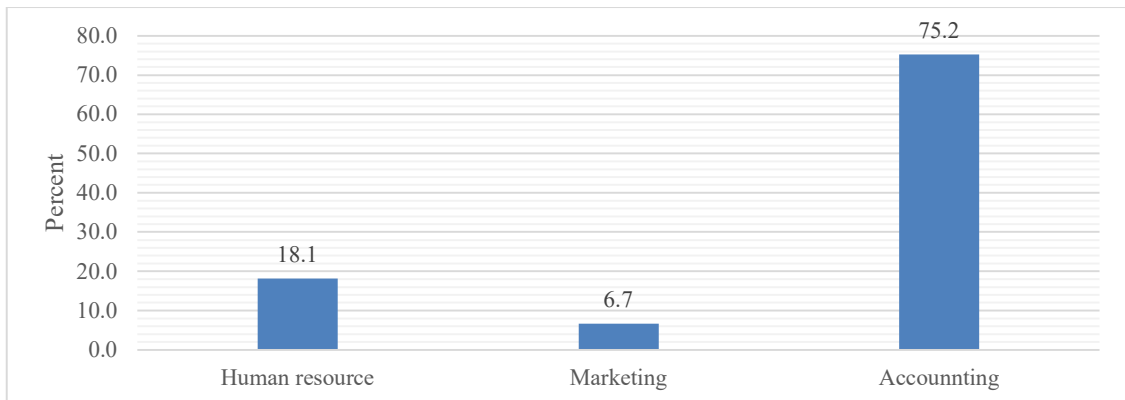
Figure 4.3: Level of Education



4.2.4 Professional Training

The study sought to determine the professional training of the respondents. The findings are presented in Figure 4.4.

Figure 4.4: Professional Training



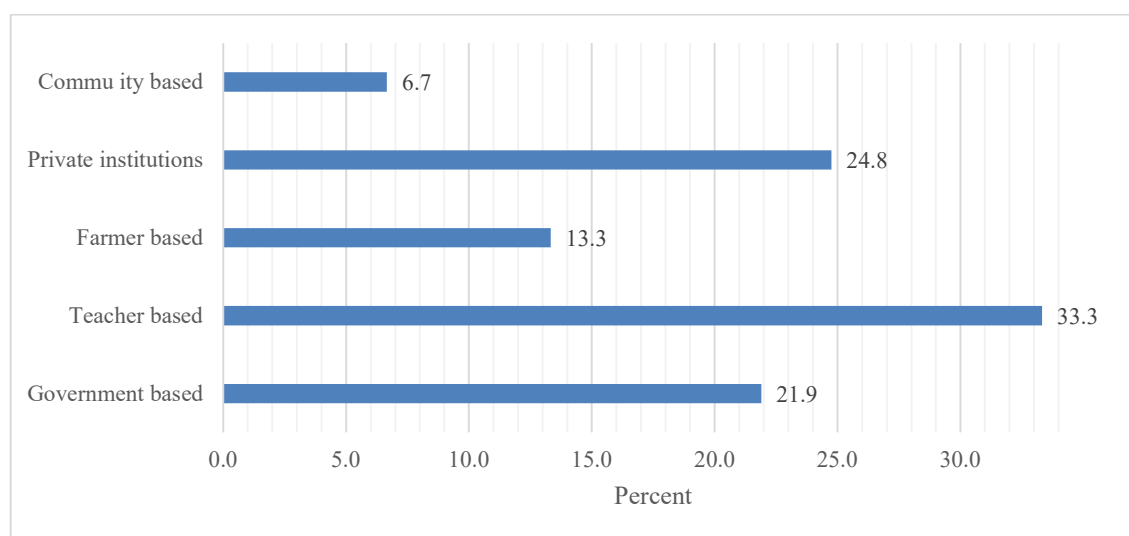
The findings show that more than two thirds (75.2%) of the respondents were accountants by profession while 18.1% of the respondents were human resource professionals. The results mean that the SACCO management is mainly dominated by accountants, which

may be attributed to the nature of the organization, financial institution and as such most of its operations are in terms of financial management.

4.2.5 Category of SACCO

The study sought to determine the category of the SACCO. The findings are presented in Figure 4.5,

Figure 4.5: Category of the SACCO

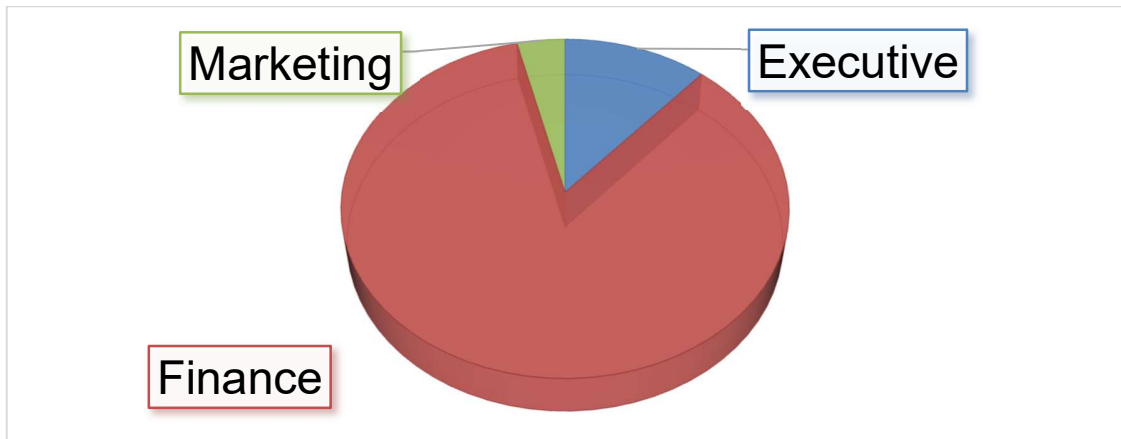


The findings show that teacher based SACCO constituted one third of the respondent organizations. The results also show that 24.8% of the respondents SACCOs were private institutions while 21.9% were government based. The least represented with only 6.1%. The teachers constitute the lion's share. This may be attributed to the fact that most likely the teacher SACCO is the largest single SACCO unit in the country.

4.2.6 Respondents' Department

The study sought to determine the department which the respondents belonged. The findings are presented in Figure 4.6.

Figure 4.6: Respondents' Department

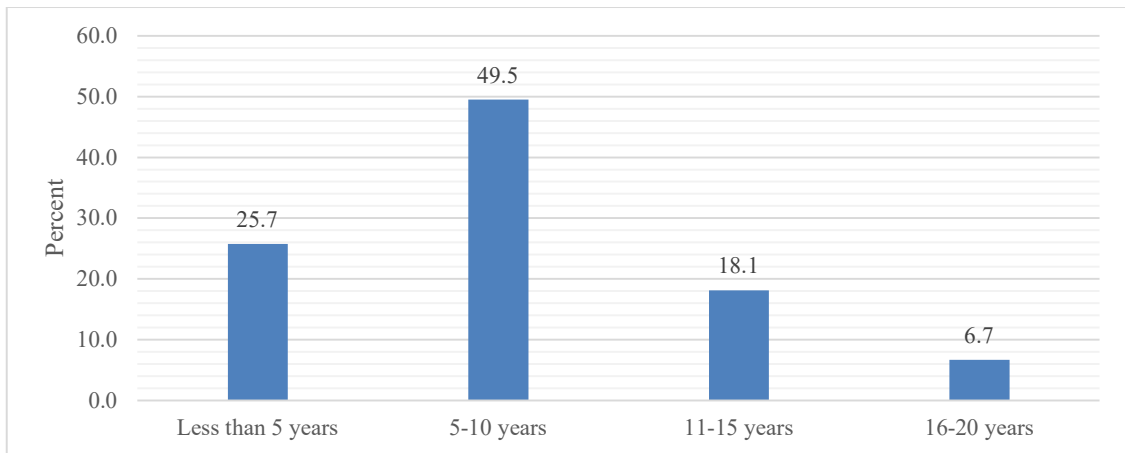


The results revealed that majority of the respondents (84.8%) worked in the department of finance while 11.4% were executive members. Again the results show that majority of the management of the SACCOs are drawn from the finance department which may be attributed to the nature of the organizations.

4.2.7 Duration Worked in the SACCO

The respondents were asked to state how long they have been in the SACCOs. The results are presented in Figure 4.7.

Figure 4.7: Duration Worked in the SACCO



According to the findings most of the respondents (49.5%) have been working their respective SACCOs for between 5 years and 10 years. The findings also show that 18.1% have worked in the organizations for between 11 years and 15 years. The findings however, show that 25.7% of the respondents have worked for less than 5 years. The results of the study mean that most of the respondents have been in their respective organizations long enough and as such the information obtained for the study are more likely accurate.

4.3 Effect of Product Innovation on Financial Performance

In this section the researcher presents the findings on the effect of product innovation on financial performance. The respondents were asked to state the extent to which they agreed with the statements regarding the society's adoption of product innovation and its effect on the financial performance. This was on the rate of strongly disagree, disagree, neither agree nor disagree, agree and strongly agree. The score of disagreement were assumed to be represented by the variable with mean score of between 0.0 to 2.0 on the incessant Likert scale; ($0.0 \leq D \leq 2.0$), in addition the researcher assumed that the 'undecided took the variable with a mean point of 2.1 to 3.0 on the incessant Likert scale: ($2.1 \leq N \leq 3.0$), whereas the score agree represented the variables whose mean score were between 3.1 and

5.0 on a continuous Likert scale ($3.1 \leq S.A \leq 5.0$). A standard deviation of less than 1.0 indicates no variance in the responses on particular item on questionnaire among respondents. The findings are presented in Table 4.2.

Table 4.2: Effect of Product Innovation on Financial Performance

	Mean	Std. Dev
The SACCO has embraced electronic funds transfer which has eased the members access to funds	3.34	.959
The SACCO has introduced new deposit accounts has increased the amount of deposits	3.38	.965
The creation of online presence of the SACCO has attracted members to the society	3.32	.995
The Society has improved on the quality of the current products which has enhanced customer satisfaction	3.59	1.016
Internet banking has increased the number of users due to reduction in service time hence resulting to increased SACCO's liquidity management.	3.37	.912
EFTs influence reduction of operational costs and hence better return on assets for the SACCOs	3.50	.962
Investment in ATMs installation at different prime locations is backed by increased customer base and leads to SACCO's capital adequacy management.	3.37	.972
By increasing number of loan products customer number has increased hence revenue	3.34	.875

The study findings show that the respondents were in agreement that the SACCOs have embraced electronic funds transfer which according to them had eased the members access to funds (mean = 3.34; S.D. = 0.959). The study established that the respondents agreed to the statement that the SACCO has introduced the deposit accounts has increased amount

of deposits (mean = 3.38; SD = 0.965). The study further established that respondents generally agreed to statement that the creation of the online presence of the SACCO has attracted members to the society (mean = 3.32; SD = 0.995). Respondents agreed that the Society has improved on the quality of the current products which has enhanced customer satisfaction (mean = 3.59; S.D. 1.016). The results revealed that respondents agreed that Due to internet banking, there has been increase in the number of users which is attributed to the reduction in service time. This has led to the increase in the liquidity management of the SACCO (mean = 3.37; S.D. = 0.912). According to a majority of the respondents, there was reduction in the operational costs as a result of the EFT, which has enhanced the SACCOs ROA (mean = 3.50; S.D = 0.962). Most respondents supported the idea that the installation of ATMs at various prime locations due to the high customer base has enhanced the capital adequacy management of the SACCOs (mean = 3.37; S.D. 0.972).

The results revealed that respondents agreed with statement that by increasing number of loan products customer number has increased hence revenue (mean = 3.34; S.D = 0.875). The findings mean that in generally the SACCOs employed product innovation which are the use of the electronic fund transfer, introduction of new deposit accounts, the creation of online presence, improved quality of current products and use on internet banking among others. These have had effect of the SACCOs performance as in has resulted to ease of member access to funds, enhanced customer satisfaction, increased account deposits, increased liquidity management among others.

The findings of the study mean that in general the SACCOs generally used product innovation such as electronic funds transfer, introduction of deposit accounts, internet banking, ATM installation, different loan products among others which have had influence

on the financial performance of SACCOs. These findings agree with Herstad and Brekke (2012) who noted that small enterprises which are keen on growing develop new products as well as business models which have resulted in their propensity. They adopt radical-market products which give them an edge over existing ones. The results also agree with Njeri (2013) who noted that product innovation of mobile banking, ATMs and expenditure on ICT impacted positively on financial performance of SACCOs.

The findings of the study are consistent with Ngari et al (2014) who investigating the influence of mobile banking, agency banking, credit cards and internet banking affected performance of the commercial banks. The study results concur with Kagan et al (2005) seeking to establish the effect internet banking have on the community banks performance found that better performance were recorded by banks which provided extensive online banking services. According to the findings, by online banking the community banks are able to increase their ability to earn measured by ROE thereby enhance the asset quality through the reduction of the overdue and underperforming assets.

4.4 Effect of Service Innovation on Financial Performance

In this section the study sought to determine the effect of service innovation on the financial performance. The respondents were thus asked to state the extent to which they agreed with the statements regarding statements regarding service innovation and financial performance of the societies. This was on a Likert scale of strongly disagree, disagree, neither agree nor disagree, agree and strongly agree. The score of disagreement were assumed to be represented by the variable with mean score of between 0.0 to 2.0 on the incessant Likert scale; ($0.0 \leq D \leq 2.0$), in addition the researcher assumed that the 'undecided took the variable with a mean point of 2.1 to 3.0 on the incessant Likert scale:

($2.1 \leq N \leq 3.0$), whereas the score agree represented the variables whose mean score were between 3.1 and 5.0 on a continuous Likert scale ($3.1 \leq S.A \leq 5.0$). A standard deviation of less than 1.0 indicates no variance in the responses on particular item on questionnaire among respondents. The findings are presented in Table 4.3.

Table 4.3: Effect of Service Innovation on Financial Performance

	Mean	Std. Dev
The SACCO has automated its operation has enhanced the efficiency of its operations	3.43	.999
Mobile banking by the SACCO has enhanced the number of transactions in the society	3.54	.991
SACCO emphasizes offering new service channels to customers	3.27	.858
SACCO emphasizes offering new service channels to adjust customer complaints	3.41	.919
SACCO emphasizes offering innovative approaches to delivering new services	3.25	.886
SACCO emphasizes offering existing customers service and consultation via new service channels	3.37	1.012
SACCO has embraced remote services and service based contracts	3.13	.889
SACCO develops new ways of establishing relationship with customers	3.19	.931

The results show that the respondents generally agreed with the statement that the SACCOs automation of their operation have enhanced the efficiency of operations (mean = 3.43; S.D. = 0.999). The results of the study further show that the respondents were in agreement with the statement that the mobile banking by the SACCOs had enhanced the number of transactions in the societies (Mean = 3.54; S.D. = 0.991). The findings show that respondents agreed with the statement that SACCOs emphasized offering new service

channels to customers (mean = 3.27; S.D. = 0.858). The results also show that the respondents agreed that SACCOs emphasized offering new service channels to adjust customer complaints (mean = 3.41; S.D. = 0.917). The respondents agreed that SACCOs emphasized offering innovative approaches to delivering new services (mean = 3.25; S.D. = 0.886). Majority of the respondents agreed that SACCOs emphasizes offering existing customers service and consultation via new service channels (mean = 3.37; S.D. = 1.012). Respondents were in agreement that SACCOs have embraced remote services and service based contracts (mean = 3.13; S.D. = 0.889).

The respondents further agreed with statement that SACCO develops new ways of establishing relationship with customers (mean = 3.19; S.D = 0.931). The findings mean that the SACCOs have been practicing service innovation such as automation of operations, use of mobile banking, offering new service channel to customers as well as emphasizing innovative approaches to delivering new services among others. The results also show that the practices enhanced the performance by leading to enhanced efficiency in operations and member transactions.

The study established that the SACCOs employed service innovation which was measured in automation of operations, mobile banking, new service channels, delivery of new services and developing of new relationship with customers which affected financial performance of SACCOs. The findings of the study are consistent with Zomerdijk and Voss (2011) who noted that service process innovation enhanced the financial performance of the organizations. The findings equally agreed with Damanpour and Gopalakrishnan (2001) found service product innovation to be more appealing to most of the financial institutions and as such was more adopted by the banking service.

4.5 Effect of Adoption of Process Innovation on Financial Performance

This section the researcher sought to establish the effect of adoption of process innovation on the financial performance of SACCOs in Kenya. This was on a Likert scale of strongly disagree, disagree, neither agree nor disagree, agree and strongly agree. The score of disagreement were assumed to be represented by the variable with mean score of between 0.0 to 2.0 on the incessant Likert scale; ($0.0 \leq D \leq 2.0$), in addition the researcher assumed that the ‘undecided took the variable with a mean point of 2.1 to 3.0 on the incessant Likert scale: ($2.1 \leq N \leq 3.0$), whereas the score agree represented the variables whose mean score were between 3.1 and 5.0 on a continuous Likert scale ($3.1 \leq S.A \leq 5.0$). A standard deviation of less than 1.0 indicates no variance in the responses on particular item on questionnaire among respondents. The findings are presented in Table 4.4.

Table 4.4: Effect of Adoption of Process Innovation on Financial Performance

	Mean	Std. Dev
The society has been determining and eliminating non-value adding activities in its operations	3.27	1.012
The society has been acting to increase the delivery of service to its members which has enhanced its effectiveness and member satisfaction	3.32	1.096
Modifying and improving FOSA has attracted new customers and maintained the existing customers by meeting their market demands resulting to increased SACCO’s asset quality management.	3.29	1.044
Continuous modernization of office automation has reduced the cost of doing business	3.19	.900
By adopting electronic banking services efficiency operation has been achieved	3.11	.880
Adoption of electronic money transfer has contributed to reduction of operation cost	3.35	1.092

According to the findings, the respondents agreed with statement that the society has been determining and eliminating non-value adding activities in their operations (mean score = 3.27; S.D. = 1.012). Respondents were in agreement that the societies have been acting to

increase the delivery of service to its members which has enhanced its effectiveness and member satisfaction (mean score = 3.32; S.D. = 1.096). According to the respondents, new customers are attracted by the modified and improved FOSA while the existing customers are maintained as their market demands are met, thus increasing the asset quality management of the SACCO (mean score = 3.29; S.D. = 1.044). The respondents agreed with statement that continuous modernization of office automation has reduced the cost of doing business (mean score = 3.19; S.D. = 0.900).

There was a general agreement with the statement that the SACCOs were able to achieve efficiency in their operations by simply adopting electronic banking services (mean score = 3.11; S.D. = 0.880). Respondents were also in agreement that the SACCOs operating costs were reduced as a result of adopting electronic money transfer (mean score = 3.35; S.D. = 1.092). These findings thus mean that majority of the SACCOs practiced the process innovation of enhancement of service delivery to members, improving on the FOSA, modernizing office automation and adoption of electronic banking which have positively affected the performance of the SACCOs in the areas of reducing operational costs, enhancing of the effectiveness and the increase in the asset quality management.

4.6 Financial Performance

In this section the researcher sought to determine the financial performance of the SACCOs and whether the financial performance was a result of financial innovation. The respondents were therefore asked to state their level of agreement with effect of financial innovation on financial performance of SACCOs. This was on the scale of strongly disagree, disagree, neutral, agree and strongly agree. The score of disagreement were assumed to be represented by the variable with mean score of between 0.0 to 2.0 on the

inconsistent Likert scale; ($0.0 \leq D \leq 2.0$), in addition the researcher assumed that the ‘undecided’ took the variable with a mean point of 2.1 to 3.0 on the inconsistent Likert scale: ($2.1 \leq N \leq 3.0$), whereas the score agree represented the variables whose mean score were between 3.1 and 5.0 on a continuous Likert scale ($3.1 \leq S.A \leq 5.0$). A standard deviation of less than 1.0 indicates no variance in the responses on particular item on questionnaire among respondents. The findings are presented in Table 4.5.

Table 4.5: Financial Performance

	Mean	Std. Dev
The SACCO has recorded improved rate of return on assets over the last five years as a result of financial innovation	3.28	.879
The rate of return on equity of the SACCOs has been improving over the last five years as a result of financial innovation	3.49	1.018
The SACCOs profitability has been on a trajectory over the last five years as a result of financial innovation	3.39	1.041

The results show that respondents agreed that SACCOs have recorded improved rate of return on assets over the last five years was a result of the financial innovation (mean score = 3.28; S.D. = 0.879). The findings further revealed that most of the respondents agreed that the rate of return on equity of the SACCO had improved over the last five years which was attributed to the financial innovation (mean score = 3.49; S.D. = 1.018).

Finally the results show that the respondents agreed that the SACCOs profitability had been on a trajectory over the last five years as a result of financial innovation (mean score 3.39; S.D. 1.041). These results mean that there was positive financial performance according to the responses in terms of growth in ROA, ROE and profitability.

The researcher also obtained secondary data on the performance of the SACCOs which was the ROA. The descriptive statistics in Table 4.6 show that the mean of the ROA fluctuating between the years with the lowest average value (0.0363) of the ROA recorded in the year 2020, and the highest average (0.0993) of the ROA recorded in the year 2019. The results show that the lowest value of ROA recorded was -1.501 and the highest being 0.741. The results thus mean that the financial performance of the SACCOs measured in terms of ROA was not consistent.

Table 4.6: ROA

	N	Minimum	Maximum	Mean	Std. Deviation
2017	36	-.200480	.486217	.07274433	.112738964
2018	36	-.923840	.295617	.04824636	.179332911
2019	36	-.019560	.741243	.09929056	.125294480
2020	36	-1.500850	.323317	.03638397	.272371551
2021	36	-.018980	.180513	.07715086	.054028050

4.7 Correlation Analysis

The correlation between the financial innovation variables and the financial performance of the SACCOs was performed to test the degree of association between the variables. The results of the correlation analysis as presented in Table 4.7.

Table 4.7: Correlation

		Financial performance	Product innovation	Service innovation	Process innovation
Financial performance	Pearson Corr	1			
	Sig. (2-tailed)				
Product innovation	Pearson Corr	.667**	1		
	Sig. (2-tailed)	.000			
Service innovation	Pearson Corr	.771**	.608**	1	
	Sig. (2-tailed)	.000	.000		
Process innovation	Pearson Corr	.709**	.649**	.680**	1
	Sig. (2-tailed)	.000	.000	.000	

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

The study revealed that there was a strong positive and significant association between the financial performance and the product innovation ($r=0.667$, $p<0.05$). This implies that introduction of new products, credit cards among others have a direct effect on the financial performance of the SACCOs. These findings tend to concur with the views of Nwokah, Elizabeth and Ofoegbu (2009) who noted that product innovation was positively and significantly correlated with the firm's financial performance which they measured in terms of profitability, customer loyalty and sales turnover.

The results of the study further showed that the financial performance had strong positive and significant association with service innovation ($r=0.771$, $p<0.05$). The results mean that service innovation are a strong predictors of financial performance of SACCOs in Kenya. The findings agree with those of Omosa, (2015) who established that service innovation has a relatively strong positive and significant correlation with the financial performance of the Kenya Power and Lighting Company which was measured in terms of asset structure and debt ratio.

The study also found financial performance to have a strong positive and significant association with process innovation ($r=0.709$, $p<0.05$). This implies that adoption of new processes new ways of service delivery, FOSA, office automation among others have resulted to improved financial performance of the SACCOs. As such, the findings mean that process innovation is a strong determinant of financial performance of SACCOs in Kenya. The study results concur with those of Nafisa (2019) who found that process innovation was positively and significantly associated with financial performance of listed commercial banks. The findings are also consistent with the Gunday et al (2011) who

sought to determine how the financial innovation affected firm's performance and found process innovation to have a positive correlation with financial performance.

A further look at the association between the independent variable revealed that there was a strong positive and significant association between product innovation and service innovation ($r=0.771$, $p<0.05$). The results also show that there was a strong positive and significant association between product innovation and process innovation ($r=0.649$, $p<0.05$). The association between service innovation and process innovation was equally found to be strong, positive and significant ($r=0.680$, $p<0.05$).

4.8 Diagnostic Tests

The researcher first performed diagnostic tests to establish assumptions of normality, linearity and absence of heteroscedasticity and multicollinearity.

4.8.1 Test for Normality

Normality tests whether the residuals of the regression follow a normal distribution. An assessment of the normality is a prerequisite of many statistical tests because normal data is an underlying assumption of parametric testing. While there are two methods of assessing normality, namely graphical and numerical, the current study chooses statistical test because they have the advantage of making an objective judgement of normality. Graphical interpretation though has the advantage of allowing good judgement to assess normality in situations when numerical tests might be over or under sensitive.

Kolmogorov-Smirnov test statistics (KS-test) and Shapiro-Wilk test (SW-test) were used to test whether the data sets tapped on Likert scale differed significantly without making any assumption about the distribution of data. The null hypothesis to be tested was that the sample population was not normal. The p-value in Table 4.8, was found to be less than

0.05 for all the variables, in which case we reject the null hypothesis and conclude that the sample was picked from a normal population. While testing whether the population is normal we use SW-test, where we found that all the SW-test statistics were approaching $1 > 0.05$, and hence the null hypothesis that the population was not normal is rejected.

Table 4.8: Test for Normality

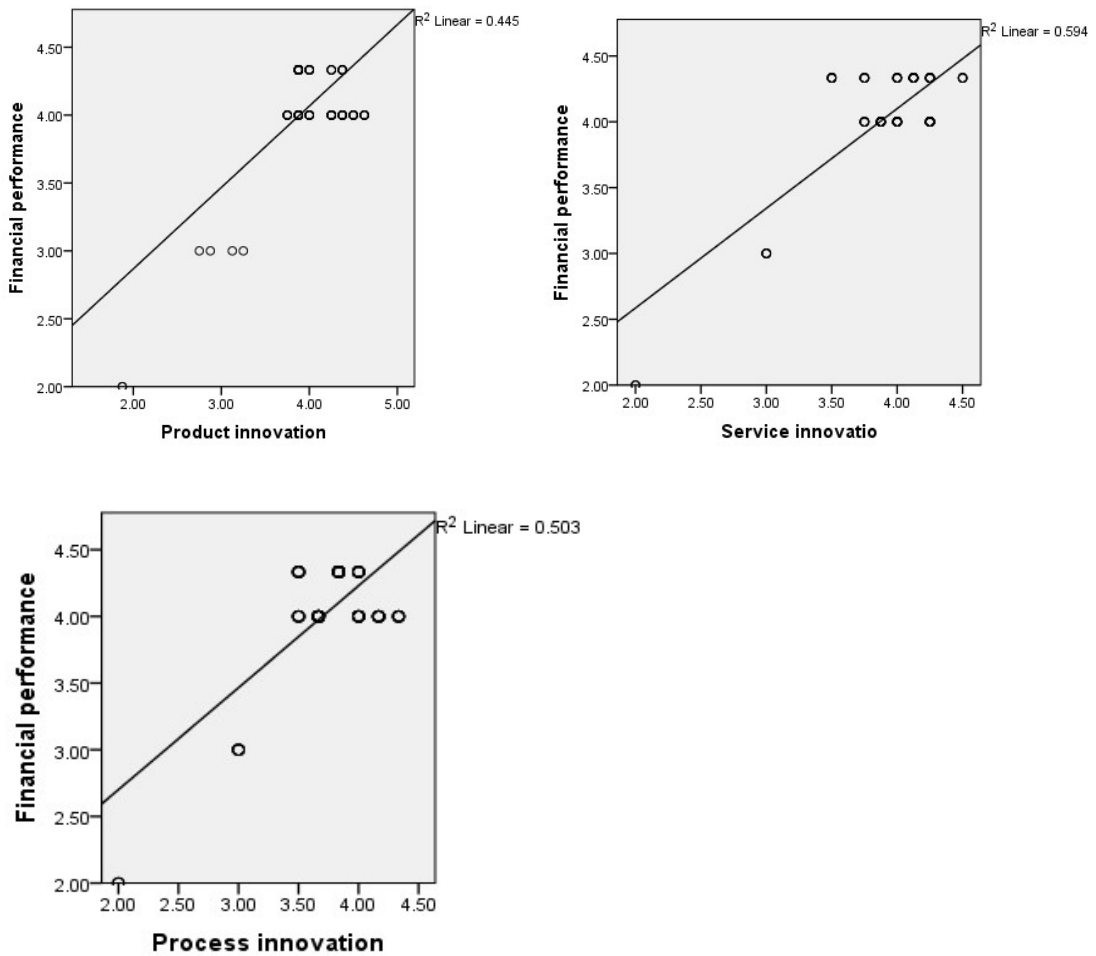
	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig	Statistic	df	Sig
Product innovation	.241	105	.000	.898	105	.000
Service innovation	.123	105	.000	.952	105	.001
Process innovation	.147	105	.000	.945	105	.000
Financial performance	.167	105	.000	.907	105	.000

a. Lilliefors Significance Correction

4.8.2 Test for Linearity

Before conducting a linear regression, a linear relationship ought to exist between the two variables. Linearity means that the predictor variable in the regression have a straight line relationship with the outcome variable. The results in Figure 4.8 show that the plots are distributed around the regression model with the dispersions not far away from the line of fit. The researcher thus concludes that there exists a linear relationship between the dependent variable and the independent variables.

Figure 4.8: Linearity Test



4.8.3. Test for Multicollinearity

This is the assumption that the predictor variables are not too highly correlated with one another. The study used VIF to test for the absence of multicollinearity. If $VIF < 5$, then this indicates the absence of multi collinearity. The results in Table 4.9 show that all the values of the VIF were less than 5 hence absence of multicollinearity. This implies that the variables were not highly correlated while independent and independent variables correlated highly.

Table 4.9: Test for Multicollinearity

	Collinearity	
	Tolerance	VIF
Product innovation	0.527	1.899
Service innovation	0.489	2.043
Process innovation	0.449	2.227

4.8.4 Test for Heteroscedasticity

Lastly, the researcher tested for the presence of heteroscedasticity, that is to test where whether there are differences in the residual variance of the observation period to another period of observation. The study used the Test Glejser where if the value significance > 0.05 , then there is no problem of heteroscedasticity. The results in Table 4.11 below show all the value significance for all the variables to be greater than 0.05. This means that there is no problem of heteroscedasticity. Therefore, having satisfied all the assumptions of the regression, the researcher went ahead to perform the regression analysis.

Table 4.11: Test for Homoscedasticity

Model	Unstandardized		Standardized	t	Sig.	
	Coefficients					Coefficients
	B	Std. Error	Beta			
(Constant)	.365	.123		2.958	.004	
1	Product innovation	-.025	.034	-.090	-.718	.474
	Service innovation	-.152	.039	-.509	-3.903	.512
	Process innovation	.138	.045	.421	3.093	.433

a. Dependent Variable: AbsUt

4.9 Regression Analysis

The study performed a regression analysis to test the relationship and effect of change of independent variables on the dependent variable.

From Table 4.12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.827 _a	.684	.674	.22714	2.955

a. Predictors: (Constant), Process innovation, Product innovation, Service innovation

b. Dependent Variable: Financial performance

From Table 4.12, the R value was 0.827 showing a positive direction of R is the correlation between the observed and predicted values of the dependent variable. The values of R range from -1 to 1 (Saunders et al., 2012). The sign of R indicates the direction of the relationship (positive or negative). The absolute value of R indicates the strength, with larger absolute values indicating stronger relationships. Thus the R value at 0.827 shows a stronger relationship between observed and predicted values in a positive direction.

The coefficient of determination R squared value was 0.684. This shows that 68.4% of the variance in dependent variable (financial performance) was explained and predicted by independent variables (product innovation, service innovation and process innovation). According to the rule of thumb, usually the coefficient of determination which is more than 50% is normally considered better. Therefore an R-squared of 68.4% is definitely greater than 50%, thus, factors included in the model are sufficient. The remainder 31.6% is explained by the factors not part of the study.

Table 4.13: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.255	3	3.752	72.719	.000 ^b
	Residual	5.211	101	.052		
	Total	16.466	104			

a. Dependent Variable: Financial performance

b. Predictors: (Constant), Process innovation, Product innovation, Service innovation

Is used to show that extent the model predicts financial performance by use of the independent variables. According to the results the F-statistics (F=72.719) was found to be significant at 95% level of significance (sig. <0.05). The results mean that the model can be used to predict financial performance. Thus, therefor the relationship between financial innovation (product, service and process innovations) and financial performance are significant.

Table 4.14: Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.443	.249		1.780	.078
	Product innovation	.199	.069	.222	2.875	.005
	Service innovation	.459	.079	.467	5.838	.000
	Process innovation	.267	.090	.248	2.966	.004

a. Dependent Variable: Financial performance

Table 4.14 gives the results for the regression coefficient for the multiple linear equation.

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

Substituting

$$Y = 0.443 + 0.199X_1 + 0.459X_2 + 0.267X_3$$

The results of the study mean that holding everything constant the SACCOs would still experience financial growth of the proportion on 0.443. The findings show that the product innovation has a positive and significant relationship with financial performance ($\beta=0.199$, $p\text{-value}<0.05$). The results also show that service innovation has a positive and significant relationship with financial performance ($\beta=0.459$, $p\text{-value}<0.05$). The findings show that process innovation has a positive and significant relationship with financial performance ($\beta=0.267$, $p\text{-value}<0.05$).

The results of the study findings mean that a unit change in product innovation will result into a 0.199 change in the financial performance of the SACCOs. The findings further imply that a unit change in service innovation will result into a 0.459 change in financial performance of the SACCOs. The study findings also mean that a unit change in process innovation will result in a 0.267 change in financial performance.

The study findings that the product innovation had a positive effect on the financial performance of the SACCOs is inconsistent with Ndwiga and Maina (2018) who studying the influence of product and process innovation have on financial performance of commercial banks trading in shares in Kenya, found that product innovation had no significant relationship with financial performance. The study findings further agree with Herstad and Brekke (2012) who looking at the effect of the mode of innovation and regional knowledge diffusion on growth of enterprises, found that product innovation positively and significantly affected the growth of the enterprises.

The findings of the study that the process innovation had a positive relationship with financial performance is in agreement with the findings by Tsuma et al (2015) who noted that process innovation had a strong positive relationship with the SACCOs profitability. These findings are also consistent with Gunday, Ulusoy, Kilic and Alpkan (2011) who in their study of the influence of innovation on performance of organization, found that process innovation had a positive significant effect on the firms performance.

There was also consistence between the study findings and those of Gitau (2011) who looking at the relationship between financial innovation and commercial banks financial performance, found that process innovation of internet and mobile banking and RTGS had positive and significant effect on the financial performance of the banks. The study findings are in support of Ndwiga and Maina (2018) who sought to determine what influence product and process innovations have on publicly trading commercial banks financial performance in Kenya. The study found that process innovation had positive and significant effect on the financial performance.

The study results are contradictory to Njeri (2012) who seeking to establish the relationship between deposit taking SACCOs in Nairobi's financial performance and financial innovation in which it was found that banks using money transfer services, found that there was no relationship with the financial performance of the banks. The study however found that technology and financial performance of the SACCs was positive and significant. The study findings also agree with Nyathira (2012) who seeking to find out the association between the commercial banks profitability and financial innovation, found that financial innovation was positively correlated to profitability of the commercial banks. The findings of the stud were however inconsistent with Muteke (2015) who when studying how the

SACCOs financial performance were affected by the financial innovation, found that both product and process innovation had no significant relationship with the financial performance of the SACCOs.

4.10 Hypothesis Testing

a) *H₀₁: Product innovation has no significant effect on the financial performance of SACCOs in Kenya*

Based on the findings of the study, the null hypothesis is dismissed since the p-value of the t statistics 2.875 is 0.005 which is less than 0.05. The study thus fails to reject the alternative hypothesis which states that product innovation has significant effect on the financial performance of SACCOs in Kenya. The results are consistent with Herstad and Brekke (2012) who noted that product innovation positively enhanced the business model of the firm which result into their prosperity. Herstad and Sandven (2015) equally noted that product innovation the growth of the firm. These findings were also supported by Nzove (2013) who noted that product innovation had the highest influence on the growth of SMEs.

b) *H₀₂: Service innovation has no significant effect on the financial performance of SACCOs in Kenya*

The study rejects the null hypothesis because the p-value of the t statistics 5.838 is 0.000 which is less than 0.05. This therefore mean that the alternative hypothesis that service innovation has a significant effect on the financial performance of SACCOs is accepted. These results are in agreement with Beynon (2018) who notes that the firms profitability was significantly affected by increase in the service quality. Ouma, Omagwa and Ngaba (2018) noted that service innovation in the forms of new products and services had direct effect on the financial institutions' performance.

c) *H₀₃: Process innovation has no significant effect on the financial performance of SACCOs in Kenya*

The study rejects the null hypothesis that process innovation has no significant effect on the financial performance of SACCOs in Kenya since the p-value of the t statistics 2.966 is 0.004 while is less than 0.05. The alternative hypothesis that process innovation has significant effect on financial performance of SACCOs in Kenya is thus accepted. Gunday et al (2015) found that the process innovation had a positive effect on the firm's performance. They also noted that the process innovation had the highest influence of the performance. Ndwiga and Maina (2018) found that the process innovation had a significant effect on the financial performance of the firms that were under study.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings, conclusion drawn from the findings highlighted and recommendations. All these are in accordance with the study objectives. The study also presents the suggestions for further research in this chapter.

5.2 Summary of Findings

The study established that the SACCOs largely practiced product innovation which were in the form of electronic funds transfers which have eased the members access to funds. The others include the introduction of new deposit accounts which have increased the amounts of the deposits. The study established that the SACCOs have also created their presence online which have attracted more members to the society. Besides, they have worked towards improving the quality of the current products thus enhancing customer satisfaction. The societies have also introduced internet banking which have enhanced the efficiency in terms of customer service. The societies have equally installed in ATMs at prime locations thus attracting more customers besides increasing the number of loan products to its customers. The study established that the product innovation had a positive significant effect on the financial performance of the SACCOs.

The study also established that majority of the SACCOs employed service innovation in their operations. These included automation of operations which enhanced efficiency of their operations. The SACCOs equally embraced mobile banking which enhanced the number of transactions in the society. The SACCOs offered new service channels to their customers. The firms emphasized on employing new ways of delivering services to their

customers. The societies were not just limited to offering customers existing services but also consulted on new service channels. The SACCOs embraced remote services. The study established that there existed a positive significant relationship between service innovation and financial performance.

The study established that the SACCOs used process innovation in which they have been working to determine and eliminate non-value adding activities in their operations. The societies have equally been working to increase delivery of service to members which has enhanced customer satisfaction. The societies have modified and improved the front office services to maintain existing customers. The study established that the SACCOs have worked to continue modernizing the office to reduce the cost of cost of doing business. They have adopted electronic banking services for efficient offerations. The study established that the process innovation had a positive and significant effect of the financial performance of the SACCOs.

5.3 Conclusions

The study concluded that all the contracts of financial innovation positively influenced the financial performance of the SACCOs. The study found that the service innovation had the strongest influence followed by process innovation. Among the innovations were the electronic funds transfer, new deposit accounts, mobile banking, internet banking, ATMs and the FOSA among others. The study therefore concludes that financial innovation have positive effect on the financial performance of the SACCOs

5.4 Recommendations

The study made the following recommendations:

The study established that the product innovation had a positive effect on the financial performance. The study thus recommends that the management of SACCOs should adopt more product innovation to enhance the financial performance of the societies.

The study also established that the service innovation had a positive significant effect on the financial performance of the SACCOs. The study recommends that the management of SACCOs should strategically employ more of service innovation with the aim of enhancing the financial performance of the SACCOs.

The study found the process innovation to have a positive and significant effect on the financial performance of SAACs. The study therefore recommends that the SACCO management employ process innovation strategically with the aim to enhance the financial performance.

The government through the cooperative regulator SASRA should formulate policies that will enhance use of financial innovation by the SACCOs such as use of incentives to encourage innovation or tax waiver on technology that purchased by the societies for the purposes on enhancing their operations. Further, the regulator should develop its surveillance structure to incorporate the adoption of financial innovation by the societies particularly those struggling financially so as to boost their efficiency and hence financial performance.

5.5 Suggestion for Further Research

This study was done on the effect of financial innovation on the financial performance the SACCOs. The study recommends that similar studies should be done on other organizations particularly the financial institutions with the aim of establishing the effect of financial innovation on the financial performance.

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APPENDICES

Appendix A: Questionnaire

I am Geoffrey Mugunyi, a postgraduate student pursuing a Master degree at KCA University. I am currently developing a management research titled **effect of financial innovation on financial performance of Savings and Credit Cooperative Societies in Kenya**. I kindly request you to participate in the study by filling in the questions in the questionnaire as honestly as possible and to the best of your knowledge. The information required is purely for academic purposes only, and will thus be handled with highest confidentiality.

Instructions

- i. Please read each question carefully.
- ii. For questions requiring you to choose the extent of agreement or importance indicate only one appropriate choice on scale of 1-5
- iii. Fill in answers to all questions with blank spaces.
- iv. Do not indicate your name on the questionnaire

SECTION A: BACKGROUND INFORMATION

1. What is your gender? Male () Female ()
2. How old are you? Below 30 years () 31 – 40 years () 41 – 50 years () 51 – 60 years () Over 60 years ()
3. What is your level of education? College () University ()
Post University ()
4. What is your professional training? Human Resource () Marketing ()
Accounting () Others (Specify _____)
5. What is the category of your SACCO?
Government based () Teacher based () Farmer based ()

Private Institution based () Community based ()

Others (Specify_____)

6. Which department do you belong? Executive () Finance ()

Marketing () Human Resource ()

Research and Development () Others (specify_____)

7. How long have you been in the SACCO? Less than 5 years () 5 – 10

years () 11 – 15 years () 16 – 20 years () Over 20 years ()

SECTION B: EFFECT OF PRODUCT INNOVATION ON FINANCIAL PERFORMANCE

8. State the extent to which you agree with the following statements regarding the society's adoption of product innovation and its effect on financial performance on a scale of strongly disagree, disagree, neutral, agree and strongly agree.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The SACCO has embraced electronic funds transfer which has eased the members access to funds					
The SACCO has introduced ne deposit accounts has increased the amount of deposits					
The creation of online presence of the SACCO has attracted members to the society					
The Society has improved on the quality of the current products which has enhanced customer satisfaction					
Internet banking has increased the number of users due to reduction in service time hence resulting to increased SACCO's liquidity management.					
EFTs influence reduction of operational costs and hence better return on assets for the SACCOs					
Investment in ATMs installation at different prime locations is backed by increased customer base and leads to SACCO's capital adequacy management.					
By increasing number of loan products customer number has increased hence revenue					

9. State the extent to which you agree with the following statements regarding the society's adoption of service innovation and its effect on financial performance on a scale of strongly disagree, disagree, neutral, agree and strongly agree.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The SACCO has automated its operation has enhanced the efficiency of its operations 1					
Mobile banking by the SACCO has enhanced the number of transactions in the society 2					
SACCO emphasizes offering new service channels to customers 3					
SACCO emphasizes offering new service channels to adjust customer complaints 4					
SACCO emphasizes offering innovative approaches to delivering new services 5					
SACCO emphasizes offering existing customers service and consultation via new service channels 6					
SACCO has embraced remote services and service based contracts 7					
SACCO develops new ways of establishing relationship with customers 8					

10. State the extent to which you agree with the following statements regarding the society's adoption of process innovation and its effect on financial performance on a scale of strongly disagree, disagree, neutral, agree and strongly agree.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The society has been determining and eliminating non-value adding activities in its operations					
The society has been acting to increase the delivery of service to its members which has enhanced its effectiveness and member satisfaction					
Modifying and improving FOSA has attracted new customers and maintained the existing customers by meeting their market demands resulting to increased SACCO's asset quality management.					
Continuous modernization of office automation has reduced the cost of doing business					
By adopting electronic banking services efficiency operation has been achieved					
Adoption of electronic money transfer has contributed to reduction of operation cost					

Financial Performance

11. Indicate your level of agreement with the following aspects by using a scale of 1-5, where 1- Strongly Disagree, 2- Disagree, 3- Neutral, 4- Agree, 5- Strongly Agree.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The SACCO has recorded improved rate of return on assets over the last five years as a result of financial innovation					
The rate of return on equity of the SACCOs has been improving over the last five years as a result of financial innovation					
The firm has SACCOs profitability has been on a trajectory over the last five years as a result of financial innovation					

Appendix B: Secondary Data Collection Sheet

Societies	2017		2018		2019		2020		2021	
	ROA	ROE	ROA	ROE	ROA	ROE	ROA	ROE	ROA	ROE
1										
2										
3										
4										
5										
6										

APPENDIX C: RAW DATA FINANCIAL PERFORMANCE

Year	ROA
2017	0.136247
2018	0.089233
2019	0.149341
2020	0.160613
2021	0.14616
2017	0.068482
2018	0.073671
2019	0.054112
2020	0.045392
2021	0.041466
2017	0.022599
2018	0.040913
2019	0.034308
2020	0.040274
2021	0.025294
2017	0.019418
2018	0
2019	0.056115
2020	0.003561
2021	0.035344
2017	0.440312
2018	0.164385
2019	0.303111
2020	0.218256
2021	0.180513
2017	0.068142
2018	0.124504
2019	0.140608
2020	0.066837
2021	0.17224
2017	0.486217
2018	-0.92384
2019	0.741243
2020	-1.50085
2021	0.02091
2017	0.018714
2018	0.101999
2019	0.099817
2020	0.040268

2021	0.165021
2017	0.015004
2018	0.044927
2019	0.023948
2020	0.06076
2021	0.091932
2017	0.051706
2018	0.075773
2019	0.085187
2020	0.046363
2021	0.09573
2017	0.101079
2018	0.124228
2019	0.142996
2020	0.045469
2021	0.080051
2017	0.080196
2018	0.08141
2019	0.079012
2020	0.091427
2021	0.099624
2017	0.028909
2018	0.034987
2019	0.021577
2020	0.323317
2021	0.006553
2017	0.028695
2018	0.295617
2019	0.060537
2020	0.085524
2021	0.164397
2017	0.122376
2018	0.067472
2019	0.046148
2020	0.061535
2021	0.083376
2017	0.096798
2018	0.038364
2019	0.069263
2020	0.122919
2021	0.137388

2017	0.143635
2018	0.096016
2019	0.11021
2020	0.148466
2021	0.070761
2017	0.031262
2018	0.073351
2019	0.121354
2020	0.179637
2021	0.088898
2017	0.085474
2018	0.125471
2019	0.171322
2020	0.127246
2021	0.105398
2017	-0.20048
2018	0.080662
2019	0.117969
2020	-0.04805
2021	0.02212
2017	0.020974
2018	0.139498
2019	0.125564
2020	0.074848
2021	0.052364
2017	0.043003
2018	0.075138
2019	0.006554
2020	0.051001
2021	0.078381
2017	0.077677
2018	0.100585
2019	0.09444
2020	0.090323
2021	0.102156
2017	0.052901
2018	0.070029
2019	0.107922
2020	0.028274
2021	0.089943
2017	-0.0025

2018	0.006712
2019	0.029382
2020	0.025774
2021	0.020669
2017	0.064272
2018	0.098962
2019	0.101069
2020	0.140234
2021	0.174955
2017	0.074223
2018	0.124095
2019	0.049773
2020	0.065153
2021	0.079626
2017	0.120897
2018	0.061761
2019	0.110797
2020	0.062071
2021	0.062801
2017	0.037201
2018	-0.00541
2019	0.019974
2020	-0.00096
2021	-0.0014
2017	0.005336
2018	0.020565
2019	0.070203
2020	0.00873
2021	0.027823
2017	0.008677
2018	0.049394
2019	0.062551
2020	0.037895
2021	0.041151
2017	0.083506
2018	0.057181
2019	0.058982
2020	0.073243
2021	0.074471
2017	0.002124
2018	0.009489

2019	0.101946
2020	0.058024
2021	0.108147
2017	0.01723
2018	-0.04481
2019	-0.01956
2020	0.094362
2021	0.021648
2017	0.045901
2018	0.215787
2019	0.044805
2020	0.0305
2021	0.0305
2017	0.122589
2018	-0.05125
2019	-0.01812
2020	0.151387
2021	-0.01898

Appendix D: Budget

	ITEM	COST (KHS)
1	Printing materials	7,000
2	Internet	5,000
3	Typesetting printing and binding	10,000
4	Data collection	10,000
5	Data analysis	10,000
6	Cost of producing research project	
	- Printing	5,000
	- Binding	5,000
7	Miscellaneous	10,000
	GRAND TOTAL	67,000

Appendix E: Time Frame

ACTIVITIES	MAY	JUNE	JUL	AUG	SEPT	OCT	NOV
Proposal Writing and defense							
Research Instruments and Preparation							
Data Collection and Analysis							
Submission a Final Report							