Evaluation of financial innovation and performance of savings and credit cooperative societies in Kenya, A case of Nakuru County

ABDIFATAH OMAR MAALIM1, DR. RUTHWINNIE MUNENE2

1Student, 2Lecturer
Mount Kenya University, School of Business and Economics
Department of Accounting and Finance

Abstract: The globalization of financial system has played a major role on financial innovation which involves advancement in financial technology. Innovation in financial system plays an essential and great role in competitive edge structuring of the organization, procedure as well as organization services. The increase of financial institutions has been due to the growth in the financial sector economy. There is also growth in financial systems with new cash payment methods and money and capital asset methods to holding funds. Innovation in financial technology enables and promotes faster flow of financial information and financial market incorporation. The primary research goals was to evaluate financial innovation and performance of SACCOS in county government of Nakuru County, Kenya. Specific objectives were to determine mobile banking and performance of SACCOS and to evaluate ATMs on performance of SACCOS and performance of SACCOS Nakuru County, and how they correlate. This study was conducted out between the month of November and December 2022 in all SACCOS in Nakuru County focusing on financial innovation on financial performance. The investigation was framed by the following theories agency theory, information system success theory, and task technology fit theory Descriptive survey research methodology was used for the investigation. The study target population were 47 managers in SACCOS within the county government of Nakuru County. Census method was used targeting all the 47 SACCOS. The research instruments for data collection were questionnaires for primary data and financial report sheets for secondary data. The instrument was piloted in three SACCOS from Nyandarua County. In order to ensure content validity, the questionnaire was given to three financial experts to assess the relevance of the items to research questions, clarity of the language, clarity and coverage of questions. A content validity index of individual items ranging 0.50 to 1.00 was used to ascertain whether the instruments was valid or not. To test reliability questionnaire was assessed using a Pearson Product moment correlation and yielded a coefficient of over 0.7 which was deemed reliable. SPSS was applied to analyze the data using linear regression. The results demonstrated that financial innovation had a big consequence on financial performance. Based on the levy and fees used as well as its ease, mobile banking was the most important, automated teller machines had very few meaningful predictors, but it was indirectly related to financial expansion in terms of liquidity. They gave bigger client base as well as open fresh unexplored market. The study comes to the conclusion that mobile banking is the most crucial factor that management of SACCOS must take into account when making decisions about financial innovation. According to the research, automated teller machines could be further utilized as a possible source of increased financial performance. This can be accomplished by introducing mobile-operated applications.

Keywords: Financial innovation, Mobile money banking, financial performance, Saving and credit cooperative societies.

INTRODUCTION

1.1 Background of the Study

Financial innovation is a concept that includes the use of new, innovative financial intermediary techniques, the development of new credit intermediaries, changes to the supervision of the financial services industry, and the invention of new banking system like deposit accounts and personal loans, derivatives of new financial instruments, insurance and financial investment products as well as new business innovation processes. SACCOS are embracing financial innovative methods to enhance online financial services. SACCOS have partnered with money mobile operators that support mobile money. This allows SACCOS to provide their services by use of online mobile (Bill & Belinda 2017). SACCOS have also implemented other financial innovations for example use of banking agents, banking online, and Automated Teller Machines. Financial innovations have enabled reduction in poverty and growth in the economy. Clients can now access SACCOS services from the comfort of their home.

SACCOS provide financial services like payments as well as other financial products to the members to enable them participate in the wider financial market. By offering members financial investment platform in form of savings, extension of credit as well as financial risk management. SACCOS perform essential financial functions which had already remained largely the same for years, whereas the financial sector's organizational structure has changed over a period of time. Liberalized domestic financial regulations affected international financial competition. Growth of financial innovations and new financial instruments, as well as rapid economic rise in financial profession fueled financial dynamics in the sector (Tidd & Hull, 2013).

Innovation refers to methods that a firm implement in their daily activities to increase the creation of its activities and also a competitive advantage over its competitors globally and within their industry. (Mytelka, 2017). Ortiz-Villajos & Sotoca (2018),
innovation plays an important role in business growth and survival because it upgrades business processes and procedures by introducing new expertise, design and understanding and combining them with existing processes. To generate new products and services, innovations must be rigged with unsurpassed creativity when it comes to implementing a number of strategies including product innovations, location innovation, marketing innovations and research and development innovation. Creativity keeps competitors at bay and at the same time helps firms and organizations get ahead of marketing opportunities (Bouckjen, Kraus & Roig-Tierno, 2021).

Over the past century, the financial services have progressively gone through changes characterized by product innovation, organizational innovation, and process innovation (Krivosheya, 2020). Product innovations involve introduction of improved goods and services with superior characteristic that appeal to a larger number of potential customers within various target markets. Examples of product innovations within the financial industry include mobile banking, money transfers services, credit cards, debit cards and mobile phone loans. Organisational innovation is when a firm implements a new advanced system that readjusts its business resources with the aim of having a competitive advantage over other financial firms using traditional systems or structures. Examples of organisational innovations within the financial industry include introducing financial intermediaries, changing the legal framework, and use of crowdfunding among others. Process innovations is the application of new process technologies in firm’s operations, which increases efficiency, expands the market, and improves management of customers’ data. Examples in the financial industry include internet banking, Bitcoins and Real Time Gross Settlement (RTGS), (Wendt, 2019).

According to Ortiz-Villajos & Sotoca (2018), while globalisation of financial systems remains the main incentive for financial innovation, others include faster technological advancements and deregulation. As such, financial innovation stands out as a vital part of increasing performance for (SACCOs). Financial creation is entrenched in the firm’s organisational structures, operational processes and procedures, products and services. Bouckjen, Kraus & Roig-Tierno (2021) argues that various key financial innovation growth in the money sector has augmented on magnitude of existing the financial institutions and increased the intricacy levels of their payment systems. Remarkably, in terms of own financial developments, mobile banking technologies, cyber security, and ‘big data’ are the most prevalent financial innovations (Druhov, Druhova & Pakhnenko, 2019). The benefits of such financial innovation to SACCOs is to give them a competitive advantage and also to rapidly disseminate information into financial markets and improve their overall financial performance.

1.1 Financial Innovation Globally

Innovation is crucial especially with developing countries since it improves financial know-how, facilitates financial processes and procedures in international business, and supports financial presence. As argued by Nazir, Tan & Nazir (2021), the financial sectors of China, India and Pakistan show the potential of rapid expansion due to financial system innovation. The financial facilities of the developing countries reveal the extent to which financial innovation has led to financial progress and growth, high-technology development, efficient financial intermediation, and enhanced economic growth. However, SACCOs in these developing countries continue to face many challenges that hamper their success. According to Moki, Kanini & Kinyua (2019), the challenges faced by SACCOs are associated with scalability, awareness-raising, sustainability, and the overall impact of their financial innovations. To overcome these challenges, SACCOs should adopt innovative strategies that maximize incremental changes through personified technological acquisition and adaptation of existing financial products that improve financial performance in the long term (Mustafa, Khursheed & Fatima, 2018).

In China, SACCOs have gone through a phase of negotiating with the government to devise key ways and methods of promoting financing in rural areas since 2005. As stated by Byström (2018), the Asian giant has made significant changes in their approaches to reform financial institutions including SACCOs in the country in the past two decades. One of these changes is the change of focus from constricted financial lending schemes to unrestricted rural finance as the government provides incentives to all SACCOs that are eager to introduce suitable product and service innovations (Ding, Qin & Shi, 2018). In 2018, the People’s Bank of China (PBC) introduced a number of financial innovative products and services which includes rediscounted credits, loan refinancing, reserve ratios for micro and small enterprises (MSEs) and the agricultural sector in rural areas (Chen & Yuan, 2021). This showed the extent to which the government is committed to supporting and using financial innovations.

Headquartered in Geneva, Switzerland, the World Economic Forum (WEC) brings together many countries and encourages financial innovation. In 2019, the WEC reported that in order to improve the social welfare of the populace in different nations, governments should prioritise the need to implement financial innovation because it also boosts economic growth and development. Besides done by financial innovation in the economy, it is necessary for countries to heavily invest in research and development because it complements financial innovation. According to Mytelka (2017), encouraging Research and Development in line of financial innovation goes a long way in facilitating rapid technological advancements that can revive struggling financial sectors globally. According to the WEC report, financial innovation takes different forms that provide reliable and trusted means of making payments to carry out trade transactions, such as debit and credit cards. Other trade functions include the use of loans and savings accounts to make international payments among and also the pooling of financial resources by various multinational corporations (Misati, Osoro & Odongo, 2021).

As stated by Llanto & Fukui (2013), Philippines is one of the South East Asian countries that has successfully implemented financial renovations in SACCOs. Over the last decade, the country has taken full advantage of emerging financial innovations to enable SACCOs finance a wide range of households in the rural areas. Such initiatives have been carried out in such a way that the financial innovations minimise transaction costs, but also reduce financial risks among SACCOs. In addition, the financial innovations have facilitated the need for deprived households to obtain capital and the much-needed funds for their start-up businesses.
1.1.2 Financial Innovation in Africa

Majority of African countries are still on a path to ensure that internet access and personal computers are readily accessed by all citizens, which is a major prerequisite to financial innovations, such as internet banking and mobile banking. Among 1.2 billion people in Africa; only 35% have access to the internet, and only 6% currently have active internet subscriptions (Faturoti, 2022). South Africa, Egypt, Kenya and Nigeria have the largest number of internet users and mobile phone users in Africa. As stated by Ernawati & Nugroho (2012), the increased usage of mobile phones and tablets in Africa has increased the uptake of financial products. Mobile phones and internet connectivity enable the deployment of various forms of transactions that SACCOs have taken advantage of to improve their service delivery to customers and have a competitive advantage over other financial institutions players in the financial sector. In Nigeria, smartphone penetration is 32% and 74% of online shoppers use their mobile phones to access major commercial platforms at least once per day (Ogidiaka, & Ogwueleka, 2020). This shows that the extent to which financial innovations are gradually intensifying in the business world.

In the past decade, SACCOs in Ghana have seen a momentous introduction of wide-ranging financial innovations. According to Addae-Korankye (2020), the SACCO sector in Ghana has effectively employed a number of financial innovations which includes marketing, location, product, location, and R & D inventions. Inventions in product involves savings and loans that take precedence since they are the most sought financial products in the country. Over the years, the promptness at which financial innovators have created and adopted key financial innovations has depended on the extent to which they address issues affecting SACCOs. For that reason, there are slow financial innovators, moderate financial innovators, and high financial innovators who collaborate with the intention of improving customer convenience, lowering transaction costs, and increasing the market share of SACCOs. In East Africa, Kenya, Uganda and Tanzania have seen SACCO revolution in the past two decades characterized by products and services financial innovations, along with service delivery channels. The fast advancement of financial innovation has hastened these efforts as many SACCOs have embarked on updating traditional technologies with the intention of appealing to modern-day customers (Katundu, 2020). Furthermore, SACCOs choose to adopt newest technologies in the market to help them be responsive central banks, which recommend a number of cutting edge financial innovative practices in financial services. With approximately 82% of their population residing in rural areas, SACCOs in East African countries mostly rely on mobile money services and branchless banking services to accommodate as many members of rural populations into financial systems. This not only expands their financial market share in the financial sector, but also help more people to access financial products and services effortlessly from SACCOs (Wallace & Kilika, 2021). In Tanzania, Wangwe and Lwakatare (2004) found out that financial reforms initiated in early 1980s has always focused on reorganizing banking institutions including SACCOs, managing lending interest rates and inclusiveness of private financial institutions. This has been facilitated by the development of financial innovations that prioritize designing, customizing and diversifying products and services to address the needs of specific regions and specific customers.

1.1.3 Financial Innovation in Kenya

Innovation in Kenya is materialized through numerous ways including SACCO financial services, mobile banking and electronic banking. Moreover, Islamic banking has taken centre stage in the banking sector with various commercial banks, like Absa, First Community, and Gulf African Commercial Bank adopting the financial innovation (CBK, 2018). The Kenyan business environment has been rapidly changing in the past two decades due to the effective implementation of information technology. Ouma, Omagwa & Ngaba (2018) state that the financial sector in the country has adopted financial innovation to a great extent, which has brought about more product innovations, process innovations and marketing innovations. One of the most vibrant financial innovation in the Kenyan financial sector is mobile banking through M-Pesa platform, which combines information technology and mobile phone usage to design products that appeal to the majority. The major objective of financial innovations is streamlining customer services and ensure customer satisfaction in a cost-effective method (Ortiz-Villajos & Sotoca, 2018). Misati, Osoro & Odongo (2021) reviewed the Kenyan financial sector in three phases. The first phase covered the entire 1970s decade up to the early years of 1980s. Commercial banks highly dominated the financial sector during this phase because they used financial authoritarianism. In conjunction with the Kenyan government, commercial banks prioritized allocating credit to key sectors using instruments like direct monetary policy, control of exchange rate and control of interest rate. The second phase started in late 1980s with introduction of structural regulation programmes and policy liberalization, which led to the interest rate lending reduction and controlling rates of foreign exchange. Such financial sector reforms has played an important role in increasing financial resource accessibility through increased savings and credit distribution. The 3rd phase covers late 1990s to date, a phase characterized by emerging financial instruments and financial innovation products such as electronic money and Islamic banking.

1.1.4 SACCOs in Kenya

SACCOs are association comprising individuals with common goals and interest who congregate to improve their economic livelihoods by providing short term loans, long term loans and nurturing savings. In contrast to large commercial banks, SACCO members usually enjoy favourable lending terms tailored to their needs (SASRA, 2018). In Kenya, SACCOs serve 82% of the population by mobilising more than Kshs. 202 billion annually (Njenga & Jagongo, 2019). As stated by Wallace & Kilika (2021), the first cooperative in Kenya was established in 1908 by white colonial settlers. Co-operative Ordinance Act was passed on 1945 and allowed Kenyan government to oversee and regulate the co-operatives operations of in Kenya. As such, cooperatives were allowed to compete with other firms in the private sector (Olando, Mbewa & Jagongo, 2012). In 2004, the 1997 act was amended to reinforce state regulation in Kenya's cooperative sector. Nevertheless, it had inconsistencies and insufficiencies. SACCOs were disintegrated into small incompetent units and did not have any regulatory mechanism, which
resulted in corruption, failure to hold elections, misappropriation of funds, and illegal money payments, (Olando, Mbewa & Jagongo, 2012). Additionally, the Amendment Act of 2004 gave the commissioner of cooperatives in Kenya extra powers and duties to regulate SACCOs in areas of auditing, enquiries, inspection, liquidation, promotion, and delivery of technical extension services. As outlined in the Amendment Act of 1997, this supplemented the role of government, which incorporated registration, operation, disbandment and financial innovation, along with the power to adjudicate SACCOs legislations and partnerships. The legislation of the SACCO Societies Act of 2008 provided the SACCO regulatory authority (SASRA) the authority and power to license SACCOs, regulate SACCOs, supervise SACCOs and promoting of deposits taking SACCOs in Kenya. (Ouma, Omagwa & Ngaba, 2018). Currently, the cooperatives Act Cap 490 regulates non-deposit taking SACCOs in Kenya. Ministry of Industrialization and Enterprise Development is mandated to supervise SACCOS.

Consistent with the SASRA guidelines, the cooperatives sector is divided into two, the financial cooperative and the non-financial cooperative societies. The financial cooperatives societies include SACCOs as well as housing and investment cooperatives societies, while non-financial cooperatives market the products and services of their members including coffee, dairy, tea, horticulture products, and other similar cooperative societies (Mutinda, 2019). In addition, the SACCO subsector is two-tiered considering the various financial services that it provides its members as well as the regulatory administration it adopts. Non-deposit taking SACCOs, also known as traditional SACCOs are responsible for a restricted array of saving and credit, which are registered and overseen by the Cooperative Services Legislation Act. In addition, the SASRA Act 2008 supervises and regulates all operations carried out by deposit-taking SACCOs in Kenya (Masika & Simiyu, 2019). It is also important to note that non-deposit SACCOs are categorised into rural and urban SACCOs whereby rural are service or product based SACCOs, while urban SACCO are having members drawn from same employer (Mutinda, 2019).

1.1.5 Financial Performance

The performance of an organization is a broad concept consisting 4 various elements (Alam 2011). The Client based firm performance, focuses on client contentment, performance and market; market and financial performance, focuses on sales, output, returns, position of the market, changing time of cash to cash, dividends. The performance of human resource which involves the satisfaction of employees. It also involves the effectiveness of the organizational for example innovation level, flexibility of production level and supply chain. The capabilities of organizational include assets which are rent-generating enabling institutions to attain super average profits. For example, management performance capability have an influence on numerous organizational performance indicators that allow business management to assess and promptly take remedial action on any prospective or real shortfalls (Athanasoglo 2009). Similarly, earlier marketing and strategy research claimed that controlling customer capability and managing process capability has an impact on numerous aspects of organizational financial performance. in the world of the moment in the moment in the moment. Financial success can be assessed using a variety of financial metrics, including net income after taxes, revenue on investment, return on assets (ROA), revenue from investment, and earnings per share. Financial ratio analysis is used to assess how well financial institutions and SACCOs are doing financially. (Ahmad et al., 2013) Financial statements contain financial ratios which are designed to give a financial indication of the organization financial performance. Most financial institutions performance including SACCOs main objective is reducing financial risks and generating respectable investment rewards in order to achieve this financial return (Alam, 2013). Return and risk typically have a well-accepted relationship. It is thought that the expected return will increase as the risk does,. Traditionally the measures of financial institutions financial performance was measured by risks and returns. The increased competition in the financial markets nationally and globally and the changes in the money association and financial dynamics in technology have had major changes in the financial market environment including SACCOs. This has posed a challenge to all SACCOs to make financial innovation preparations to enter into new competitive financial surrounding. Aburimm (2019) studied the effectiveness of commercial banks in Nigeria on political affiliation. The work revealed that political factors had an effect on financial performance of Nigerian commercial banks. Net Profit and return on investment is an evaluation of SACCOs financial performance. Various factors have been in use for example Stockholder' share capital; the composition of the bank portfolio by labor productivity, the productivity of capital, the capital base of the bank, the ratio of liquid assets to overall assets, the sum of loans compared to total deposits, the ratio of fixed assets to overall assets, the ratio of borrowed funds to total assets, and the ratio of loans reserves to total assets; capitalization level ; Gross Domestic Product (GDP), and level of customer satisfaction (Athanasoglou et al., 2018).

SACCOs financial performance can be measured as a function of internal and external factors. The internal factors can be from SACCO balance sheets and profit and loss accounts. This can be termed as SACCO main determiner of financial performance. The external factors are variables that are not directly related to SACCO management but reflect the legal and economic environment that affects the SACCOs operation and performance. This internal and external factors has been proposed by (Alam et al, 2015). The internal factors include size of the SACCO, amount of capital, management of risk and management expenses, and financial innovation. External factors affecting SACCOs financial performance include rate of inflation, lending interest rates, output of cyclical as well as market characteristics (Alam et al, 2015). Market characteristics involves concentration of market, the size of the industry as well as ownership of the SACCOs. In order to determine whether there is a relationship between the variables, this study will assess SACCOs' financial innovation and performance.

1.1.6 Financial Innovation and Financial Performance

A successful financial innovation builds a competitive position that grants a solid competitive edge and higher financial performance (Lyons & Joy, 2017). In order to sustain a competitive advantage, businesses must invent even more innovations as a result of the imitation that results from the Schumpeterian process of creative destruction. Joyce (2017) argued that the relevant aspects of technological change include financial innovations that cuts costs relating to collecting, storing, processing, and transmission of financial information, it also involves financial innovations that transform the means by which commercial bank
client access banking services. They cited ATMs, mobile banking, online banking, and electronic -money as among the most significant financial innovations affecting the banking distribution system which has an influence on financial institutions financial performance. Mansuy & Love (2018) argued that customer relations One of the biggest modifications to internal commercial banking systems that has also had a favorable impact on SACCO financial performance is the use of management systems, commercial bank financial management technologies, and other financial technology.

Specific Objectives of the Study
i. To assess the effect of Mobile banking on SACCOS performance, a case of Nakuru County
ii. To assess effect of Automated Teller Machines on SACCOS performance, a case of Nakuru County.

Hypothesis
i. HO1: No statistical significant between Mobile banking and SACCOS performance in Kenya, a case of Nakuru County.
ii. HO2: There is no statistical significant between Automated Teller Machines and financial performance of SACCOs in Kenya, a case of Nakuru County.

LITERATURE REVIEW
2.1 Introduction
This chapter reviews the arguments, conceptual framework, empiric studies, reviewed literature summary as well as research gaps.

2.2 Theoretical Review
The research was based on various financial innovation theories. The theory of agency was applied to explain financial performance. Information systems success model was applied in order to link the financial information systems utilization to the realize the organizational goals and benefits. Task-technology fit theory was used to show compatibility of financial innovation expected between the type of financial tasks and mobile money technology services for SACCOs financially benefit.

2.2.1 Agency Theory
Savings and credit cooperative societies board of management have a role and responsibility to manage the organization to ensure maximum return to the members who are the shareholders. Agency theory helps to show the relationship between the shareholders who are the principals and the management who are the agents (Jensen & Meckling, 2018) This theory can be used to show this relationship between the members of the saving and credit Cooperative and board of management which can be used to measure financial performance of SACCOs. This theory involves principal engaging an agent who is in involved in making decisions. The importance of this theory on the financial performance of SACCOs is involves dividing the Saving and Credit Cooperative societies into two that is the managers who act as the SACCO agents and the SACCO members who are the shareholders act as the principals. It also involves other members of the public who are also interested parties (Daily, Dalton & Canella, 2014).

2.2.2 Information Systems Success Theory
The information system’s measurement success is important in embracing its adaptation and use. DeLone and McLean (2012) commended an integrative theory for operationalizing factors for the success of information financial system. According to this theory information input quality and output quality is determines the success of any information financial systems. The desire features of information financial systems determines the success of information financial system also the technical level aimed at producing the required output. The features and technical levels dimensions linked indirectly to the information financial system has an effects on financial innovation on the performance of SACCOs. This theory was changed to fit research on electronic business by showing how financial information system can be of benefit to an organization. (DeLone & McLean, 2014). In the later theory, the quality of service quality dimension was considered important. SACCOs and organizational benefited from financial information accrued which was merged dimension of net benefit. In later theory putting into consideration the success categories gave rise to net benefits gained from the use information financial systems. The success factors were both casual and temporal, as success was viewed as changing not static state process. (Yusof, et al, 2019). Factors of success included quality of system, information, service information and user satisfaction. The success measurement dimensions were considered during adaptation level the mobile money financial technological services to achieve the SACCOs benefits. Since the research is investigating effects on financial innovation which include mobile money technology financial services to performance of Saving and Credit Cooperative Societies, the use of mobile money technology financial services must be adopted. The study assumes that the quality features of mobile system devices, quality of information completeness and information accuracy from mobile system technology application and quality service are well performed using mobile money technology financial services in the Saving and Credit cooperative societies is well addressed, since mobile money technology financial services are already in use by SACCOs. The loophole connects use of mobile money financial technology to SACCO financial gains. Delone & McLean (2014) updated information on financial theory success is upon which this document will rely upon. Overall, financial innovations should be developed in response to market participants' needs with the aim of achieving members' objectives, which will have an impact on SACCOs' overall performance.

2.2.3 Task-technology fit theory
This theory view technologies as individual tools to carry out tasks and activities. These activities involve converting inputs into output by individuals (Goodhue, 2016). Task technology is linked with utilization of technology fit to the impact of performance.
Goodhue and Thompson (2016) argues that improvement in financial information technologies enhances Savings and credit Cooperative society’s financial performance. The tasks to be performed should conform to the technology. This theory will assist SACCO members in performing tasks for successful benefits. Goodhue (2018) argues that the fit theory is among activity requirements, abilities of each member individually, and their functions interact with financial information technology. These leads to realization of benefits which are tangible given a certain technology. The use of task fit theory in mobile financial technology have an impact on SACCOs performance, mobile technology financial services should be used to fit with the activities the technology purports to support SACCOs services (Goodhue & Thompson, 2016). Task fit theory allows mobile technology financial services to fit each individual member activities and tasks to realize the performance outcomes. Apart from the mobile technology compatibility, the level of activity and task fit technology is determined by factors include use ease, authorization, quality system performance timeliness in production, reliability of systems, system accessibility, and the intended user’s relationships and interaction levels. (Goodhue & Thompson, 2016). Several researches has been done on the validity on activity theory. The research on mobile money financial technology showed a significant relation on financial performance and task technology (Staple & Sedon, 2014; Junglas & Watson, 2016). The past studies focused mainly on the functionality and adoption of mobile money information financial systems among members of SACCOs and didn’t look at its influence on SACCOs financial performance. It’s important to evaluate and assess the application of task fit technology theory in mobile money technology financial services, the use of mobile technology contexts and impact on financial performance and determination for adjustment of fit theory and its extensions as proposed by Junglas and Watson (2016).

### 2.3 Conceptual Framework

**Independent variables**

- **Automatic Teller Machines**
  - Value of ATM transactions
  - Number of ATM banking transactions

- **Mobile banking**
  - Value of mobile transactions
  - Number of mobile banking transactions

**Dependent variable**

- Financial performance
  - Return on Assets
  - Payback period
  - Profitability

*Figure 2.1: Conceptual Framework financial innovation and financial performance*

This often highlights a collection of overarching ideas and principles that have been assembled following investigation in the pertinent disciplines of study and use of the same to structure subsequent presentations (Tromp, 2009). It is a research instrument that was designed to aid a researcher in generating fresh information relevant to the study's objectives. This would make it easier to understand the relationship between the research's variables and outline the necessary conclusion. This further leads to the research's objective being further examined, confirmed, changed, and modified for the purpose of examining and describing the link between the survey's variables (Smith, 2014). The dependent and independent variables are shown in the conceptual framework. Mobile banking and ATM use are considered the independent variables. The financial performance is the dependent variable.

### 2.4 Empirical Review

Previous research regarding financial innovation have been carried both locally and globally. Duguet & Mairesec, (2018) carried out a study on the relationship between financial innovation and financial performance in on firms in Sweden. The study utilized the 4 equation model to show the firms’ financial invention conclusion to the firm financial performance. The outcome showed that there is a significant relationship between financial invention activities and firm productivity level. This also provided more indication on correlation between the firm size and financial innovation-tasks.

#### 2.4.1 Mobile banking

Nato (2011 researched financial innovations on financial inclusions. He considered mobile banking as a product of financial innovation. The study was carried out between 2006 and 2012 targeting people living in Kibera. The study was considered in three time frames; Earlier than 2005 before mobile money innovation, Between 2005 and 2008 after the introduction of mobile money 2008 and between 2008 and 2012. Primary data was used with linear probability to analyze data. The study revealed between 2005 and 2008 there was no ascertainment on the accessibility to financial services. However, finance access rose from 61.8% in 2008 to 71.45% in 2011 mostly contributed by mobile money. Waihenya (2013), researched on agency money and commercial banks level of financial inclusion. The performance index of commercial banks was measured based on the agency banking between...
February to June 2013. Number agents determined agency banking level, transactions per agency banking and amount of funds passed thorough the agents. Kenyuru (2014), studies on commercial bank deepening on financial inclusion for the years between 2008 and 2013. The number of deposit accounts was used to measure financial inclusion. Innovations products include banking agency.

2.4.2 Automated Teller Machines
Automated Teller Machine (ATM) is a telecommunication computerized banking machine that provides financial institution customers including SACCOs access to financial transactions anywhere in the financial institutions branches and outlets without face to face interaction with the financial institution teller. The use of Automatic teller machine involves the client identification by inserting a magnetic stripe chip plastic smart card. This plastic card has a unique number with some security data and card expiry date. The plastic card authenticity is done by the financial institution client inserting a personal identification number (PIN). The financial institution customer can access their bank accounts using the card to make bank transactions such as withdrawals of funds, cash credit card advances, checking bank account balances as well as purchase prepaid cellphone credit any time.

Financial institutions including SACCOs, In order to lower costs, wait times, and financial risk as well as increase sales and customer happiness, businesses are increasingly focusing on service efficiency using a variety of financial innovations. SACCOs' main goal is to provide more effective, exceptional service that will increase customer satisfaction, competitive, and income. To accomplish these goals, SACCOs have grown their financial resources for delivering services through the opening of new branches, the provision of a variety of financial services, and the expansion of tellers and cash points. Nonetheless, SACCOs banking halls continue to see high client/customer traffic, which prompted the development of self-service technology like Automatic Teller Machines (ATMs).

Information and communication technology (ICT) has been widely adopted in the Kenyan banking sector over the past twenty years, with the majority of commercial banks—including SACCOs—supplementing the traditional banking model with cutting-edge tools like ATMs, point-of-sale terminals, and internet banking. The development obtained in information and communication technology (ICT) has made it feasible for financial information to be digitised and delivered faster and cheaper. The e-payments system is one of the new financial services that have been developed. Financial transactions are sent quickly overall. The usage of ATMs generates advantages for SACCOs as well as customers in terms of time and location efficiency, a decrease in service transaction costs for depositors' needs, and an increase in market share.

If a client swipe a debit or credit card at a SACCO branch, she or he trigger a sequence of financial events. The client account number stored in the plastic card’s magnetic stripe and chips zooms across leased phone lines and wireless medium of communication linked to the merchant’s SACCO headquarter for authorization purposes. An efficient machine for carrying out the e-payment transaction is the Automated Teller Machine (Solomon, 2017).

Automatic teller Machines enables clients to transact their banking transactions from anywhere in their SACCO branches. Currently the clients are facing frustrations and setbacks in the use of automated teller machines for example non dispensation of funds or cards getting stuck in the machine and also debiting a transaction without dispensing Dapo (2018) study showed that these setbacks of automated teller machine is a major concern on its use. This has caused challenges and problems to the usage of automated teller machines by the beneficiaries in SACCOs in Kenya.

2.7 Research Gaps
The review of previous relevant literature on financial innovation, shows that there is a research gap in the area of financial innovation in SACCO has been done both locally and internationally. However, there are no comprehensive studies relating to financial innovations on SACCOs performance in county government of Nakuru. Therefore, this study attempted to fill these gaps by evaluating relationship between financial innovations on SACCOs performance in county government of Nakuru, Kenya.

RESEARCH METHODOLOGY
3.1 Introduction
The approach for carrying out the study is explained in this part. It includes the research methodology that was employed. The population, the size of the sample, the sampling process, the validity and reliability of the research instrument, the data collection procedures, and the data analysis methods.

3.2 Research Design
The research adopted descriptive survey. This design was opted for because it is an effective research design to explain the type of relationship and impact that the independent variables have on dependent variable. The research design answered the question of what type of study was undertaken for it to provide answers to the research problem under study. The research design was appropriate in answering the research question involving the description of the variables. Users may utilize the material produced by this study design to learn more about how financial innovation influences SACCOs performance in Nakuru county. It examined the degree to which the financial innovation phenomena had an impact on the relationships between the various variables. The performance of SACCOs in Kenya's Nakuru county is one of the variables, which is depending on financial innovations. (Independent variable).

3.3 Target Population
The collection of components or things that the researchers are looking for is known as the target population. 47 SACCOs made up the target population in Nakuru County. Appendix 111 demonstrates that during the quarter that ended on June 30, 2021 they were 47 registered SACCOs in Nakuru County Kenya. SACCOs branch managers were selected because they are the ones that are involved in implementing financial innovation practices in their branches.
3.4 Sample Design
Census will be used in all the 47 SACCOs. This is because the number of SACCOs is small and can be easily managed by the researcher.

3.5 Description of Research Instruments
The data collection instrument that was utilized in this study included the questionnaires that will be administered to the SACCOs branch managers and secondary data from SACCOs reports. The evidence for this research study was obtained from the SACCOs in Nakuru county records 2016 to 2020 and was collected through secondary data collecting to assess the study’s issue on the three independent variables on financial innovations.

3.5.1 Questionnaire for Branch Managers
The study used open ended as well as closed ended questions. Questionnaires were considered because they are able to gather a lot of data within a relatively short time. The form were prepared, administered to the selected branch managers and were picked after one week by the researcher upon agreed time between the researcher and the SACCO branch manager.

3.6 Pilot Study
The researcher conducted a pilot study in three SACCOs from Nyandarua County. This comprised of Mwalimu National SACCO, STIMA SACCO and Kenya police SACCO. Three branch managers filled the questionnaires. The piloted questionnaire was assessed for clarity and those questions found to be inadequate for this study were changed in order to ensure the quality of questionnaire thus improving its content validity. The questionnaires were evaluated on the basis of the answers given. After a period of one week the same instrument was re-administered to the same respondents. The two sets of data were computed by use of Pearson Product moment correlation and yielded a coefficient of over 0.7. This was deemed reliable (Kumar, 2011).

3.6.1 Validity of Research Instruments
To ensure content validity, the questionnaire was given to three financial experts to assess. These experts were chosen from the Department of accounting and finance at Mount Kenya University. The assessment included the relevance, appropriateness of the items as well as the language used and readability of the questions. The three experts rated the questionnaire and gave scores basing on checklist that was provided. In order to estimate the validity of sections of the questionnaire a comparison was done by correlating assessment of the three experts by using split half technique in order to ascertain if the questions and items on the questionnaire represented the content domains, the relevance of the items to research questions, clarity of the language, clarity and coverage of questions. A content validity index of individual items ranging 0.50 to 1.00 was used to ascertain whether the instruments was valid or not.

3.6.2 Reliability of Research Instruments
Questionnaire was assessed using a Pearson Product moment correlation and yielded a coefficient of over 0.7 which was deemed reliable (Kumar, 2011). The method used to measure the internal consistency of the items so as to determine whether all the items in the research instrument measure the same thing. A pilot evaluation was done on respondents who were not used in the final study to enhance the reliability of the survey instrument for this study, and then Cronbach’s Alpha coefficient was calculated to establish internal consistency of the instrument. The coefficient was above 0.7 therefore accepted (Kumar, 2011).

3.7 Data Collection
Data collection was primary and secondary data in nature. The form contained questions in which the researcher required the target respondent to respond accordingly prior explaining to the respondent. This was based on their knowledge and also from previous years SACCOs financial records for the past five years. The branch managers of SACCOs within Nakuru County were the respondents. The Central Bank of Kenya, which also regulates the banking industry, was the source of secondary data for the study.

3.8 Data Collection Procedure
The author received approval from Mount Kenya university school of post graduate. Then he applied for a permission from (NACOSTI). The researcher also got clearance from Ethical Review Committee (ERC) and also prepared a consent letter for the respondents. The research then presented the introduction letters to all the branch managers in order to be permitted to undertake the study. One copy of the research permission granted was given to the SACCOs selected. The questionnaires were administered by dropping to the branch manager and picked after one week. The respondents were assured of confidentiality of their identities in dealing with responses.

3.9 Data Analysis and Presentation
Qualitative data collected was analyzed narratively that is content analysis. Inferential Statistics was be considered to analyze the findings. To analyze the regression model SPSS software will be used. Research regression model is demonstrated below;

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon \]

\( Y = \) Financial Performance (measured on return on equity.)
\( \beta_0 = \) Constant Term \( \beta_1, \beta_2 = \) Beta coefficients \( X_1 = \) Mobile Banking
\( X_2 = \) Automated Teller Machine; \( \epsilon = \) Error

Statistical tests were run to see if the impact of financial innovations on SACCOs performance in Nakuru County is statistically significant. The researcher carried out a variance analysis (ANOVA). For each independent variable, a t-statistical test was used, and the researcher used F statistics to test the overall model. The study was tested at a 95% confidence level and a 5% significance level, and the researcher looked at significance values when extracting the ANOVA statistics.
3.10 Ethical Considerations

Therefore in investigation, the proper precautions were taken to guarantee that questionnaires came with a cover letter outlining the purpose and parameters of the study as well as a certificate of respondent agreement. This gave the respondent the option to actively and consciously offer or deny their permission. Individual names or any other details that could reveal the respondent's identity were not included in the question as a sign of respect for privacy and secrecy. The decision to participate in the study was left up to the respondents, and when SASSRA authorization was required, it was obtained before some data could be accessed. Moreover, the researcher treated the data with tight discipline. The timing and conditions under which material was to be disclosed or kept private were entirely up to the selected respondents. The researcher also made an effort to respect the views of the chosen respondents and avoid fostering an atmosphere of worry, embarrassment, or shame. The researcher asked for it to make sure the respondents weren't subjected to rules of based behavior that may have put their jobs in danger. Also, the researcher successfully struck a balance between the pragmatic and moral philosophy aspects of morality. Any direct or indirect benefits obtained from participation in the study were disclosed to the respondents. Additional ethical factors noted included minimizing information fabrication and giving correct credit to sources as a method to appreciate the work of other writers and increase the overall research's credibility. From the university in a letter, Ethical Review clearance and NACOSTI letter was also sought to enable data collection exercise.

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.0 Introduction

This section presents the broad outlines of data collection on the effects of financial innovation on the performance of SACCOS in Nakuru County, Kenya. It began with a brief introduction, financial innovation variables, SACCOS performance, correlation analysis using SPSS, and interpretation of findings.

4.1 Pre-testing Results for Research Instruments

The purpose of the study was to evaluate the dependability of the research tools. The outcomes are displayed in Table 4. The Cronbach Alpha correlation coefficient value for the variable ranged from 0.758 to 0.771 as a consequence of the reliability test results. Internal consistency dependability increases as Cronbach's alpha coefficient gets closer to 1. (Sekaran, 2003). The instrument was dependable since all of the instruments met the criteria of 0.7.

Table 1: Cronbach Alpha for Reliability Assessments

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of items</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile banking</td>
<td>10</td>
<td>0.758</td>
</tr>
<tr>
<td>ATM</td>
<td>10</td>
<td>0.736</td>
</tr>
</tbody>
</table>

(Source: research data 2022)

4.2. Response rate

A total of 47 questionnaires were distributed during the investigation. 47 respondents correctly completed and submitted their surveys. Babbie (2012) suggested that for analysis, a feedback of 50% was sufficient, 60% was good, and 70% to 100% was extremely good. This meant that the researcher might consider the 100% response rate as acceptable.

Pre-testing Results for Research Instruments The purpose of the study was to evaluate the instrument reliability. Table 1 displays the outcomes. The variable's overall Cronbach Alpha correlation coefficient value ranged from 0.799 to 0.817 as a result of the reliability test. Internal consistency dependability increases as Cronbach's alpha coefficient approaches 1. (Sekaran, 2013). All the instruments met threshold of 0.7 and therefore the instruments were reliable

4.2.1 Background data

Table 2: Gender of the Respondent

<table>
<thead>
<tr>
<th>Sex</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>28</td>
<td>60</td>
</tr>
<tr>
<td>female</td>
<td>19</td>
<td>40</td>
</tr>
<tr>
<td>Totals</td>
<td>47</td>
<td>100</td>
</tr>
</tbody>
</table>

(Source: research data 2022)

The surveys gathered data about the participants' gender. Findings showed that 60% of responders were men and 40% were women. This demonstrates that both sexes participated in the study, preventing gender bias from affecting the results. These results are consistent with Francis' (2017) findings, which may be proof that the SACCO sector is dominated by men (Ngure, 2017).

Table 3: Age Distribution

<table>
<thead>
<tr>
<th>Age bracket</th>
<th>Frequency</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>22-25 years</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>26-35 years</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>36-45 years</td>
<td>15</td>
<td>32</td>
</tr>
<tr>
<td>Above 45-years</td>
<td>20</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100</td>
</tr>
</tbody>
</table>

(Source: research data 2022)
In the study, participants were asked to specify their age group. According to the results, 4% of the respondents were between the ages of 22 and 25, 21% said they were between the ages of 26 and 35, 32% said they were between the ages of 36 and 45, and 43% said they were beyond the age of 45. This shows that the respondents' ages were evenly spread, with the majority of them being above 45.

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters</td>
<td>14</td>
<td>30</td>
</tr>
<tr>
<td>Bachelor</td>
<td>28</td>
<td>60</td>
</tr>
<tr>
<td>Diploma</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Totals</td>
<td>47</td>
<td>100</td>
</tr>
</tbody>
</table>

(Source: research data 2022)

The data gathered regarding respondents' educational backgrounds. The majority (50%) of those surveyed had earned a bachelor's degree in their areas, followed by master's degrees (30%), diplomas (10%), and no certificates or doctorates. These findings back up the earlier recommendation made by Sasra (2013) that staff education increases their capacity to improve governance and service delivery efficiency, which boosts financial performance being over the age of 45.

<table>
<thead>
<tr>
<th>Period of operation</th>
<th>frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 2 years</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>2 to 5 years</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>6 – 10 years</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Over 10 years</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>Totals</td>
<td>47</td>
<td>100</td>
</tr>
</tbody>
</table>

(Source: research data 2022)

Respondents to the survey were asked to specify how long the institutions have been in operation. The study's findings showed that 5 (or 10%) of the SACCOs had been in operation for an average of less than two years. 11 (or 25%) of the SACCOs had been in operation for two to five years; 20 (40%) of the respondents had been in business for six to ten years, while 11 (25%) had been in business for more than ten years. This suggests that the majority of the respondents had worked for a sizable duration, which suggests that most of the respondents had extensive information that this study could rely on, being over the age of 45. This supports earlier findings made by Karanja (2011), who found that a company's operating history reveals the firm's financial stability and experience in the sector it serves.

4.2 Data Presentation.

The study's primary goal was to ascertain the impact financial innovations have on SACCOs in Nakuru County's financial performance. The questionnaire's statements on mobile banking and automated teller machines were used to assess the aim.

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>SA</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
<th>mean</th>
<th>Std deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mobile Banking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>By reducing operating costs, mobile banking affects the bank's return on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>assets.</td>
<td>9(2%)</td>
<td>5(10%)</td>
<td>35(75%)</td>
<td>5(11%)</td>
<td>3.98</td>
<td>0.448</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The payback period for investment in mobile banking is under three years,</td>
<td>1(3%)</td>
<td>1(2%)</td>
<td>7(15%)</td>
<td>37(77%)</td>
<td>1(3%)</td>
<td>3.76</td>
<td>0.448</td>
</tr>
<tr>
<td></td>
<td>producing a favorable return on investment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The feasibility of SACCOs has increased because to mobile banking.</td>
<td>2(5%)</td>
<td>14(30%)</td>
<td>29(61%)</td>
<td>2(4%)</td>
<td>3.63</td>
<td>0.536</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.79</td>
<td>0.477</td>
</tr>
</tbody>
</table>

(Source: research data 2022)

According to the findings in Table 6, 40 (86%) of the respondents believed that mobile banking lowers operational costs. 9(2%) disagreed, while 5(10%) were neutral. Investments in mobile banking were recouped within three years, as acknowledged by 38 (80%) of the respondents, and 7 (15%) were neutral and 2(5%) disagreed that mobile banking investments have a payback of less than 3 years. The profitability of SACCO has benefited from mobile banking. According to the results, 31 respondents (65%) agreed, 14 respondents (30%) were neutral, and just 2 respondents (5%), disagreed. This suggests that mobile banking increases
SACCO profitability. The replies' average score was 3.79, suggesting that mobile banking has a favorable impact on return on assets. The replies clustered within one standard deviation of the mean, according to the standard deviation of 0.477. Using data from Africa and Bangladesh, respectively, Mbiti (2010) and Mahjabin (2012) support these conclusions. They discovered that mobile phones provided an opportunity for SACCOs to improve their incomes and, consequently, better return on assets by having a large number of virtual mobile accounts, especially for the unbanked. Most Kenyan commercial banks and SACCOs have used mobile technology, which has revolutionized their business practices and increased revenue. Increased partnerships between SACCOs and mobile phone service providers are primarily motivated by income sharing and client retention. SACCOs are now competing for SIM card space as a result of the rivalry for income-generating mobile phone activities. This means that a SACCO is more likely to earn money to recoup its investments in mobile banking the more visible its operations are on the SIM card. Some SACCOs even run raffles to entice clients to boost their mobile phone transactions with the aim of lowering their operating costs. Many SACCOs in Kenya have catchy keywords for their mobile banking solutions, which shows how aggressively mobile banking is being expanded subsequently influence growth of commission income.

4.2.2 Mobile Banking

The number of transactions climbed from 1.48 million in the year ending June 30, 2015 to 4.75 million in the year ending June 30, 2020, indicating a sustained rise in the use of mobile phone money transfer services among Kenyans. In accordance with the Government's goal of promoting financial inclusion and strengthening it, particularly for rural-urban poor and the unbanked, the Central Bank of Kenya continues to keep an eye on developments in this sector. From 0.19 million to 0.89 million clients used the mobile phone money transfer service.

Table 9: Mobile Banking in Kenya

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount transferred (Ksh billion)</td>
<td>2.49</td>
<td>4.07</td>
<td>8.48</td>
<td>9.28</td>
<td>10.99</td>
<td>14.36</td>
</tr>
<tr>
<td>Number of agents</td>
<td>53</td>
<td>82</td>
<td>95</td>
<td>109</td>
<td>134</td>
<td>161</td>
</tr>
<tr>
<td>Number of transactions (million)</td>
<td>1.48</td>
<td>1.77</td>
<td>2.25</td>
<td>3.76</td>
<td>4.15</td>
<td>4.75</td>
</tr>
<tr>
<td>Number of 'registered' customers/accounts (million),</td>
<td>0.19</td>
<td>0.28</td>
<td>0.35</td>
<td>0.68</td>
<td>0.77</td>
<td>0.89</td>
</tr>
</tbody>
</table>

Source: CBK (2020).

Another new mobile SACCO banking entrant is M-Sacco, Kenya's newest mobile banking innovation, which at the end of 2020 crossed the Sh14.36 billion mark in a massive uptake that might force the SACCO back to the drawing board. Less than a month after its debut, in December 2020, M-Sacco customers had deposited more than KSh 9.76 million in savings and borrowed more than KSh 12 million, the most activity among the Saccos. The product enables users to earn interest while saving and borrowing money via their mobile devices. Customers who are eligible may also be eligible for emergency loans.

4.2.2 Automated Teller Machines

The number of Automated Teller Machines (ATMs) in the payment card service increased 43,150 from ATMs in June 2015 to 96,430 ATMs in June 2020. This growth may be attributed to SACCOs business expansion strategies. The value of transactions effected through debit cards in the year to June 2015 increased from and 56,200 to 74,180 credit card usage increased from 71,200 at 2015 to 84,350 in 2020, respectively. Correspondingly, withdrawals increased by 11.51 percent and 1.16 percent from 2015 to 2016 and from 2016 to 2017 respectively. Million withdrawals to 148.80 million withdrawals and 115.70 million withdrawals to 219.98 million withdrawals for acquirers and issuers, respectively. The growing usage of cards signifies a growing shift from cash based payments to non-cash payments by the public.

Table 7 ATM on SACCOs financial performance.

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>SA</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
<th>mean</th>
<th>Std deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Automated Teller Machines (ATMs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ATMs have an impact on operational cost reduction, which improves the SACCO's return on assets.</td>
<td>7 (15%)</td>
<td>2(5%)</td>
<td>33(70%)</td>
<td>5 (10%)</td>
<td>3.75</td>
<td>0.493</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Investing in ATMs have a payback time of less than three</td>
<td>9(20%)</td>
<td>35(75%)</td>
<td>2 (5%)</td>
<td>3.85</td>
<td>0.493</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
years, which results in a high return on assets.

ATM revenue has a favorable effect on SACCOs profitability.

<table>
<thead>
<tr>
<th></th>
<th>3 (7%)</th>
<th>18 (37%)</th>
<th>11 (23%)</th>
<th>14 (30%)</th>
<th>1 (3%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.82</td>
<td>1.011</td>
<td>3.47</td>
<td>0.666</td>
<td></td>
</tr>
</tbody>
</table>

(Source: research data 2022)

Of the 10 days of the week, the majority of the people who will be the 10 days of the week of the time the previous day simulation. 75% of respondents believed that ATMs might return their initial investments in three years, 5% strongly agreed, and 20% were undecided. The majority, 21 (46%) disagreed, 11 (23%) were neutral, and 15 (33%) agreed that income from ATM cards had a favorable impact on SACCO profits. The average score for the impact of ATMs on return on assets was 3.47 on a five-point scale. This mean score suggests that there were more respondents who agreed to the claims that ATMs influenced ROAs of commercial banks positively thus boosting financial performance. The standard deviation is 0.666, which indicates that the range from the mean is within one standard deviation. Akram and Allam (2010) conducted a study in Jordan and discovered that the usage of information technology, which is embodied in ATMs, enhanced the matrix of financial and operational performance. The study came to the conclusion that information technology had an effect on return on assets, which is consistent with the results of this study. Nadia, Anthony, and Scholnick's (2013) study in the US concluded that the adoption of information technology platforms like ATMs verifies the conclusions of this study.

The results show that ATMs have the potential to bring in money for SACCOs, which is why commercial banks in Kenya have been aggressively expanding their ATM networks. The sharing of ATM platforms between banks and intermediary financial organizations (savings and credit cooperative societies and micro-finance institutions) is another development that shows the potential of ATMs to increase SACCOs' profits. Additionally, ATM machines are now found in unconventional places including gas stations, supermarkets, universities, and rural areas, demonstrating the significance that SACCOS regard to ATM machines in terms of attracting and retaining consumers as well as strategically generating fees for their use.

### 4.3 Regression Analysis Result

The summary findings of the regression model are shown in Table 8 together with R, R squared, corrected R squared, and standard error of the estimate.

**Table 11**: Regression Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted Square</th>
<th>R</th>
<th>Standard error estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.973&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.954</td>
<td>0.756</td>
<td>2.187</td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), mobile banking, ATM. 
(Source: Research findings, 2022)

Table 8 shows R square which is also named as the coefficient of determination shows a strong positive association between independent variables (mobile banking, ATM,) and dependent variable (financial performance). The R value of 0.973, which indicates the strength of the link, indicates this. It illustrates how dependent variable variations resulting from changes in independent factors might vary. The independent variable explained 95.4% of the variance in the financial performance of SACCOs in Nakuru County, as shown by the above table's value of R squared, which was determined to be 0.954. This variation was 95.5%. Mobile banking and the use of automated teller machines serve as independent variables that hold other factors unaccounted for in the study constant. An estimate of 0.954 indicates a strong linear link between the dependent and independent variables. R is the correlation coefficient, which explains the strength of the relationship between the independent and dependent variables.

Because the variation caused by the investigated variables (95.8%) is so great, it can be trusted to explain changes in the financial performance of the SACCOs in Kenya's Nakuru County. The Adjusted R Square value of 0.756, which indicates that the study's findings are 75.6% dependable, further demonstrates the reliability of the results. As a result, the regression model constructed may be trusted to explain patterns in the financial performance of the SACCOs in Nakuru county, Kenya.

Table 9 The Anova findings are shown below, and the F-statistic and probability of F-Statistic are used to describe how the model fits.

**Table 12 ANOVA Table**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>110.080</td>
<td>3</td>
<td>26.650</td>
<td>5.02</td>
<td>.014&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Residual</td>
<td>5.237</td>
<td>1</td>
<td>5.227</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>115.317</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), mobile banking, ATM.
b. Dependent Variable: ROE
(Source: Research findings 2022)
According to table 9, the F statistic is 5.02 with a distribution of df (3,1), and the significant value of 0.014, which is less than the critical value at 5% level in a 2-tailed test, indicates that the likelihood of witnessing a result greater than or equal to 5.02 is less than 0.001. This demonstrates that the regression model generated is statistically significant, the variation in the findings is minimal, and consequently the model can be relied upon to explain the impact of financial innovation on performance of SACCOS in Nakuru County, Kenya.

Table 10 below shows the coefficient results for the model variables, the t-values as well as the significance (p-value).

### Table 13: Regression Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>0.649</td>
<td>0.029</td>
</tr>
<tr>
<td>MOBILE BANKING</td>
<td>ATM</td>
<td>.005</td>
</tr>
</tbody>
</table>

a. Dependent Variable: ROE

(Source: Research findings, 2022)

The author used a multiple linear regression analysis to ascertain how financial innovations in Kenya's Nakuru County affected SACCOS performance. The results of the regression test, which are shown in the table, show that all of the coefficients are positive and significant, as shown by the fact that their p-values (sig. values) are all less than 0.025 when tested at the 5% level with a two-tailed test. The coefficients are statistically significant and explain a substantial influence of the independent variables on the financial performance of the SACCOS in Nakuru County, Kenya, as a result of these values being less than the critical value at 5% level.

Using the return on equity of SACCOS as the dependent variable, the linear model was estimated as:

\[ Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \epsilon \]

\[ Y = \text{Financial performance of SACCOS}; \beta_0 = \text{Regression constant} \]

\[ X_1 = \text{mobile banking}; X_2 = \text{ATM}; \epsilon = \text{Error term} \]

A unit rise in mobile banking will result in 0.029 times rises in SACCOS achievement, a unit increase in ATM usage will result in 0.005 times increases in SACCOS performance according to the data analysis. This demonstrates that ATMs, and mobile banking has a beneficial impact on SACCOS performance.

**Test of Significance**

A chi-square test was used to determine the significance of the connection between the dependent and independent variables in this study at a 5% level of confidence. In a 2-tailed test, the critical significance value was chosen at 0.025. The results demonstrate the relevance of the association with a significant value below this threshold (0.025). The table below shows the results of the chi-square test for the significance of the association between financial performance and the independent variables.

### Table 14: Chi-Square Test for the Relationship between the Variables

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Df</th>
<th>Asymp.sig(2sides)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person chi square</td>
<td>19.000</td>
<td>16</td>
<td>0.021</td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>15.094</td>
<td>16</td>
<td>0.004</td>
</tr>
<tr>
<td>Linear by linear association</td>
<td>3.147</td>
<td>1</td>
<td>0.16</td>
</tr>
</tbody>
</table>

(Source: Research findings, 2022)

The significance test findings show a Pearson chi-square value of 19 with 16 degrees of freedom at a confidence level of 5% based on the table results. In a 2-tailed test, the significance value is 0.02, which is lower than the critical value (0.025). Thus, there is a statistically significant association between the financial performance of the SACCOS and their financial innovation in the Nakuru County government.

### 4.4 Summary and Interpretations of Findings

The goal of the study was to ascertain how financial innovations affected the functioning of SACCOS in the Nakuru County Government. Results based on this goal are discussed in this section. ROE was used to gauge the SACCOS in Nakuru County's financial performance from 2015 to 2020. Two variables—mobile money banking and ATM use, were used to gauge the study's financial innovativeness, with financial performance serving as the dependent variable.

Regression analysis was the primary method used to answer this question. To determine how well the variables were related, correlation analysis was performed. To assess the linear relationship between the dependent and independent variables, multiple regression analysis was also performed. At a 5% level of confidence, a 2-tailed test was used to determine the significance of the associations and correlations. The primary statistical test used to evaluate the significance of the associations was the chi-square test.

The Pearson correlation test was carried out independently for each independent variable and the dependent variable to examine the relationship between the financial innovations and the financial performance of SACCOS in Nakuru County. The calculated
value of 0.803 indicates that the Pearson correlation value between the value of mobile banking and financial performance is positive and strong. The statistical value supporting the link was 0.012, which is less than the crucial threshold of 0.025 at 5% level with a 2-tailed test, and this value was judged to be significant, confirming the association. The study's findings showed a favorable and high association between SACCOs' financial performance and mobile banking, which was also significant when examined at the 5% level. This is supported by the Pearson coefficient value of 0.687, which is a high and positive correlation coefficient. The results show a substantial favorable correlation between financial performance and the mobile banking SACCCOS in Nakuru County. The results of the study also indicated that mobile banking had a favorable impact on performance. The t-value for this effect was 0.525, which means that it was not statistically significant at either the 5% or the 10% significance levels. Although the study found that mobile banking improved SACCOs' performance in Nakuru County, Kenya, by (0.029), the effect was not considered significant, and the outcome meant that mobile banking had less of an impact on SACCOs in Nakuru, Kenya. Given that the majority of financial innovations made by various telecommunication companies in Kenya do not function as subsidiaries but rather increase annual earnings for the parent company. The findings were congruent with those of Korir (2012), who found that financial innovations have a favorable impact on financial institutions' performance. In his study to determine the elements impacting mobile banking, 64% of mobile users disputed that the cost of mobile banking was too expensive. Mobile banking in Kenya. According to this study, using ATMs improved SACCO performance (0.005). The p-value was 0, and the t-value was 0.301. Even while ATMs improved performance, their impact was insignificant at the 5% or 10% levels of confidence. As a result, the study discovered that automated teller machines, and mobile banking improved the performance of SACCOs in Nakuru, Kenya. At a 5% level of confidence, none of these factors were significant. According to Jack and Suri (2011), customers of M-PESA, a form of mobile banking that clearly outperforms its predecessors in terms of money transfers on almost all fronts, report that doing without it would result in significant losses because it is faster, less expensive, and more dependable. These are some of the findings from various academics that explain the favorable association of financial innovations in regard to performance and use. It is important to note that the study supports Njenga and Kamotho's (2019) assertion that the requirements of a robust M banking implementation revolved around improved network coverage, quality connections, and reduced costs to ensure affordability to all prospective participants. Service providers might be better off offering service at low costs to attract more users rather than insisting on high levies that deter some potential participants. By doing so, they will be able to increase the revenue stream by encouraging volume of transactions, which will result in improved performance.

**SUMMARY, CONCLUSIONS AND RECOMMENDATION**

**5.1 Summary**

The analysis and information gathered led to the following summary, conclusions, and suggestions. The researcher wanted to determine the impact of financial innovations on the performance of SACCOs in Nakuru, Kenya, and the data was collected as a result. The study used a descriptive study methodology, and the population consisted of all SACCOs branches in Kenya's Nakuru County. Secondary data was gathered. The researcher gathered information on two factors—mobile banking and use of automated teller machines.—to accomplish this goal. Descriptive and regression analyses were used to examine the data. According to the study on how mobile banking affects Kenyan commercial banks' financial performance, mobile banking has a significant positive impact on performance on the basis of convenience, cost savings, transaction security, service dependability, virtual currency, handset operation, and service knowledge. In the banking industry, mobile banking has significantly boosted commission-based fees, income generation, annual profitability, maintenance costs, and motivated profit. The results also demonstrated that mobile banking significantly affects financial performance. The investigation was in reject with the null hypothesis because the t-significance statistic's level was less than 0.05 (P=0.000). According to research findings on the impact of ATM innovation on financial performance, SACCOs in Nakuru, Kenya, benefited financially from mobile banking innovation. The majority of respondents identified the cost, accessibility, and security of ATM banking as the three main factors that influence ATM usage and, in turn, the amount of money that is drawn in, which in turn boosts the financial performance of SACCOs in Nakuru County, Kenya. As a result, the study's findings showed some promise for the relationship between ATM innovation and SACCO financial performance in Nakuru County, Kenya. An F test was used to assess the general model's validity, and the researcher found significance to be at 0.314, validating the general model. In order to establish the hypothesis, the researcher additionally ran a t-test on each individual variable. Financial innovation was found to have an effect on SACCOs' financial performance when the null hypothesis was disproved. However, none of the examined variables was significantly connected to performance.

**5.2 Conclusion**

The results of this study show that a variety of financial innovative factors affected the financial performance of SACCOs; some of these factors had a greater impact than others, while others had little bearing on the performance of SACCOs. Therefore, the researcher accepts the alternative hypothesis that these factors have an impact on SACCO performance and rejects the null hypothesis that financial innovations have no effect on SACCO performance in Kenya's Nakuru County. The performance of SACCOs in Nakuru County, Kenya, was not substantially correlated with any of the examined variables. The number of transactions climbed by 39.51 percent, indicating that mobile phone money transfer service usage among Kenyans is still rising. Mobile phone money transfer service's customer base grew by 10.06 percent. From Ksh919.22 billion for the year ending June 30, 2015, to Ksh1,375.83 billion for the year ending June 30, 2021, the value transmitted through mobile money transfer services...
climbed by 50.29 percent. The rise in transaction volume and value highlights the expanded role played by mobile banking in advancing SACCO financial initiatives supported by the Central Bank. The study's conclusion is that the government and other relevant authorities should provide incentives for the creation of new financial innovations in order to improve SACCO performance and boost revenues. Since M-Shwari offers identical products to commercial banks but with added convenience because users don't have to wait in a banking hall, its meteoric expansion is expected to trigger anxieties in the SACCO sector. In addition to numerous accounts being opened every day, CBA claims that since the debut of M-Shwari, its balance sheet has significantly grown. The bank's revenue is anticipated to be adversely impacted by it (CBA, 2013). According to the study, automated teller machines, and mobile banking improved the efficiency of SACCOS in Nakuru County. At 5% levels of confidence, all of these factors were significant. The study takes into account innovativeness, establishing a link between financial innovation and the financial performance of SACCOs in Kenya's Nakuru County. Therefore, the researcher draws inferences about the relationship between financial innovations and the financial success of SACCOs based on the findings discussed in the section above. Financial innovations in Kenya's financial industry generally have a beneficial impact on SACCOs' financial performance. This has a major impact on the SACCOs' profitability, which also affects their competitive edge. This supports the thesis of a number of research, including Walker (2014) and Damanpour (2011). According to their findings, financial innovations have a favorable effect on performance measures. These findings further support the significance of the transformative effects of financial innovations on SACCO performance and operational effectiveness. Findings from the data gathering revealed that the financial innovativeness of SACCOs had a favorable and significant impact on the SACCOs' financial performance. These results show that the financial innovativeness dimension of SACCOs has a major impact on their financial performance. The study came to the conclusion that, among the innovative aspects examined, mobile banking was the most crucial component that managers should take into account when making decisions. The results show that higher levels of innovation lead to better financial performance. The study's findings highlight the importance of innovations created to satisfy customer wants as well as those created to set them apart from rivals in terms of enhancing financial performance. These results are consistent with those of a study on innovations and financial performance conducted by Mwangi (2017), which showed that innovations in finance had a statistically significant impact on the income, return on assets, profitability, and customer deposits of SACCOs in Nakuru County, Kenya. According to the results of the evaluation of the SACCOs' financial inventiveness in terms of profitability and asset value, this was the case.

5.3 Recommendations
According to the study's conclusions, management of SACCOs should implement more mobile banking innovations because they have the greatest influence on financial performance. They should also take advantage of more technologies that improve alternative banking. As a result, employers should involve their staff in capacity building, professional development, and information technology skills and competencies both before and during the introduction of new technologies into their organizations. The SACCOs should be laser-focused on their requirements and utilize the best technologies to accomplish their objectives. The report suggests that SACCOs modernize banking services by adjusting to mobile banking and ATM in order to improve market share as well as create jobs. On the other hand, SACCOs should raise awareness of the services that are offered online by offering substitute technologies, such as mobile applications. SACCOs should have a strong market research division that can carry out surveys to determine the new financial products offered by rivals as well as the benefits and drawbacks of financial innovations. The SACCOs will be able to innovate as a result, helping it to stay competitive. According to the study, SACCOs should encourage innovation in other departments including marketing, human resources, and customer service. Every financial innovation examined in this study tends to enhance the SACCO's office operational sector. To enable for the free movement and circulation of mobile money, the government should waive or lower tax obligations on mobile money and airtime rates. The rivalry is fierce since different SACCOs have distinct financial breakthroughs. For optimal effectiveness and productivity, each SACCO should fully advertise its financial innovations in order to both retain and draw in new customers.

5.4 Suggestions for further studies
The study concentrated on SACCOs in Kenya's Nakuru County; future studies can examine how financial changes affect SACCOs in other counties. To determine how financial innovations affect other financial sectors of a nation, such as the stock exchange market and the insurance industry, a comparable study on the consequences of financial innovations can be conducted. Owing to the various new inventions in this digital era, a research similar to this can be conducted after a year to account for new financial innovations in the banking industry and how they affect its performance. It is possible to conduct a cross-sectional survey that includes the entire financial organization. This will make it possible to generalize across industries.

REFERENCES


