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Effects of Financial Innovations on Performance of Commercial Banks in Kenya

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Abstract:
Understanding how financial innovations affect Kenya's commercial banks' performance is the main goal of the current study. The United States has long been a leader in financial innovation. However, in terms of financial innovation, China and African nations like Kenya and Nigeria have taken the lead globally. Kenya presently leads the world in mobile money services. The conflicting results of the positive and negative performance of commercial banks as a result of financial innovations served as the impetus for the current study. A literature review technique was adopted in the research. The study's overall conclusions demonstrate that financial innovations improve financial performance, as seen by an increase in transactions, the creation of convenience, and decreased maintenance costs. Banks that are incorporating financial innovations are therefore better positioned to boost their revenue and customer satisfaction, both of which are linked to increased performance. According to the report, authorities should make sure that there are laws in place that can foster an environment where banks may keep innovating.

Keywords: Internet Banking, Mobile Banking, Electronic Fund Transfers, Financial Performance

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1. Background

The term "innovation," when directed to the financial sector, means the emergence of a better or new product and/or process that decreases the production cost of an existing financial service (Iman, 2011). Innovations that have occurred in the financial services sector have led to a current primary change that includes consolidation of corporations, more demanding customers, the rapid pace of technical innovation, a higher cost of developing new products, higher competition, and deregulation (Akamavi, 2005). Goetzmann (2009) asserts that financial innovation has been a key component of economic activity for several millennia. For instance, in

ancient Rome, all the aspects of limited liability firms were steadily developed by private investors, including an active stock exchange, freely traded shares, and enterprises that wrote contracts and owned property independently from the individual shareholders. According to Heikkinen and Korhonen (2006), the substantial advance in information technology and communication has among the most significant impacts on financial services. In addition, Hamilton et al. (2007) claim that the capacity to assimilate information and make intricate calculations has assisted market experts in the financial market in developing innovations that mitigate and repackage various mechanisms of financial risk. Such innovations can be met more meticulously with the risk and demand references of both borrowers and investors, which enhances the completeness of financial markets.

Focusing on the global perspective, Chitavi et al. (2021) highlight that for the past six decades, the United States has been the global leader in innovation regarding financial technology (FinTech). However, the researchers argue that in the past ten years, China has emerged as a global leader through the use of social apps and smartphones; China has developed the digitization of money management and integrated remote payments to establish a stable financial inclusion mechanism. According to Yermack (2018), from 2016 to 2017, FinTech investments in the United States totaled $15.2 billion, while those in Europe and Asia were $7.4 billion and $3.9 billion, respectively. Still, from a global perspective, the United States is still a leader in terms of financial innovations.

Regionally, Kenya and Nigeria are the most dominant countries when it comes to financial innovations, or FinTech. Chitavi et al. (2021) further claim that countries such as Kenya and Nigeria are becoming financial innovation epicenters and are using cost-effective, available technology to mobilize customers in ways that have never been experienced. The authors describe FinTech as the use of innovation and technology to address the needs of firms and consumers in the financial environment, such as online banking, credit banks, and blockchain-powered cryptocurrencies. In Kenya, there are various financial innovations. For instance, Misati et al. (2022) identify notable examples of financial innovations in Kenya, including mobile banking, internet banking, electronic payment systems, and branchless banking. The researchers argue that the availability of a new alternative source of financial products and services has resulted in a vibrant, competitive financial sector as banks intend to improve access to customers and differentiate their services and products. In Sub-Saharan Africa, which includes East Africa, Kenya is a leader in the use of mobile money. Yermack (2018) points out that in Sub-Saharan Africa, 21 percent of adults have mobile money, which is the highest of any other part of the world, with Kenya having 73 percent of the adult population, which is higher than the 50 percent in Zimbabwe and Uganda. In Kenya, commercial banks

have taken advantage of digital financial applications for micro-account management, to extend financial services, and to build up deposits for the previously underserved and unbanked population (Misati et al., 2022).

At the local level, the major financial innovators are Equity and Safaricom. Equity Bank is among the leading financial innovators in Kenya. Hence, there is a need for research to understand the impact of innovations on commercial banks such as Equity Bank. Equity Bank has been key to the financial innovations in Kenya and offers an excellent choice for examining how the innovations have been key to its performance. According to Mwangi (2020), Equity Bank is a serial innovator and has won numerous awards since its founding, including the 2018 Best Digital Offering in East Africa and the Most Innovative Bank in Kenya award. Chitavi et al. (2021) highlight Equitel as a virtual mobile network, which is an innovation by Equity Bank and competes with M-Pesa, which was developed by Safaricom. Equitel offers a full suite of banking services on mobile services and has 22% of the mobile money market in half a decade through a strategy focused on the local market. Equitel is identified by the researchers as a hybrid firm in which a telecommunications company evolved from a bank.

The increase in competition in the financial innovation market also warrants the need to conduct the study because of its impact on banks such as Equity, which have a significant market share. Other commercial banks in Kenya have also entered the FinTech sector with their products and services. Misati et al. (2022) highlight that commercial banks in Kenya have introduced new products such as M-Coop, Timiza, and M-Shwari centered on digital payments. The researchers also mention that non-bank firms such as Branch and Tala have entered the credit market by developing mobile money lending apps, with digital payments being the most common way of paying for services and goods. For example, in 2015, the mobile banking/digital credit channel was the most used form of credit for emergencies and daily needs, constituting 46.2% of the transactions, compared to 5.9%, 8.2%, and 3.6% for the conventional banking channels, SACCOs, and microfinance institutions, respectively (Misati et al., 2022).

The main reason the reseracer chose the effect of financial innovation on commercial banks' performance in Kenya is because of the exponential growth of such innovations in the country's financial institutions. According to Muthinja and Chipeta (2018), with the recent advancements in mobile telecommunications technology and the development of data processing technologies, there has been a drastic shift in how the banking business is being done globally. The researchers argue that such changes have had a significant bearing on a new wave of innovations observed in branchless banking approaches that have redefined the banking business in Kenya. The finance industry has adopted cloud technologies and is in need of knowledgeable professionals.

When finance trainees were exposed to real-world data, context, and business tools, they learned the linkages to their future work or entrepreneurial activities (Kamau et al., 2023). Muthinja and Chipeta (2018) further state that the most notable innovations have been observed in the capacity to move funds from one cellular phone to another, to the bank account from the mobile phone, or to a mobile money account from an online bank account. The capacity to achieve various transactions using third parties is prominent in Kenya's financial markets. Such financial inventions have made Kenya the international leader in mobile money.

2. Statement of The Problem

The advancements in new technologies have made it necessary to conduct current research.For instance, the presence of new payment innovations centered on cellular phones to move funds electronically has meaningfully changed the banking sector in Kenya. Several factors have motivated the focus on commercial banks in Kenya. According to the Central Bank of Kenya (2015), Kenya’s mobile payments have surpassed all combined electronic card payments in terms of the overall value of payment transactions as well as the number of customers. Besides, mobile payment platforms are used in every aspect of human life. Chipeta and Muthinja (2018) point out that the use of mobile payments includes the use of mobile phones to move money to deposit accounts that are in commercial banks, removing money from bank accounts, payment of utility bills, payment of insurance premiums, retail outlets, air ticketing, and many more products and services. Therefore, the increase in financial innovations that the use of mobile phones has facilitated underlines the importance of conducting a study on financial innovations.

Notably, the utilization of third parties to transact banking operations, usually known as "agency banking," has increased substantially even though such services have existed since 2012 (Chipeta & Muthinja, 2018). The report by the CBK (2015) shows that three commercial banks control 90% of Kenyan agency banking, and the financial information of each of the three banks identified that a mean of 30% of the total revenue comes from agency banking. Agency banking outlets are usually found in rural areas where it is not possible or profitable for commercial banks to have physical branches. Another reason is Kenya's focal point in terms of global financial innovations. Chipeta and Muthinja (2018) point out that Kenya is part of the East African community of Uganda, Tanzania, Rwanda, and Burundi. According to the researchers, as the East African countries are closing in on regional integration that includes joint infrastructure developments, the region's general performance is substantially dependent on the developments occurring in Kenya.

The study's motivation is also heavily influenced by Kenya's mobile money services.Cracknell (2012) states that Kenya's mobile money services segment is the most innovative globally. Therefore, Kenya has a strong mobile money agent network with effective regulation facilitated by the CBK. Besides, Chipeta and Muthinja (2018) argue that Kenya is the leader in mobile money in sub-Saharan Africa, with 86% of Kenya's mobile users using mobile money compared to the rest of the region, which is at 23%. Hence, the argument that Kenya is the global center of financial digital solutions is plausible. The claim is reinforced by Cracknell (2012), who categorizes Equity Bank as the most successful microfinance-focused bank in Kenya and Safaricom as the global leader in mobile payments. In addition, the Economist Intelligence Unit (2012) also ranks Kenya fifth in the global microfinance survey, which is the highest ranking for an African country because of the pioneering work that the country has done in mobile banking services. Such characteristics of Kenya's financial innovations sector motivate the current study to investigate the effects of progress on commercial bank performance, such as Equity Bank.

The evolution of numerous branchless banking approaches has also piqued the interest of the current study in Kenya's financial innovation sector, as well as several other studies in the field. Nevertheless, most of the research has centered on unraveling the presence of financial innovations and their origins in Kenya (Siedek 2008; Jepkorir 2011; Hughes & Lonie 2007). Such research has adhered to a steady pattern of offering descriptive findings on the financial innovations in the country but has been limited in providing an empirical analysis of the sector. Even though there are some studies that have linked the association between financial innovations and the performance of the banks in Kenya, such as those by Mwando (2013) and Makini (2010), none of the researchers offer a holistic concept when examining financial innovation and its impact on firm financial performance.

3. Theoretical Review

According to Tavallaei and Talib (2010), the significant role of theory in research is undeniable. Theory plays an important role in identifying the variables that can be examined in a study and also in generalizing the phenomenon being investigated.

3.1 The Industrial Organization (IO) Theory

The first theory that will play a significant role in the literature review is that of industrial organization (IO), which explains market structure. According to Jacquemin (1999), at the market structure level, the IO theory identifies the number of competitors who are present in the relevant market and the market share that each has; the

conditions of exit and entry; product standardization; the nearness of substitutable goods; the correlation between downstream and upstream activities; the degree of risk involved; and the quality of information controlled by partners. The author further argues that as far as conduct is concerned, the IO theory identifies the respective roles of non-price and price strategies, the level of collaboration that has been developed over time among the various agents, and the use of the strategies of diversification and differentiation. Jacquemin (1999) also states that the results obtained are examined by evaluating performance (which deals with resource allocation and actual profitability). Therefore, a study concerned with structure, conduct, and performance can offer insight into the competition that exists in the market. The study cannot determine commercial banks' performance without considering market competition.

3.2 Schumpeter Theory of Innovation

According to Schumpeter (1934), entrepreneurs, who can be in the form of research and development experts in an enterprise or independent investors, create the possibility of new profits through innovations. In turn, some imitators are attracted by the high profits observed and start to create innovations that lower the profit margin of the innovation. However, before there is equilibrium in the economy, there is an innovation that emerges, as conceptualized by Schumpeter (1934) using the Kondratiev cycles, where a new cycle starts all over again.

3.3 Transaction Cost Innovation Theory

According to Niehans (1983), the transaction cost innovation theory assumes that the main factor of financial innovation is the decrease of the transaction cost. As a result, financial innovation is a reaction to technological advancement that reduces transaction costs. Such a decline in transaction costs can motivate financial innovation and improvements in financial services.

4. Empirical Review

4.1 Internet Banking and Financial Performance

A study by Simiyu et al. (2014) examined the effect of financial innovations and the market size of Kenyan banks using Equity Bank's Eldoret Branch as a case study. The study determined that innovations had a positive association with assets and the market size of banks. Furthermore, Simiyu et al. (2014) insisted on the enhanced integration of internet banking to meet customer satisfaction and needs. However, the research did not focus on the effects of financial innovations on return on assets (ROA). Hence, the current study aims to establish the influence of financial innovations on the financial performance of commercial banks in Kenya. Another study by Ruan and Li

(2009) examining how commercial banks integrated financial innovations identified that banks that integrated innovations such as internet banking experienced low operational costs. Such findings show that there are cost savings that can improve the financial performance of commercial banks. However, Ho and Mallick (2010) discovered that integrating information technology (IT) into service delivery could increase revenues due to lower costs in a study conducted in the United States over two decades.Still, the researchers caution that profitability is mutually related to the network effect, where a low effect decreases the bank's profitability. Hence, the findings were inconclusive concerning the effect of innovation on the financial performance of banks.

Malhotra and Singh (2010) identified that the financial performance of banks in India was not affected by internet banking. The researchers also concluded that there was no noteworthy difference between banks that had implemented internet banking for a longer period and those that had adopted the solutions recently. The aim of the study by Malhotra and Singh (2010) was to identify whether the implementation period of internet banking affected the performance of commercial banks in India. On the other hand, DeYoung et al. (2007) examined about 400 community banks that were early adopters of internet banking in the United States to explain the implications of financial innovation implementation. In the investigation, the investigators compared the shift in the bank's 1999 to 2001 financial performance with that of community banks that adopted only physical banks. The study identified an increment in the profitability of the internet banking early adopters among the sample that had community banks linked with internet banking. Similarly, Hernando and Nieto (2007) offer a quantitative study of the effect of internet banking on the financial performance of 72 Spanish banks. The study identifies that declining transaction costs lead to increased banks' profitability.

However, Wairagu (2011) identified that integrating financial innovations in Kenyan commercial banks entails allocating resources to come up with new products and ways of providing banking services and products. Therefore, there is a need for the bank to recruit skilled workers for the adoption and monitoring of such processes. In the study, Wairagu (2011) intended to explore the consequences of financial innovations on the profitability of commercial banks. One of the issues cited as affecting business enterprises in Kenya today is a lack of adequate capital infrastructure. The efficacy of management, capital adequacy, and bank performance are all positively correlated (Murori, 2022). Similarly, Arnaboldi and Claeys (2010) identified that many resources were needed for banks to venture into internet banking. The researchers identified that the ones that solely depended on financial innovation could not recoup the initial capital outlay anticipated in the labor cost savings. In the study, the researchers examined the role of online banking services when it comes to the creation of the strategic goals of 60 banks located in the European Union.

4.2 Mobile Banking and Financial Performance

A study by Alber (2011) that examined the outcome of banking expansion on the profit efficiency of Saudi Arabia Commercial Banks identified that even though the banks implemented internet and mobile banking, it was not a significant reason for the institution to expect more revenues. Even though the availability of mobile banking and automated teller machines (ATMs) led to the profitability of the banks in Saudi Arabia, it was not a factor that determined there would be profits for the banks. Therefore, the findings are contradictory, and one cannot guarantee that the integration of mobile banking in commercial banks results in improved financial performance. Other findings have demonstrated how mobile banking can improve performance in other areas unrelated to financial performance, such as customer satisfaction. Nyangosi and Arora (2011) identified that using mobile banking and ATMs resulted in service excellence, improving commercial banks' performance. During the research, the researchers intended to evaluate the impact of information technology and the performance of banks in Kenya. The findings show the importance of considering key metrics of the performance of commercial banks, such as customer service, that can lead to the financial performance of the financial institutions.

4.3 Fund Transfers and Financial Performance

The study by Abaenewe et al. (2013) concludes that implementing financial innovations positively impacts the return on equity (ROE) of Nigeria's commercial banks. The researchers centered their study on electronic banking, arguing that the higher the number of transactions, the higher the transaction fees and profits for the banks. On the other hand, Rotchanakitumnuai and Speece (2003) highlight that electronic banking provides several advantages to customers, investors, and banks, with the account owner being able to monitor their account balances, pay bills, collect receivables, transfer money, and eventually lower transaction costs. There is also more control over bank accounts. On the other hand, Ovia (2001) argues that electronic funds transfer has resulted in higher commissions and lower risks for banks. The researcher finds that electronic banking has increased flexibility for bank clients to use their funds and data on their accounts. According to Ovia (2001), clients can access their accounts from the comfort of their offices or homes as long as they have internet access.Such benefits are also coupled with reduced movements, bearing in mind the preciousness of time as a resource.

The study by Wangui and Nzuki (2021) confirmed that using electronic money transfer (EMT) systems in Kenya came with several benefits, including convenience, speed, and profitability. Hence, the study concludes that financial innovations such as

electronic funds transfers can improve financial performance. Wangui and Nzuki (2021) used the study to examine the effects on firm net worth, liquidity, and profitability of financial institutions in Kenya through various EMT systems. However, the researchers also stated that the most difficult challenge in using EMTs is identity theft and money laundering, especially with more sophisticated innovations. Thus, the recommendation was the incorporation of more regulation and monitoring.

4.4 Firm Performance

Several studies have examined the connection between an organization's financial performance and innovation. For example, a meta-analysis study by Rosenbusch, Brinckmann, and Bausch (2011) explored the association between innovation and the performance of small and medium enterprises (SMEs), where the researchers identified a positive association between innovation and firm performance. The researchers also determined that investing in innovation leads to higher firm performance. However, the findings in the study are vague in terms of the explanation of the variations in returns from investment in product and process innovation. Laforet and Tann (2006) identify that only a limited number of organizations have empirically evaluated innovation results at the organizational level or connected an organization's innovation and performance. However, another study by Artz et al. (2010) examined about 270 businesses in 35 nations for about two decades to identify whether the firms could benefit from their innovations and inventions as well as the impact of the innovation on the organization's performance. The findings from the study demonstrated a negative correlation between the patents and sales growth performance and return on investment (ROI). Even so, the findings in the study by Artz et al. (2010) may have been affected by the use of patents as evidence of innovation because patents do not necessarily lead to innovations.

An investigation by Jiménez-Jiménez and Sanz-Valle (2011) concluded a positive relationship between innovation and an organization's performance. The researchers claim that the correlation’s strength between firm performance and innovation is higher for older and bigger businesses. In the study, the participants were questioned about the development of their organization's performance based on the previous three years. However, the results of the study cannot be replicated in future research because of the subjective design of the performance measures utilized. Aduda and Kingoo (2012) identified a connection between innovation and organizational performance in their study examining the association between electronic banking and the financial performances of commercial banks in Kenya. The researchers used ROA as the metric of a performance measure, and innovation was identified as the number of debit cards and ATMs. Similarly, Rosenbusch et al. (2011) claim that digital platforms allow SMEs

to compete with established and larger firms. The main argument made by the researchers was that innovative products allow small businesses to evade price wars and establish new demand, leading to business growth.

After Cainelli, Evangelista, and Savona (2006) empirically and conceptually examined the association between organizational-level economic performance and innovation, they identified a strong relationship between an organization's economic performance and innovation. The results of the study also demonstrated that the firms with high turnover had an above-average expenditure on innovation. Such findings are in line with another study by Gopalakrishnan (2000) on the reverse causality between financial performance and innovation.

5. Summary and Conclusions

Since it ensures the protection of assets for the development of revenues, internal control is a topic of interest to the management and many stakeholders. The majority of the reviewed literature provides more comprehensive coverage from a broader perspective. Additionally, it is presumptively assumed that internal control is in place

Even though there is literature that has been conducted in Kenya, most of the studies that are relevant to the study have either been conducted outside the country in other African nations or developed countries. Besides, innovation's critical success factors cannot be applied across geographic markets and regions because of cultural differences (Laforet & Tann, 2006; Al-Ansari, Pervan, & Xu, 2013). On the other hand, there is a need for more research across geographical areas for comparison. Most of the research highlighted in the previous subsection has shown the connection between innovation and organizational performance for large and small organizations. However, some studies have not used the best metric when examining innovation. For instance, Artz et al. (2010) use the wrong metric when considering the performance of firms based on innovation because the use of patents is not the best way of examining innovation in an organization. In other literature that has been reviewed, such as that of Jiménez-Jiménez and Sanz-Valle (2011), the methodology design limits the replication of the research because it was subjective. The area of firm performance is also not well stipulated in the literature. For example, Simiyu et al. (2014) state that using financial innovations improves customer service. Therefore, there is a need for the present study to have a clear definition of what performance entails.

Overall, most of the literature review affirms that adopting financial innovations translates to improved financial performance by firms. The key way commercial banks have improved performance is through reduced costs of operations that translate into high profit margins. However, some of the studies in the literature review show that dependence on financial innovations for profit does not guarantee that a firm will earn

higher revenues. Besides, integrating financial innovations into banks requires a lot of resources that are costly for financial institutions. Financial innovations have also made it convenient for bank clients to use the banking service, which increases customer satisfaction. Higher customer satisfaction has also been identified as having a mutual relationship with the increased performance of the banks.

Several studies in the literature review researched the impact of financial innovations using a global perspective. In general, there were notable findings, such as those by Wairagu, (2009); Mwangi, (2013); and Shirley and Sushanta, 2006, that demonstrated the positive connection between financial innovation and the performance of financial institutions. Therefore, the above studies demonstrate that adopting financial innovations increases the likelihood of better performance and profitability. However, some studies, including those by Alber (2011) and Arnaboldi and Claeys (2010), have demonstrated the negative mutual affiliation between financial innovation and the performance of commercial banks. Therefore, there are conflicting findings regarding the relationship between firm performance and financial innovations. Because of the conflicting findings, it is important to conduct a study that determines which research aligns with the Kenyan commercial banking environment. For example, there is evidence that financial innovations harm organizational performance. Such findings exist in the study by Artz et al. (2010). However, the metric that was used to consider the innovations was the patent, which is not reliable. Therefore, the current study can use the innovations that are being used presently, such as mobile banking, internet banking, EMT, and agency banking. The current research is well positioned to identify the effects of financial innovations and the effect that the innovations have on the financial performance of commercial banks.

There are three independent variables in the conceptual framework: electronic money transfer (EMT), mobile banking, and internet banking. The independent variable represents the key financial innovations that are common in commercial banks in Kenya. There is the financial performance of the bank, which is the dependent variable being measured in the study. However, for the financial performance to be met, there are some facilitating factors in the form of regulations in place that determine whether the performance is positive or negative. The transactions are the main strategies banks have used to reduce the costs of operations and provide an excellent way of examining the performance of the banks. EMTs are a way of sending funds through electronic means when both parties are not geographically in the same place. Therefore, the present investigation evaluates the effect of an independent variable in the form of EMTs transactions on the dependent variable of the performance of the bank study. Bank clients also use mobile banking to pay bills, make deposits, and make transactions between bank accounts. The convenience of the independent variable of mobile

banking can result in a bank increasing its customer base, which translates to increased bank performance. As for the independent variable, internet banking, there is a reduction in costs because fewer activities are being conducted using the teller. As a substitute for branches, innovation decreases operational costs. A decrease in operational costs results in increased financial performance for the bank. Facilitating factors such as regulation and infrastructure reduce the risk of using financial innovations and the cost of setting up infrastructure to support the innovations.

References

Abaenewe, Z. C., Ogbulu, O. M., & Ndugbu, M. O. (2013). Electronic banking and bank performance in Nigeria. *West African journal of industrial and academic research, 6*(1), 171-187. Retrieved from https://www.ajol.info/index.php/wajiar/article/view/87447

Aduda, J., & Kingoo, N. (2012). The relationship between electronic banking and financial performance among commercial banks in Kenya. *Journal of finance and investment analysis, 1*(3), 99-118. Retrieved from http://www.scienpress.com/Upload/JFIA/Vol%201_3_6.pdf

Akamavi, R. K. (2005). A research agenda for investigation of product innovation in the financial services sector. *Journal of Services Marketing, 19*(6), 359-378. doi:https://doi.org/10.1108/08876040510620148

Al-Ansari, Y., Pervan, S., & Xu, J. (2013). Innovation and business performance of SMEs: the case of Dubai. *Education, Business and Society: Contemporary Middle Eastern Issues, 6*(3/4), 162-180. doi:https://doi.org/10.1108/EBS-04-2013-0012

Alber, N. (2011). The effect of banking expansion on profit efficiency of Saudi Arabia Commercial Banks. *Journal of Global business and Economics, 3*(1), 11-23. Retrieved from https://econpapers.repec.org/RePEc:grg:01biss:v:3:y:2011:i:1:p:11-23

Arnaboldi, F., & Claeys, P. (2010). *Innovation and performance of European banks adopting Internet.* Università degli Studi di Milano . Retrieved from https://air.unimi.it/handle/2434/139384

Artz, K. W., Norman, P. M., Hatfield, D. E., & Cardinal, L. B. (2010). A longitudinal study of the impact of R&D, patents, and product innovation on firm performance. *Journal of product innovation management, 27*(5), 725-740. doi:https://doi.org/10.1111/j.1540-5885.2010.00747.x

Cainelli, G., Evangelista, R., & Savona, M. (2006). Innovation and economic performance in services: a firm-level analysis. *Cambridge journal of economics, 30*(3), 435-458. doi:https://doi.org/10.1093/cje/bei067

Central Bank of Kenya. (2015). *Payment Systems Statistics*. Retrieved from Mobile Payments: https://www.centralbank.go.ke/national-payments-system/mobile-payments/

Chitavi, M., Cohen, L., & Hagist, S. C. (2021). Kenya Is Becoming a Global Hub of FinTech Innovation. *Harvard Business Review, 21*. Retrieved from https://hbr.org/2021/02/kenya-is-becoming-a-global-hub-of-fintech-innovation

Cracknell, D. (2012). Policy innovations to improve access to financial services in developing countries: Learning from case studies in Kenya. *Centre for global development*, 1-75. Retrieved from

https://cgdev.org/sites/default/files/archive/doc/LRS_case_studies/Cracknell_Kenya.pdf
DeYoung, R., Lang, W. W., & Nolle, D. L. (2007). How the Internet affects output and performance at community banks. *Journal of Banking & Finance, 31*(4), 1033-1060. doi:https://doi.org/10.1016/j.jbankfin.2006.10.003
Economist Intelligence Unit. (2012). *Global microscope on the microfinance business environment 2012.* Inter American Development Bank. Retrieved from https://publications.iadb.org/publications/english/viewer/Global-Microscope-on-the-Microfinance-Business-Environment-2011.pdf
Goetzmann, W. N. (2009). *Financing Civilization.* mimeo: Yale University.
Gopalakrishnan, S. (2000). Unraveling the links between dimensions of innovation and organizational performance. *The Journal of High Technology Management Research, 11*(1), 137-153. doi:https://doi.org/10.1016/S1047-8310(00)00024-9
Hamilton, R., Jenkinson, N., & Penalver, A. (2007). Innovation and integration in financial markets and the implications for financial stability." The Structure and Resilience of the Financial System, Proceedings of a Conference, Reserve Bank of Austral. *The Structure and Resilience of the Financial System, Proceedings of a Conference.* Sydney: Reserve Bank of Australia. Retrieved from https://ho.website.rba.gov.au/publications/confs/2007/pdf/conf-vol-2007.pdf
Heikkinen, P., & Korhonen, K. (2006). *Technology-driven efficiencies in financial markets.* Retrieved from https://helda.helsinki.fi/bof/handle/123456789/9445
Hernando, I., & Nieto, M. J. (2007). Is the Internet delivery channel changing banks' performance? The case of Spanish banks. *Journal of Banking & Finance, 31*(4), 1083-1099. doi:https://doi.org/10.1016/j.jbankfin.2006.10.011
Ho, S. J., & Mallick, S. K. (2010). The impact of information technology on the banking industry. *Journal of the Operational Research Society, 61*(2), 211-221. doi:https://doi.org/10.1057/jors.2008.128
Hughes, N., & Lonie, S. (2007). M-PESA: mobile money for the "unbanked" turning cellphones into 24-hour tellers in Kenya. *Innovations: technology, governance, globalization, 2*(1-2), 63-81. doi:https://doi.org/10.1162/itgg.2007.2.1-2.63
Iman, N. (2011). The diffusion of electronic banking in Indonesia. *SSRN e-Journal*. doi:https://dx.doi.org/10.2139/ssrn.1747746
Jacquemin, A. (1999). Theories of Industrial Organization and Competition Policy. In *Competition, Efficiency, and Welfare.* Springer. doi:https://doi.org/10.1007/978-1-4615-5559-9_11
Jepkorir, S. (2011). *Challenges of implementing financial innovations by commercial banks in Kenya.* University of Nairobi. School of Business. Retrieved from http://erepository.uonbi.ac.ke:8080/xmlui/handle/123456789/12216
Jiménez-Jiménez, D., & Sanz-Valle, R. (2011). Innovation, organizational learning, and performance. *Journal of business research, 64*(4), 408-417. doi:https://doi.org/10.1016/j.jbusres.2010.09.010
Kamau, C. G., Asser, J. H., Ibua, M. P., & Otiende, I. O. (2023). User Reviews, Ratings and Adoption of Accounting Mobile Apps in Kenya. *AfricArXiv*, 1-11. doi:https://doi.org/10.31730/osf.io/m6t7p
Laforet, S., & Tann, J. (2006). Innovative characteristics of small manufacturing firms. *Journal of Small Business and Enterprise Development, 13*(3), 363-380. doi:https://doi.org/10.1108/14626000610680253
Makini, S. O. (2010). *The relationship between financial innovation and financial performance of commercial banks in Kenya .* University of Nairobi. Retrieved from http://erepository.uonbi.ac.ke:8080/handle/123456789/5427

Malhotra, P., & Singh, B. (2010). An analysis of Internet banking offerings and its determinants in India. *Internet research, 20*(1), 87-106. doi:https://doi.org/10.1108/10662241011020851

Misati, R., Osoro, J., Odongo, M., & Abdul, F. (2022). Does digital financial innovation enhance financial deepening and growth in Kenya? *International Journal of Emerging Markets*. doi:https://doi.org/10.1108/IJOEM-09-2021-1389

Murori, C. K. (2022). Challenges Affecting Financial Performance of Small and Medium Sized Firms in Kenya. *African Journal of Commercial Studies, 1*(1), 9-17. doi:https://n2t.net/ark:/69431/AJoCS.v1i1.2

Muthinja, M. M., & Chipeta, C. (2018). What drives financial innovations in Kenya's commercial banks? An empirical study on firm and macro-level drivers of branchless banking. *Journal of African Business, 19*(3), 385-408. doi:https://doi.org/10.1080/15228916.2017.1405705

Mwando, S. (2013). Contribution of agency banking on financial performance of commercial banks in Kenya. *Journal of Economics and Sustainable Development, 4*(20), 26-34. Retrieved from https://core.ac.uk/download/pdf/234646179.pdf

Mwangi, J. (2020). Equity Group—Financing Innovation in Kenya. *Global Innovation Index 2020: Who Will Finance Innovation*, 171-176. Retrieved from https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2020-chapter15.pdf

Niehans, J. (1983). Financial innovation, multinational banking, and monetary policy. *Journal of banking & Finance, 7*(4), 537-551. doi:https://doi.org/10.1016/0378-4266(83)90011-0

Nyangosi, R., & Arora, J. S. (2011). Antecedents and obstacles to e-banking adoption: a comparative study of India and Kenya. *International Journal of Indian Culture and Business Management, 4*(2), 123-137. doi:https://doi.org/10.1504/IJICBM.2011.038913

Ovia, J. (2001). Internet Banking: practices and potentials in Nigeria, A paper presented at a seminar organised by the Institute of Chartered Accountants of Nigeria (ICAN) Lagos Sheraton Hotel & Towers, Ikeja. *International Journal of Banking Technology*, 209-218.

Rosenbusch, N., Brinckmann, J., & Bausch, A. (2011). Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs. *Journal of business Venturing, 26*(4), 441-457. doi:https://doi.org/10.1016/j.jbusvent.2009.12.002

Rotchanakitumnuai, S., & Speece, M. (2003). Barriers to Internet banking adoption: a qualitative study among corporate customers in Thailand. *International journal of bank marketing, 21*(6/7), 312-323. doi:https://doi.org/10.1108/02652320310498465

Ruan, Y., & Li, Z. (2009). How Commercial Banks Implement Financial Innovactions-A Case From Retail Operation of the Bank of China. *International Conference on Pacific Rim Management.* Retrieved from http://www.myacme.org/ACMEProceedings09/p22.pdf

Schumpeter, J. A. (1934). *The Theory of Economic Development.* Cambridge: Harvard University Press. Retrieved from https://www.hup.harvard.edu/catalog.php?isbn=9780674879904

Siedek, H. (2008). *Extending Financial Services with Banking Agents.* Washington, DC.: World Bank. Retrieved from http://hdl.handle.net/10986/9523

Simiyu, R. S., Ndiang'ui, P. N., & Ngugi, C. C. (2014). Effect of financial innovations and operationalization on market size in commercial banks: A case study of Equity Bank, Eldoret branch. *International Journal of Business and Social Science, 5*(8), 227-249. Retrieved from https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=ec3038dc430f0fdb50706bd5590a3f14c4e5d125

Tavallaei, M., & Talib, M. A. (2010). A general perspective on role of theory in qualitative research. *Journal of International Social Research, 3*(11), 570-577. Retrieved from https://web.p.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=0&sid=873b8780-5f38-4413-ac33-3ca577bf4b22%40redis

Wairagu, G. P. (2011). *The relationship between financial innovation and profitability of Commercial banks in Kenya.* University of Nairobi. School of Business. Retrieved from http://erepository.uonbi.ac.ke:8080/xmlui/handle/123456789/12516

Wangui, M., & Nzuki, D. (2021). The Effect Of Electronic Money Transfer Systems On The Financial Performance Of Financial Institutions In Kenya (Case Study Of Sumac Deposit Taking Microfinance Ltd). *International Research Journal of Business and Strategic Management, 2*(1), 50-61. Retrieved from https://www.irjp.org/index.php/irjbsm/article/view/16

Yermack, D. (2018). FinTech in sub-saharan Africa: What has worked well, and what hasn't. *National Bureau of Economic Research*. Retrieved from https://ssrn.com/abstract=3246830