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FINANCIAL INCLUSION AND BANK STABILITY OF COMMERCIAL BANKS LISTED IN NAIROBI SECURITIES EXCHANGE, KENYA

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ABSTRACT

Following the global financial crisis of 2007-2009, policy makers, regulators and financial institutions have heavily invested in initiatives and reforms aimed at improving the financial stability of the banking sector. However, despite these initiatives, many of the listed commercial banks in the recent past have continued to report dismal performance. Additionally, the stability levels of the banks remain low despite implementation of financial inclusion policies which raises concern. The study sought to determine the effect of financial inclusion on bank stability of Commercial banks listed in Nairobi Securities Exchange, Kenya. The specific objectives were to establish the effect of financial availability, financial accessibility, financial usage, and service delivery on bank stability. The study employed a descriptive research design and targeted 11 commercial banks listed in Nairobi Securities Exchange, Kenya. The period scope was year 2014 to year 2018 and purposive sampling was applied in picking a sample of 55 respondents. Primary data was collected using questionnaires while secondary data was gathered utilizing a document review guide. Multiple regression analysis, correlation analysis, and descriptive statistics were applied in the data analysis. The study found that financial availability (p=0.033), financial accessibility (p=0.015), financial usage (p=0.039) and service delivery (p=0.023) all had significant effects on bank stability of commercial banks listed in Nairobi Securities Exchange, Kenya. The study concludes that financial availability, financial accessibility, financial usage, and service delivery play a crucial role in fostering stability of listed commercial banks in Kenya. The study recommends that central bank should ensure compliance on Central Bank of Kenya policies that govern capital adequacy to avert risks associated with Non-Performing Loans. Commercial banks listed in Nairobi Securities Exchange are recommended to embrace latest technologies in service provision. In addition, financial institutions need to invest in customer service by first providing employees with the right skills and technology to provide exceptional customer service. Further, banks are recommended to put in place strong lending policies as well as debt recovery measures which will improve their stability levels.

Key Words: *Bank Stability, Financial Accessibility, Financial Usage, Financial Availability, Financial Inclusion, and Service Delivery*

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1. Introduction

Commercial banks have a substantial contribution to economy development as they can allocate intermediate funds or economic resources efficiently to deficit units from the surplus (Adhamovna, 2016). Financial inclusion is thus becoming more relevant as it is turning out to be a policy concern, particularly in developing countries. This helps in expanding a financial network and in creating an effective financial flow within the borders of the country (Ahamed & Mallick, 2017). Financial inclusion is aimed at ensuring formal system access to financial service requesters. All financial inclusion roles are expected to promote economic development and growth, reduce poverty, and enhance individuals' personal well-being. Additionally, greater financial inclusion ensures that the financial system requires more small savers. However, financial inclusion can result in the financial sector being either stable or fragile hence before promoting major strategies of financial inclusion, the link between the two must be clarified. Commercial banks proposed to lend to risky borrowers in all developed and emerging nations for the pre-crisis phase (Cihak, Mare & Melecky, 2016). Adverse characteristics of the expanding availability of finance seem to be a trigger that awaits financial system to collapse. In this regard, commercial banks have adopted actions aimed at dealing with financial inclusion by the formulation and development of new products and services targeting groups previously referred to as un-bankable. Financial inclusion is typically measured through individual numbers with and using formal financial products (Klapper, Elzoghbi & Hess, 2016). Park and Mercado, (2015) indicate that many factors have an impact on both a country's financial development and financial inclusion level, such as regulatory environment, information availability, institutional quality, good governance, and per capita income.

Therefore, when financial inclusion is perceived to be the financial services use, individual financial restrictions from investments would be loosened for their own benefit, such as education for business training (Widarwati, Sari & Nurmalasari, 2019). Financial inclusion not only influences stability of commercial banks but also lead to an increase in Gross Domestic Product growth rate which encourages more financial inclusion. Financial stability is a state whereby a financial system constituting of market infrastructure, financial intermediaries and financial markets can withstand financial shock that are capable of significantly disrupting savings distributions to profitable substitute investments (Anatolyevna & Ramilevna, 2013). This has resulted in governments, central banks and other policy makers increasingly take on mandate of ensuring financial stability of both financial institutions, financial sector and by extension the economic stability of countries.

Khan (2017) supports three key strategies by way of which financial inclusion can influence financial stability positively. First, banks could diversify their investment portfolio by increasing the amount of credit, which in effect will reduce the banks' overall risk. Second, greater financial inclusion ensures that the financial system requires more small savers. Besides, the availability of more small savers would result in an increment of the size of deposits and their stability, thus decreasing non-core funding reliance, which has a great impact especially in financial crisis times. The key metrics for bank financial stability, include capital sufficiency, asset performance, sound management, earnings and productivity, liquidity, and market risk tolerance. Individual bank stability measurements entail the ratio of Non-Performing Loans and Z-score (Morgan, & Pontines, 2018). Commercial banks are perceived as fundamental financial intermediaries in any economy. Commercial banks are vital for carrying out the basic functions of money transfer services, money lending and accepting deposits hence represent a critical role in the implementation of governments' economic policies (Odundo, 2018).

Currently, in nations with emerging market economies like Kenya, commercial banks are still considered the primary medium of financial intermediation. Specifically, bank deposits are the most important constituent of the public's money supply; increases in money growth are significantly linked with alterations in the economy's prices of services and goods (Chibba, 2009). In addressing financial inclusion, commercial banks have designed new products and services which target groups previously referred to as unbankable (Okpara, 2017). Kenya's banking institutions are governed under the Basel I Capital Adequacy Agreement issued by the Basel Committee in 1988 to direct the assessment of the capital adequacy criteria of banks. The revision of Basel I to Basel II occurred in June 2004 and aimed at realizing a promotion of greater financial system stability. The financial Stability Board and Basel Accords have enhanced bank stability of Kenyan commercial banks. In ensuring stability, Central Bank of Kenya has adopted the Basel Accord and ensuring that the financial institutions' regulations comply.

2. Research Problem

In view of the global financial crisis of 2007-2009, policy makers, regulators and financial institutions heavily invested in reforms aimed at improving financial stability. In Kenya, the government and listed commercial banks have initiated and implemented several reforms such as Banking Amendment Act (2012), Credit Reference Bureau (CRB) Regulations in (2009), Interest Rate Cap (2015) and the International Financial Reporting Standards (IFRS) introduction in 2018. Despite these government initiatives, many of the listed commercial banks in the recent past have continued to face challenges related to stability. Poorly implemented financial inclusion policies have also impaired stability despite introduction of strategies of improving stability (Odundo 2018). Therefore, understanding the interlinkages in enhancing financial stability and inclusion is becoming increasingly essential for financial institutions such as the listed commercial banks. Empirically, Kalunda (2019) uncovered that financial inclusion had a significant effect on bank performance. Musau, Muathe and Mwangi (2018) also discovered that the stability of commercial banks was significantly impacted by financial inclusion. This is in regards to Musau (2018) study which found that financial inclusion affects commercial bank stability. However, other studies have established minimal to no significant effect of financial inclusion on stability (Ahamed & Mallick, 2017; Machdar, 2020; García & José, 2016). This is an indication that the available studies have been inconclusive on the exact nature of effect brought about by financial inclusion on stability. It is also worth noting that, no locally available studies have focused on emerging channels of bank availability including ATMs and bank agents and mobile banking. Similarly, important variables of financial inclusions were overlooked; these have had an impact on financial inclusion, thus raising an issue of empirical gap. Given the financial inclusion importance and the role of intermediation commercial banks play and the current empirical gaps, this study sought to enrich existing relevant literature by assessing the influence of financial inclusion on bank stability of listed commercial banks in Kenya.

3. Objectives of the Study

The study sought to achieve the following specific objectives:

i. To establish the effect of financial availability on bank stability of commercial banks listed in Nairobi Securities Exchange, Kenya.
ii. To analyze the effect of financial accessibility on bank stability of commercial banks listed in Nairobi Securities Exchange, Kenya.
iii. To determine the effect of financial usage on bank stability of commercial banks listed in Nairobi Securities Exchange, Kenya.

iv. To determine the effect of service delivery on bank stability of commercial banks listed in Nairobi Securities Exchange, Kenya.

**Null hypotheses were developed for each specific objective and tested at 0.05 significance level.*

4. Significance of the Study

The research will be beneficial to both the executive and the Nairobi Securities Exchange Listed Commercial Banks management by providing information on financial inclusion and their effect on the sustainability of these banks. The bank management will be able to comprehend the significance of change management as they seek to achieve higher performance and improve market penetration. Similarly, the research will be of value to the policy makers. Policy makers will find this study insightful as it sheds light on the role of financial inclusion on the stability of commercial banks. This comes in timely as the debate on financial inclusion continues and guides in formulation of financial inclusion policy that will be in tandem with stability and performance. Finally, this study will function as a reference for scholars seeking knowledge on the topic. In addition, the study will offer scholars with a foundation for understanding of the effect of bank inclusion on bank stability, especially in the context of commercial banks in Kenya. Similarly, the research will inform business academicians and researchers about the change management practices influence and its effects on Kenyan commercial bank performance. It will therefore form a basis and point of reference on which future studies will be undertaken.

5. Literature Review

5.1 Theoretical Review

The main theories that anchored this study included Financial Intermediation Theory, Agency Theory and Competition Stability Theory. Financial Intermediation Theory was proposed by Diamond (1984). The theory seeks to offer an explanation regarding why rather than practicing direct lending, surplus funds are first lent to banks who then lend to deficit units. Financial Intermediation Theory explicates the function of commercial banks in intermediating funds through financial inclusion as a social and profitable venture and hence stability. The significance of financial intermediation theories lies in their focus on banks ' role in efficient apportionment of funds, market frictions minimization, and asymmetric information, which is a vital component of effective financial stability. The Agency Theory, which was initially proposed by Jensen and Meckling (1976), helps explain the relationship between financial inclusion and commercial bank stability. As suggested by the theory, if the parties do not maximize the utility, there is a probability of believing that the agent will not be acting in the principal's best interest. This theory is useful in this study because financial inclusion is greatly influenced by bank accessibility (Bettioui, & Douma, 2014). Besides, the theory helps explain how the agents' actions affect the principals' financial capacity as well as the principals' welfare. The Competition Stability Theory assumes a positive connection between bank stability and competition (Adhamovna, 2016). Specifically, the theory assumes that the presence of less competition within the banking industry leads to high interest rates. The high rates of interest rates, based on the theory, then offset bank stability by raising the banks' non-performing loan ratio, resulting in bankruptcy of the borrowing firms. Competitive stability Hypotheses are pertinent to the study as they describe the impact lack of financial inclusion may depend on the market competition. The theory thus reinforces the study's dependent variable, bank stability, by demonstrating the impact of competition, which is a commonplace in the contemporary business environment, on banking stability.

5.2 Empirical Review

The study reviewed several studies in view of the respective specific objectives.

5.2.1 Financial Availability and Bank Stability

Odundo (2018) studied financial availability and stability of Kenyan commercial banks. The research extended over a 7-year duration as from 2011 to 2017 and disclosed that bank financial availability has a substantial adverse impact on bank stability. This compares to Ngaira and Miroga (2018) who studied financial stability determinants of Kenya's listed commercial banks. It was found that liquidity influence on listed Kenyan commercial banks financial stability was significantly positive. Chileshe (2017) study evaluated the effect of financial availability on financial system stability in a developing economy. The study results indicated that the association between finance availability and bank stability is positive. Furthermore, bank capitalization is affiliated with bank stability improvement whereas income diversification lack reduces stability of a bank. Fu, Lin, and Molyneux, (2014) investigated Bank competition and financial stability in Asia Pacific. The results suggest that greater concentration fosters financial fragility and that lower pricing power also induces bank risk exposure after controlling for a variety of macroeconomic, bank-specific, regulatory, and institutional factors. In a study by Berger, Klapper, and Turk-Ariss, (2017) on measures of loan risk, bank risk, and bank equity capital on several measures of market power, it was established that banks with a higher degree of financial availability also have less overall risk exposure. This shows the overall risks of banks need not increase if banks protect their franchise values by increasing their equity capital or engaging in other risk-mitigating techniques. The findings relate to Rupeika-Apoga, et al., (2018) who did a study on bank stability among Nordic and non-Nordic banks in Latvia and found out that credit risk and efficiency ratio have a significant negative impact on banks' stability, whereas size of the bank, liquidity ratio, profitability, inflation and Gross Domestic Product growth have significant positive impact on bank's stability.

5.2.2 Financial Accessibility and Bank Stability

Ranjani and Bapat (2015) assessed the correlation between financial accessibility and financial inclusion beyond account opening. The research uncovered that just having a bank account did not lead to borrowers utilizing banking services and they opted for dealing with institutions that provided more flexible services than the bank. When bank accounts are opened, it is not enough for the realization of inclusion. This concurs with Musau, Muathe, and Mwangi, (2018) who studied financial inclusion, Gross Domestic Product and credit risk of commercial banks in Kenya and found out that bank availability, bank accessibility and bank usage had significant effect on credit risk of commercial banks in Kenya. Ahamed and Mallick (2017) investigated whether financial accessibility is suitable for stability of the bank. It was found that higher financial accessibility levels contribute to higher level of bank stability. In a similar manner, Ardic, Heimann and Mylenko (2015) studied financial services accessibility and the global agenda for financial inclusion. The findings exhibited that there is need for the improvement of the financial inclusion arena. Specifically, the study disclosed that fifty-six percent of the world's adult population lacked an access to formal financial services hence the need for increased financial accessibility. Chiaramonte, Poli, and Oriani, (2015) undertook a research on the extent to which cooperative banks affected average bank soundness during 2001–2010. The main finding of the study was that cooperative banks have explanatory power for stabilisation during the crisis years, but only above a certain market share threshold. Whereas Kamau, and Oluoch, (2016) on a study on the relationship between financial innovation and commercial bank performance in Kenya showed that ATM, mobile banking, use of credit and debit cards, internet banking and agency banking all have positive

significant influence on financial accessibility hence improving commercial banks performance in Kenya.

5.2.3 Financial Usage and Bank Stability

Bettioui and Douma (2014) investigated the function of financial usage in strengthening the bank performance during 2004-2012 by using the panel data. The result emphasizes the function of the absence of financial exclusion or financial inclusion in the banking sector's non-development and non-promotion of economic growth during the study period in Algeria and Tunisia. This compares to Widarwati, Sari and Nurmalasari (2019) who investigated the role of financial use for stability, the case of sharia banking in Indonesia and showed that financial inclusion proxy deposits positively affected financial stability. Danjuma (2018) investigated the financial survey and financial inclusion survey of the Nigeria's financial system. However, greater financial inclusion modifies the behavior of consumers, firms and even the financial intermediaries in such a manner that it can impact the financial systems' stability in totality. This study focused on this aspect. The result of the study discovered that greater financial inclusion is attributed to financial instability. Similarly, Ahamed and Mallick, (2017) assessed whether financial inclusion is good for bank stability. The results highlight that the importance of ensuring inclusive financial system in terms of usage is not only a development goal but also an issue that should be prioritized by banks, as such a policy drive is good for their stability. Ozili, (2018) studied banking stability determinants in Africa. The findings indicated that banking efficiency, foreign bank presence, investor protection, corruption control and financial usage are significant determinant of banking stability in Africa and the significance of each determinant depends on the banking stability proxy employed. The same positive relationship between financial usage and bank stability was obtained by Peterson, (2018) who did a study on the impact of digital finance on financial inclusion and stability. The study established that financial usage has several benefits to financial service users, digital finance providers, governments, and the economy.

5.2.4 Service Delivery and Bank Stability

Farayibi (2016) studied customer satisfaction and service delivery relationship in Nigerian banks. The study used the methodology of Ordinary Least Square (OLS) to determine effective Customer Relationship Management (CRM), the research discovered the relationship between customer satisfaction and better banks performance in service delivery. This coincides with Odeny (2016) who studied the implication of service quality on performance of Barclays Bank of Kenya. The study established that Barclays Bank business performance measures are clustered under customer measures, colleague measures, company measures, and conduct and citizenship measures. Mwenda (2015) examined the Kenyan commercial banks performance and service delivery technologies influence. The respondents were employees of the Kenyan commercial banks. From the data analysis exercise, investment on Service Delivery Technologies has been a vital aspect in the banking industry's growth and productivity. This study indicates that Service Delivery Technologies permits banks to offer a broad array of services to customers. Similarly, Alzaydi, et al., (2018) did a review of service quality and service delivery. The results of the study showed that service delivery is both complex and challenging, particularly when considering the unique characteristics of services and the high level of customer involvement in their creation. Ezeanata Walter, and Parimoo, (2016) studied leadership development in the Nigerian micro finance banks and its effects on the bank's performances. The study found out that banks in Nigeria are manifestation of poor performances, showing in as weak service delivery, low profitability, and high failure rate. All these have been attributed to leadership failures by several opinion leaders. This agrees with YuSheng, and Ibrahim, (2019) who investigated service innovation, service delivery and

customer satisfaction and loyalty in the banking sector of Ghana. The findings of the study were service innovation has a positive effect on customer satisfaction and loyalty.

6. Research Methodology

Descriptive research design was employed in this study for it permits the researcher to increase the understanding of the variables under study which results in perfect subsequent research questions and can critically improve the practicality of a study's conclusions. The target population comprised of 11 Kenyan commercial banks listed in Nairobi Securities Exchange in the years 2014-2018. A total of 55 respondents were targeted comprising of financial managers, supervisors, operation managers, credit managers and bank investments managers. The respondents were purposively selected from each of the 11 commercial banks hence a sample size of 55 respondents. The study used secondary and primary data. Questionnaires were utilized for primary data collection while secondary data collection involved the documentary reviews of data available in the released financial statements, and annual reports. Descriptive statistics such as standard deviation and mean was utilized in the analysis of quantitative data by using SPSS version 20.0. The study used ANOVA in testing the variables' significant level at 95% confidence level for dependent variable. Correlation and multiple regression analysis were applied by inferential statistics since the explanatory variables involved in the research are higher than one. The regression equation adopted is captured hereunder: $\mathbf{Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon}$, Where: $\mathbf{Y}$ = Bank stability, $\mathbf{X_1}$= Financial availability, $\mathbf{X_2}$= Financial accessibility, $\mathbf{X_3}$= Financial usage, $\mathbf{X_4}$= Service delivery, β_1, β_2, β_3 and β_4 are coefficients of determination and ε is the error term.

7. Research findings

This section contains study findings for descriptive analysis, correlation analysis and multiple regression analysis.

7.1 Descriptive Statistics

7.1.1 Financial Availability

This section presents statistical findings on effect of financial availability on stability of commercial banks listed in Nairobi Securities Exchange, Kenya. Results are presented in Table 1.

Table 1: Financial Availability and Stability

Statement	Mean	Std. Dev
The banks can expand their customer base by on boarding new customers who were previously out of their reach through agents	4.04	0.71
Through bank agent's infrastructure and manpower costs are reduced while revenues are increased	3.96	0.71
ATM reduces the number of human deployments by banks thereby reducing cost of operations.	4.00	0.74
ATM surcharge fee increases to the network because a customer has a high frequency to withdraw cash at any point	4.31	0.67
Banks can increase their market share	4.06	0.75
The degree of liquidity affects the bank's stability	4.19	0.74
Bank size has a direct connection to the level of bank stability	4.15	0.67
Credit availability in the bank impacts on the bank's stability	3.87	0.74

Source: Research Data (2020)

From the study findings, a significant portion of the study participants agreed that ATM surcharge fee increases to the network because a customer has a high frequency to withdraw cash at any point and the degree of liquidity affects bank's stability. The respondents also agreed on bank size has a direct connection to the level of bank stability and that banks can increase their market share. Furthermore, majority of respondents felt that the banks have the capacity to augment their customer base by attracting new customers who were initially out of their reach through agents, ATM minimizes the number of human deployment by banks thereby decreasing operation costs, through bank agents manpower and infrastructure costs are decreased while revenues are multiplied and that credit availability in the bank impacts on the bank's stability. These findings contradict with the research results by Odundo (2018) who uncovered that bank financial availability has a significant adverse implication on bank stability.

7.1.2 Financial Accessibility

This section aimed at assessing on the effect of financial accessibility on stability of commercial banks listed in Nairobi Securities Exchange, Kenya. Results are presented in Table 2.

Table 2 Financial Accessibility and Stability

Statement	Mean	Std. Dev
Deliver paperless statements directly into customers' email addresses, while saving the cost of printing, paper, and delivery	4.00	0.79
Mobile banking helps in eliminating the need to hire additional workers	4.00	0.89
The bank saves on operational costs of running bank branches	4.17	0.62
Account deposits enables the banks increase their revenue through transaction costs	4.15	0.78
The bank earns through minimum balance requirement in account deposit	4.08	0.55
The bank's lending volume affects the bank's stability	3.98	0.70
The presence of an easily accessible mobile banking application affects the bank's stability	3.98	0.67
Having a low marginal cost of providing banking services impacts on the bank's stability	4.10	0.53

Source: Research Data (2020)

From the study findings, a considerable fraction of the study participants agreed that banks save on operational costs of running bank branches, few respondents thought that account deposits enable the banks to increase their revenue through transaction costs, and that having a low marginal cost of providing banking services impact on the bank's stability. Furthermore, majority of participants felt that banks earn through minimum balance requirement in account deposit. Oppositely, a simple majority of respondents felt that mobile banking helps in eradicating the demand for hiring additional workers, and that delivery of paperless statements directly into customers' email addresses, saves the cost of delivery, paper, and printing. Also, most of the respondents agreed that bank's lending volume affects the bank's stability and that presence of an easily accessible mobile banking application affects the bank's stability. These results back the study findings by Ardic, Heimann and Mylenko (2015) which revealed that

bank institutions that make use of monitoring forbearance on the rationalized commercial credits significantly enhance their stability by plummeting risks.

7.1.3 Financial Usage

This section sought to find out the impact of financial usage on stability of commercial banks listed in Nairobi Securities Exchange, Kenya. Results are presented in Table 3.

Table 3: Financial Usage and Stability

Statement	Mean	Std. Dev
The bank earns interest rates from the borrowers depending on the category of the loan	3.88	0.70
Customer deposits provide banks with the capital to make loans	4.31	0.73
Banks can create money to increase the money supply in the economy.	3.96	0.66
Banks can keep certain amount of money that satisfy withdrawals	4.10	0.57
The availability of agency banking has a significant effect on bank stability	4.15	0.78
The usage of mobile banking services by customers influences bank stability	4.17	0.68
Usage of bank accounts by customers affects bank stability	4.08	0.68
Provision of knowledge on finances to customers significantly affects bank stability	4.23	0.58

Source: Research Data (2020)

From the study findings, majority of the study participants agreed that customer deposits provide banks with the capital to make loans, provision of knowledge on finances to customers significantly affects bank stability, similarly, a substantial number of the respondents felt that usage of mobile banking services by customers has an effect on bank stability, and that the availability of agency banking has a substantial effect on bank stability. These findings ratify the research findings by Bettioui and Douma (2014) which concluded that financial usage increases the profitability of banks. Further, majority of participants felt that banks are able to keep certain amount of money that satisfy withdrawals, usage of bank accounts by customers affects bank stability, banks can create money to increase the money supply in the economy and that banks earns interest rates from the borrowers depending on the category of the loan. These findings are in accord with the study findings by Widarwati, Sari and Nurmalasari (2019) which showed that financial inclusion positively affected financial stability.

7.1.4 Service Delivery

The study also sought to determine the influence of service delivery on stability of commercial banks listed in Nairobi Securities Exchange, Kenya. Results are presented in Table 4.

Table 4: Service Delivery and Stability

Statement	Mean	Std. Dev
There is ease and comfort of accessing and using financial services.	4.08	0.71
There is improved delivery service, leading to enhanced customer	4.04	0.59

Statement	Mean	Std. Dev
satisfaction.		
Customers have access to all relevant information on financial products and services to enable them to make informed decisions on usage	4.12	0.65
Gives customers the ability to choose services or products from a range of options	3.92	0.62
There is improved utilization of banks resources, resulting in effective cost-cutting.	4.21	0.75
Investment on service delivery technologies substantially affects bank stability	4.00	0.71
Time taken on processing of transactions has an impact on bank stability	3.79	0.64
Timely addressing of customer complaints positively affects bank stability	3.88	0.73

Source: Research Data (2020)

From the study findings, majority of the study participants felt that there is improved utilization of banks resources, resulting in effective cost-cutting, customers have access to all relevant information on financial products and services to enable them make informed decisions on usage, there is ease and comfort of accessing and using financial services, and that there is improved delivery service, leading to enhanced customer satisfaction. These findings are in support of the research findings by Farayibi (2016) which stated that service delivery technologies have been a vital aspect in the banking industry's growth and productivity. Further, majority of respondents agreed that investment on service delivery technologies substantially affects bank stability, gives customers the ability to choose services or products from a range of options, and that timely addressing of customer complaints positively affects bank stability, time taken on processing of transactions has an influence on bank stability. These findings concur with the research results by Mwenda (2015) who discovered that customer satisfaction through quality service delivery enhanced service utilizations and thus growth in bank's performance.

7.1.5 Bank Stability

The stability of the listed banks over the period 2014 -2018 was measured in terms of non-performing loans and Z-score. Descriptive statistics were used to demonstrate how the stability of the banks was manifested over the study period. These statistics are presented in Table 5

Table 5: Descriptive Statistics for Bank Stability

Variable	Mean	Standard Deviation
Non-performing loan	Ksh. 12641.95 M	4994.84
Z-score	5.26	2.48

Source: Research Data (2020)

Table 5 shows that the average non-performing loan reported by listed commercial banks in Kenya from 2014 to 2018 was Ksh.12641.95 million. It is also observable that the average Z-score for the banks during the study period stood at 5.26. This Z-score is greater than 2.99, which implies that the banks were in stable condition.

7.2 Inferential Statistics

7.2.1 Correlation Analysis

The results for the correlation analysis are as shown in Table 6.

Table 6: Correlation Results

	Non-performing Loans	Z-score	Financial Availability	Financial Accessibility	Financial Usage	Service Delivery
Non-performing Loans	1					
Z-score	0.384*	1				
Financial Availability	0.421*	0.102*	1			
Financial Accessibility	.392**	0.412*	0.211*	1		
Financial Usage	0.44*	0.399*	0.303	0.111*	1	
Service Delivery	0.404*	0.418*	0.281	0.375	0.294	1

* *p < 0.05*

Source: Research Data (2020)

Table 6 shows that financial availability (r = 0.421, $p < 0.05$), financial accessibility (r = 0.392, $p < 0.05$), financial usage (r =0.44, $p < 0.05$) and service delivery (r = 0.404, $p <0.05$) correlated moderately and positively with non-performing loans. The results also reveal a weak and positive relationship between financial availability (r =0.102, $p <0.05$) and the bank's Z-score. However, there was a moderate positive relationship between financial accessibility (r =0.412, $p < 0.05$), financial usage (r=0.399, $p < 0.05$), service delivery (r =0.418, $p <0.05$) and the banks' Z scores. These results reveal a weak to moderately strong relationship between the bank stability of listed commercial banks in Kenya and financial availability, financial accessibility, financial usage, and service delivery. These finding corroborates the findings by Ahamed and Mallick (2017), Ngaira and Miroga (2018), Bettioui and Douma (2014) and Farayibi (2016).

7.2.2 Multiple Regression Analysis

Multiple regression analysis was carried out to test the effect of financial availability, financial accessibility, financial usage, and service delivery on bank stability. Two measures of bank stability were considered in this study. Hence, two regression models were developed. In the first model, the set of predictor variables was regressed on non-performing loans and Z-score in the second model. Table 7 displays a summary of the first model, Non-Performing Loans.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.811[a]	.657	.652	.268

Source: ***research data (2020)***

Table 7 displays the coefficient of determination (R^2) was 0.657. This is an indication that 65.7% of variation in non-performing loans was accounted for by changes in financial availability, financial accessibility, financial usage, and service delivery. The unaccounted 34.3% of variability in bank stability was explained by other factors not covered in this study. Table 8 captures the ANOVA results associated with the model

Table 8: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	25.49	4	6.37	21.97	.000[b]
1	Residual	13.55	47	0.29		
	Total	39.04	51			

Source: Research Data (2020)

The ANOVA results (F (4, 47) =21.97, p < 0.05 indicate that the regression model was statistically significant in predicting the effect of financial availability, financial accessibility, financial usage, and service delivery on Non-Performing Loans. Furthermore, the study utilized the coefficient table to evaluate coefficients. The findings are exhibited in the Table 9 below

Table 9: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
1 (Constant)	1.76	0.734		2.40	.0132
Financial Availability	0.16	0.19	0.15	0.84	.033
Financial Accessibility	0.34	0.22	0.27	1.57	.015
Financial Usage	0.162	0.19	0.11	0.86	.039
Service Delivery	0.17	0.17	0.17	0.99	.023

Source: Research Data (2020)

The study captures the regression function from Table 9 as follows: **$Y= 1.76+ 0.16X_1+0.34X_2+0.162X_3+ 0.17 X_4$**.

Whereby, Y is bank stability, X_1 is financial availability, X_2 is financial accessibility, X_3 is financial usage and X_4 is service delivery. From the regression model realized above, holding all other factors constant, a unit change in financial availability, financial accessibility, financial usage and service delivery while holding other factors constant would positively alter bank stability of commercial banks listed in NSE by factors of 0.33, 0.15, 0.39, and 0.23 respectively. The p-values are less than 0.05 which indicates a significant effect on bank stability and vice versa. These findings concur with the study findings by Ahamed and Mallick (2017) who found that higher financial accessibility levels contribute to higher level of bank stability.

Table 10 displays a summary of the second model in which the **Z-score** was the outcome variable.

Table 10: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.788[a]	.621	.619	.167

Source: Research Data (2020)

Table 10 shows the coefficient of determination (R^2) was 0.621. This implies that 62.1% of variation in the banks Z-scores was explained by changes in financial availability, financial accessibility, financial usage, and service delivery. The unaccounted 37.9% of variability was explained for by other factors not covered in this study. Table 11 shows the ANOVA results associated with the model

Table 4.11: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	28.31.	4	7.08	32.18	.000b
1	Residual	10.22	47	0.22		
	Total	38.53	51			

Source: Research Data (2020)

The ANOVA results (F (4, 47) =32.18, $p < 0.05$) indicate that the model was statistically significant in predicting the effect of financial availability, financial accessibility, financial usage, and service delivery on the banks' Z-scores. Table 12 shows the regression coefficients tied to the model.

Table 12: Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
1 (Constant)	3.11	0.361		8.62	.0132
Financial Availability	0.25	0.087	0.355	2.84	.033
Financial Accessibility	0.31	0.10	0.379	3.07	.015
Financial Usage	0.399	0.122	0.402	3.28	.039
Service Delivery	0.408	0.134	0.377	3.04	.023

Source: Research Data (2020)

The study captures the regression function from table 4.12 as follows: $\mathbf{Y= 3.11+ 0.25\, X_1 + 0.31\, X_2+ 0.399\, X_3+ 0.408\, X_4}$ Whereby: Y is bank stability, X_1 is financial availability, X_2 is financial accessibility, X_3 is financial usage and X_4 is service delivery. Based on the regression coefficients, holding all other factors constant, a unit change in financial availability, financial accessibility, financial usage and service delivery while holding other factors constant would positively alter bank stability of commercial banks listed in NSE by factors of 0.33, 0.15, 0.39 and 0.023 respectively. The p values of all the values are less than 0.05 which implies a significant effect on bank stability. These findings are in accord with the results by Mwenda (2015) who discovered that customer satisfaction through quality service delivery enhanced service utilization and thus growth in banks performance. In sum, the two regression models point to a positive and significant effect of financial availability, financial accessibility, financial usage, and service delivery on the bank stability of commercial banks listed in NSE, Kenya. These findings are in line with the study findings by Ahamed and Mallick (2017) who uncovered that higher financial accessibility levels contribute to higher level of bank stability. The findings also corroborate Mwenda (2015) who discovered that customer satisfaction through quality service delivery enhanced service utilizations and thus growth in banks performance.

7.4 Discussion of Study Findings

Statistical findings on effect of financial availability on stability of commercial banks listed in Nairobi Securities Exchange revealed that ATM surcharge fee increases to the network because a customer has a high frequency to withdraw cash at any point. The degree of liquidity affects the stability of commercial banks listed in NSE, bank size has a direct connection to the extent of bank stability, and that banks have the capacity to increase their market share through financial inclusion. These findings contradict with the research findings by Odundo (2018) who found that bank financial availability has a significant negative effect on bank stability. Further, respondents agreed that the banks have the capacity to broaden their customer base by acquiring new customers who were initially out of their reach through agents, ATM minimizes the total human deployment by banks thereby elevating the revenues, decreasing manpower expenses, and reducing cost of operations, and that credit availability in the bank impacts on the bank's stability. Inferential test results also showed a positive significant correlation between financial availability and Bank's stability. Test regression model further predict that a unit change in financial availability while holding other factors constant would positively change bank's stability. These findings contradict the observations made by Odundo (2018) that bank financial availability has a considerable adverse implication on bank stability.

Assessment on the effect of financial accessibility on stability of commercial banks listed in Nairobi securities exchange revealed that banks saves on operational costs of running bank branches , account deposits enables the banks to increase their revenue through transaction costs and that having a low marginal cost of providing banking services impacts on the bank's stability. These findings reaffirm the research conclusions by Ahamed and Mallick (2017) who both uncovered that higher financial accessibility levels contribute to higher level of bank stability. Also, respondents agreed that bank's lending volume affects the bank's stability and that presence of an easily accessible mobile banking application affects the bank's stability. Test regression results disclosed that a unit change in financial accessibility while holding the other factors constant would positively affect bank's stability, the study also discovered a strong positive correlation between financial accessibility and bank stability. These findings reaffirm the research conclusions by Ardic, Heimann and Mylenko (2015) which revealed that bank institutions that make use of monitoring forbearance on the rationalized commercial credits significantly enhance their stability by reducing risks.

Descriptive findings on assessing the effect of financial usage on bank stability of commercial banks listed in Nairobi securities exchange establish that customer deposits provide banks with the capital to make loans, provision of knowledge on finances to customers significantly affects bank stability, usage of mobile banking services by customers has an effect on bank stability and that the availability of agency banking has a significant effect on bank stability. The results of this assessment showed a positive association between financial usage and bank stability in terms of non-performing loans and Z-score. Results show that a unit change in financial usage while holding the other factors constant would positively change the two dimensions of bank stability. The findings support the empirical findings by Danjuma (2018), who concluded that financial usage increases the profitability of banks. Further, respondents agreed that banks are able to keep certain amount of money that satisfy withdrawals, usage of bank accounts by customers affects bank stability, banks can create money to increase money supply in the economy and that banks earns interest rates from the borrowers depending on the category of the loan. These findings approve the research inferences by Widarwati, Sari and Nurmalasari (2019) which showed that financial inclusion proxy deposits positively affected financial stability.

Results on assessing on service delivery revealed that there is improved utilization of resources with commercial banks listed in NSE thus resulting in effective cost-cutting, customers have access to all relevant information on financial services and products to permit them make informed decisions on usage, there is ease and comfort of accessing and using financial services and that there is improved delivery of service by commercial banks listed in NSE thus leading to enhanced customer satisfaction. These findings approve the research inferences by Farayibi (2016) that service delivery technologies have been a vital aspect in the banking industry's growth and productivity. Test regression results show that unit change in service delivery while holding the other factors constant would enhance bank's stability of commercial banks listed in NSE, Kenya. Further, respondents agreed that investment on service delivery technologies substantially affects bank stability, gives customers the ability to choose services or products from a range of options and that timely addressing of customer complaints positively affects bank stability and time taken on processing of transactions has an impact on bank stability. These findings support the research inferences by Mwenda (2015) who discovered that customer satisfaction through quality service delivery enhanced service utilizations and thus growth in banks performance.

8. Conclusions

The study concludes that financial availability affects the stability of commercial banks listed in NSE; banks listed in NSE strived to ensure compliance on CBK policies that govern capital adequacy, most of the banks had laid strong lending policies as well as debt recovery measures so as to thwart risks associated with poor credit management. The study concludes that mobile banking helps in eliminating the need to hire additional workers, banks saves on operational costs of running bank branches, higher financial accessibility levels contribute to higher levels of bank stability, bank's lending volume affects the bank's stability and that presence of an easily accessible mobile banking application affects the bank's stability. The study also concludes that usage of mobile banking services by customers has an effect on bank stability and that the availability of agency banking has a significant effect on bank stability and that financial inclusion proxy deposits positively affected financial stability of banking institutions listed in NSE. The study further concludes that most of the banks were striving to improve in service delivery because time taken on processing of transactions has an impact on bank stability. This was actualized through adoption of latest technologies, continuous enhancement of delivery channels through innovation, customer sensitization and improvement on policies that govern service delivery process.

9. Recommendations

The study recommends that central bank should ensure compliance on CBK policies that govern capital adequacy, to avert risks associated with NPL which consequently lead to low liquidity levels, banks should put in place strong lending policies as well as debt recovery measures by commercial banks listed in Nairobi securities exchange, Kenya. To the bank's management, the study recommends that to enhance financial accessibility and well maintain financial stability, commercial banks listed in NSE need to embrace latest technologies in service provision. Such include adoption of initiatives such as mobile banking, agency banking, and ATM facilities among other current facilities. To Nairobi Securities Exchange, the study recommends that to enhance financial usage of commercial banks listed in NSE, financial institutions need to invest in customer service. In other words, employees should be frontline; this therefore implies providing them with right resources such as right skills and technology to provide exceptional customer service. To the banks' stakeholders, the study recommends that more financial inclusion strategies should be adopted. This will attract more customers hence strengthening bank stability. Better strategies will help in ensuring better

quality performance in every sphere of banks activity, the strategies will also help in checking non-productive activities and waste in banks.

10. Contribution to Knowledge

The study on effects of financial inclusion on bank stability of commercial banks listed in NSE contributes to the body of knowledge since it expounds on financial availability, financial accessibility, financial usage and service delivery and their influence on bank stability. The reviewed literature has added materials in the financial literature. The theories reviewed in this study have enriched the relationship to financial inclusion and bank stability. Financial intermediation theory explains why banks can take the responsibility of delegated monitoring by effectively monitoring borrowers. On the other hand, agency theory relates to how most commercial banks have agents where customers can deposit and withdraw money without necessarily going to a bank.

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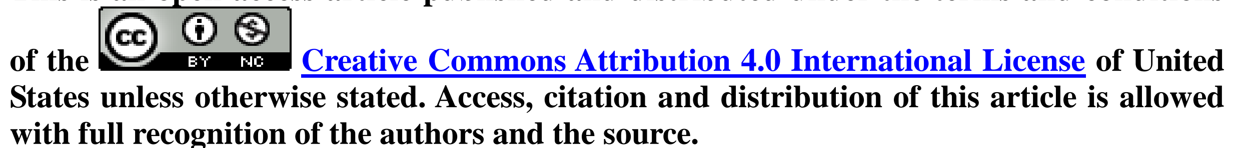

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