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THE EFFECT OF BORROWERS-MANAGERS ASYMMETRIC INFORMATION ON NON-PERFORMING LOANS IN COMMERCIAL BANKS IN KENYA

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ABSTRACT

Non-performing loans has persistently rise in commercial banks in Kenya and it is perceived that borrowers-managers asymmetric information is the cause. Previous studies have focused on different aspects of macroeconomic and micro economic factors but non-performing loans has continue to rise aspiring need to look at the effect of micro-economic or bank specific factor such as borrowers-managers asymmetric information on non-performing loans. Previous studies that looked at borrowers-managers asymmetric information between borrowers and lenders focused on adverse selection of borrowers as main cause of nonperforming loans and not in context of management moral hazards, management opportunism and transaction costs economic theory. For bank size even though bank is associated with economies of scales and efficiency, the moderating effect of bank size in borrowers-managers symmetric information on non-performing loans remain a puzzle. This study investigated the effect of borrowers-managers asymmetric information on non-performing loans in commercial banks in Kenya. This study also looked into the moderating effect of bank size on the relationship between borrowers-managers asymmetric information and non-performing loans. A descriptive survey research design was adopted with use of panel data. Secondary data for analysis was obtained from financial statements of commercial banks and central bank of Kenya supervisory reports. Time scope covered 10 years from 2013 to 2022 as the period is recent and there was enough data available and reliable for the study. Geographical scope was the 39 Commercial banks licensed and operating in the republic of Kenya. Non-performing loans was measured using non-performing loans to total loans. The study used interest rate spread to measure borrowers-managers asymmetric information. Bank size measured by logarithm of total assets was used as moderating variable in the study. The research established that borrowers-managers asymmetric information had significant effect on non-performing loans in commercial banks in Kenya . The study however confirmed that there was no significant moderating effect of bank size in the relationship between borrowers-managers asymmetric information on non-performing loans.

Key words: *Non Performing Loans, Borrowers–managers asymmetric information, Bank Size, Commercial Banks*

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INTRODUCTION

Non-performing loans has been considered as the major cause of Financial crises witnessed in numerous countries. The latest financial crises were faced in the US subprime mortgages due to the financial credit crunch that occurred in 2007 and 2008, resulting in financial crises and financial market instability. After the global crises, NPLs are under the eyes of government and management of banks since they are considered as main causes of bank the failure and crises of the banking system (Ghosh, 2015).

High levels of non-performing loans (NPLs) on the financial statements of banks remain to be an important cause for concern for policy makers (Fell, Grodzicki, Martin and Brien, 2016). It is not clear as well whether borrowers-managers asymmetric information is the cause and whether bank size can moderate in the effect of asymmetric information on non-performing loans in commercial banks. According to Barbaroux (2014) information asymmetry cause both market failures and market opportunities. Mainstream economists regard information asymmetry as the main source of market failures since it affects how individuals assess the quality of goods and services obtainable in the marketplace (Akerlof, 1970) and how individuals anticipate on the intentions of others and agency (Spence 1976). Fama (1970) in the study of efficient-market hypothesis (EMH) proposed that asset prices mirror all available information and there is no arbitrage, however the reality is not always the case since one party in a transaction can have more information than the other party and utilize the additional information to his advantage resulting in some forms of adverse selections, moral hazards and economic opportunism.

After the global financial crisis of incorporating asymmetric information into dynamic general equilibrium models is growing. Spina (2019), posit that to avoid future predicaments similar to financial crisis of 2008 regulators and supervisors of financial industry must monitor indicators beyond the traditional economic parameters such information asymmetry. A prime study on the information asymmetry was published by Akerlof(1970) in which the author discusses the externality caused by the divergent amount of private and social returns on various economic activities, and thus the need for intervention to redistribute welfare. According to Barbaroux (2014) information asymmetry is considered as a major source of market failures because it affects the quality of goods and services available on the market and disturbs the process of allocating resources efficiently and on the other hand, information asymmetry is presented as a major source of market opportunities.

As of December 31, 2013, there were 44 licensed commercial banks in Kenya, with two of them being in receivership (CBK, 2014) and from 2019 to 2022, only 39 commercial banks were licensed and operational. Credit information sharing (CIS) was officially launched in July 2010, and all institutions licensed under the Banking Act began participating in negative data sharing. CRB Regulations (2012) allowed sharing of positive credit information by commercial banks licensed by the CBK, but such information could only be shared if prior written consent is obtained from their borrowing customers (CBK, 2016)

Credit reference bureaus were introduced in the Kenyan banking sector to facilitate credit information sharing and mitigate information asymmetry and credit risk. Information sharing reduces informational asymmetries, which in turn reduces adverse selection obstacles in lending and changes borrowers' motives to repay. (FSD Kenya, 2011, FSD Kenya, 2013, Mugwe&Olweny, 2015, Brown, Jappelli& Pagano, 2007, Gietzen , 2016). However, in Kenya, all commercial banks gross non-performing loans rose by 14.1% in 2013 to Ksh 61.6 billion in December 2014. The ratio of total non-performing loans to gross loans rose from 4.5% in December 2013 to 5.0% in December 2014. (Toroitich&Omwono, 2015) The banking sector in Kenya continues to face difficulties in managing bad debts and ensuring that debtors do not only move between banks. The need to explore reasons why non-performing loans continue to rise in post-credit information sharing period in commercial banks in Kenya is of prime concern (CBK, 2019, CBK,2021).

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According to CBK (2020), the stock of non-performing loans (NPLs) increased by 29.6% to Ksh.436.1 billion in December 2020 from Ksh.336.6 billion in December 2019. Asset quality deteriorated to 14.5% in December 2020 from 12.5% in December 2019. The Government of Kenya set up a Ksh.3 billion Credit Guarantee Scheme (CGS) to cushion participating commercial banks, providing them with confidence to extend loans to high-risk borrowers more efficiently and at flexible terms (CBK, 2016, CBK,2019, CBK,2021) Some commercial banks in Kenya collapsed due to the accumulation of NPLs (Genga ,2016) Musau (2014) revealed that CBs in Kenya have been experiencing banking problems since the 1980s, culminating in major bank failures due to high levels of non-performing loans. Sporta (2018) established a positive relationship between non-performing assets and asset quality in commercial banks in Kenya, while Olweny and Mamba (2011) found a negative and robust relationship between poor asset quality and profitability.

Currently there is no standardized approach to analyze the factors influencing non-performing loans in the literature (Dimitrios et, al, 2014). According to Barbaroux (2014) information asymmetry is considered as a major source of market failures because it affects the quality of goods and services available on the market and disturbs the process of allocating resources efficiently and on the other hand, information asymmetry is presented as a major source of market opportunities. Theoretical literature stressed on the key role of asymmetric information in lending markets (Janda, 2011; Mejstřík, Pečená and Teplý, 2015), but the effect of information asymmetry on non-performing loans has not been clearly established in credit markets (Martins & Paulo, 2014). Study of (Rodoni&Yaman (2018), indicates that information asymmetry has significant effect on non-performing loansw but only for a short run. Podpiera and Weill (2008) established that information asymmetry has effect on the non-performing loans but effect is not significant. According to (Islam and Nishiyama, 2017) information asymmetry of borrowers only cause an increase in non-performing loans and this has not been established in commercial banks in Kenya.

With respect to increase in NPLs and asymmetric information, commercial banks in Kenya are does trapped in gridlock and are likely to collapse and result in collapse of Kenyan economy. The interest rate spread which is the subject of our paper, is a different measure than the net interest margin since it reflects representative rates on loans and deposits at a particular point in time. The spread is the difference between the average loan rate and the average deposit rate actually quoted and charged (or paid) by banks. Hence, the need to explore the effect of asymmetric information on non-performing loans in commercial banks in Kenya. There is therefore need to establish the effect of borrowers-managers' asymmetric information on non-performing loans in Commercial banks in Kenya This study thus scrutinizes the effect of borrowers-managers asymmetric information on non-performing loans in commercial banks in Kenya

Objective of the study

The objective of the study was to determine the effect of borrowers-managers asymmetric information on non-performing loans in commercial banks in Kenya. The specific objectives were:

- To evaluate effect of borrowers-managers 'asymmetric information on non-performing loans in commercial banks in Kenya.
- To establish the moderating effect of bank size in the relationship between borrowers-managers asymmetric information and non-performing loans in commercial banks in Kenya.

The hypotheses were stated in a null context as follows:

- H_{01}: There is no significant relationship between borrowers-managers asymmetric information and non-performing loans in commercial banks in Kenya.
- H_{02}: There is no significant moderating effect of bank size in the relationship between borrowers-managers asymmetric information and non-performing loans in commercial banks in Kenya.

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RELATED LITERATURE

Theoretical Review

Asymmetric Information Theory

The theory of asymmetric information suggests that, if a participant who has privilege of more information capitalizes on the same information it can result in market imperfection. This theory was postulated by Akerlof (1970) in his paper named "Lemons": Quality uncertainty and the market mechanisms. This is a theory relevant for situations where there is imperfect knowledge. In particular it occurs where one party has different information to another. According to Auronen (2003) the theory of asymmetric information make it clear that it may be hard to differentiate good from bad borrowers, which may result into adverse selection and moral hazards problems. The problem of adverse selection arises when the client is not able to gain information pertaining to the characteristics of the vendor or the rule of thumb of the sellers (Nayyar, 2010). When it comes to financial matters in the banking industry, adverse selection is as a result of potential bad credit risks in advancing loans (Mishkin, 2011). The lenders are in most cases not able to separate the bad and good borrowers hence end up charging high rates to cover up for the amount that may be lost during the process but high risk takers are however always not scared by high interest loans when they decide to borrow loans (Mishkin, 2011). The theory proposes that an imbalance of information between two parties that can lead to inefficient outcomes in certain markets. In this study asymmetric information is assumed to exist where there are hidden actions (adverse selection) or hidden efforts and or actions (moral hazards) or both and this theory informs the use of borrowers-managers asymmetric information as an independent variable.

Economic opportunism theory

William (1985) based on agency theory, introduces economic opportunism theory and illustrated that whereas a supplier has to make substantial investments in specialized assets in order to enter into trade with the firm, the supplier is exposing itself to the possibility of opportunistic abuse by management. Williamson (1985) placed explanatory emphasis on the alleged centrality and necessity of the concept of opportunism in the analysis of transactions. Williamson (1975) famously defined 'opportunism' as 'self-interest seeking with guile' and explain that 'Economic man is a much more subtle and devious creature than the usual self-interest seeking assumption reveals'. Williamson (1985) later elaborated the concept of opportunism in terms of the incomplete or distorted disclosure of information, especially to calculated efforts to mislead, distort, disguise, obfuscate, or otherwise confuse. Williamson (1979) noted that there appears to be a developing general consensus that 'opportunism is a central concept in the study of transaction costs. Williamson (1993) further argues that mitigation of opportunism plays a central role in transaction cost economics. It is not necessary that all agents be regarded as opportunistic in identical degree but it suffices that those who are less opportunistic than others are difficult to ascertain ex ante and that, even among the less opportunistic, most have their price (Williamson, 1979).

Transaction Cost Economics (TCE) Theory

The Transaction Cost Economics (TCE) was originated by Coase (1937) who developed the theory from the works of Chester Barnard, and Herbert Simon (Williamson, 2005b). Drawing from the theory of TCE, there is always transaction cost in any supply chain interaction (Grover and Malhotra, 2003). The particular version of Transaction Cost Economics (TCE) developed by Williamson (1975, 1985) explains the latent conflict by the possibility of opportunistic behavior on behalf of the different parties to a transaction. In the context, opportunism is a stronger assumption than the mere pursuit of personal interest to the detriment of others. Transaction cost economics thus suggests that economic actors select governance modes that best mitigate the transaction costs associated with opportunism. This theory informs use of the variable such as bank size with assumption that economies of scale emanating from bank size can improve cost efficiencies and reduce borrowers-managers asymmetric information.

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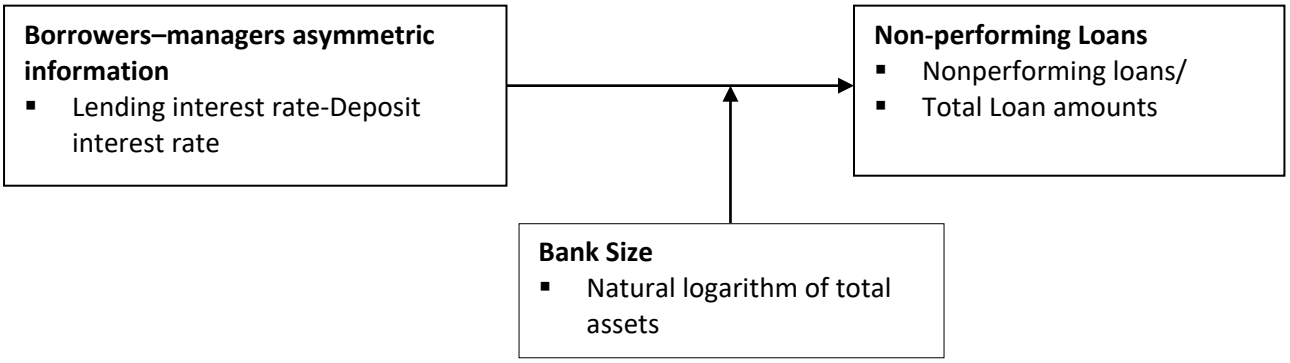
Conceptual Framework



Independent Variable **Moderating Variable** **Dependent Variable**

Figure 1: Conceptual Framework

Borrowers-Managers Asymmetric Information

It is perceived that borrowers and managers information asymmetry leads to adverse selection of borrowers. It is perceived further that by bank offering high interest rates in loans are likely to make adverse selections on borrowers. Some bad borrowers, knowing that banks operate in silos take advantage of information asymmetry to create multiple bad debts in the industry (Wasseja et al., 2016). From the viewpoint of banks, an increase in the riskiness of borrowers is equivalent to a deterioration in the quality of borrowers as a whole because of asymmetric information and such a deterioration aggravates adverse selection (Ikeda, 2019). The assumption for use of variable is that in absence of asymmetric information there is no loan price arbitrage and in essence no interest rate spread. Thus in presence of symmetric information, loan lending interests rates is equal to depositor's interest rates. Interest rate spread is thus considered as a shadow value of asymmetric information. Interest rate spread is also a modified form of ask-bid spread which has been used to measure asymmetric information in capital markets (Dadbeh and Mogharebi, 2013). This study therefore used interest rate spread as a measure of borrowers and managers asymmetric information.

Bank Size

Firm size as a moderator has gained the attention of various management researchers (Vij and Farooq, 2017). Mahmood et.al (2019) investigated Moderating effects of firm size and leverage on the working capital finance–profitability relationship: evidence from China. Obaje and Abdullahi (2021) study Moderating effect of firm size on the relationship between board structure and firm financial performance in Nigeria. Hassan &Aliyu, (2023) established Moderating effect of bank size on the relationship between interest rate, liquidity, and profitability of commercial banks in Nigeria. Hassa & Usman (2020) study Determinants of bank profitability with bank size as moderating variable in Indonesian banks.

According to Karray and Chichti (2013) big bank size brings economies of scale and associated cost reductions and thus big banks are expected to have lower interest rates margins because they have more opportunities to leverage their size to attain economies of scale resulting in decrease asymmetric information and better non-performing loans. Further according to Akkaya and Uzar (2011), large firms are more diversified; therefore they face less possibility of default than smaller firms. Therefore, it would be reasonable to assume that one of the main benefits of bigger size would be gains in efficiency transferred to banks' customers through higher deposit rates, lower lending rates, lower interest spreads and consequently lower asymmetric information and lower non-performing loans ratio.

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Non-performing loans

Non-Performing Loans refer to loan in which the borrower is in default due to the fact that they have not made the scheduled payments for a period of ninety (90) days for both principal or interest and/or no longer accruing interest (Alton and Hazen, 2001). Sporta (2018) established the distressing effect of non-performing assets on asset quality of commercial banks in Kenya and emphasized need to tame non-performing loans but did not consider if borrowers-managers asymmetric information is the cause.

Islam and Nishiyama (2019) study non-performing loans of commercial banks in South Asian countries (Bangladesh, India, Nepal and Pakistan) from 1997 to 2012 in view of adverse selection and moral hazard Issues and the study look at asymmetric information in terms of micro economic factor and under bank specific factorsnd found that the adverse selection hypothesis of Stiglitz and Weiss (1981) was still effective and further established evidence for the bad luck, bad management, skimping and moral hazard hypotheses of Berger and DeYoung (1997) but this have not been established in commercial banks in Kenya.

The effect of Borrowers- Managers asymmetric information on non-performing loans

Collins and Wanjau (2011) study the effects of interest rate spread on the level of non-performing assets and the study concludes that interest rate spread affect non-performing assets in banks as it increases the cost of loans charged on the borrowers. The study however did not consider the moderating effect of bank size in the relationship between interest rate spread on non-performing loans.

Zhang et al. (2016) applying the threshold panel regression model to a dataset of 87 Chinese commercial banks from 2006 to 2012, the investigate whether banks' lending behavior is sensitive to reaching a particular threshold level of NPLs and, more importantly, whether banks with higher NPLs ratio tend to adopt a more aggressive and riskier lending strategy. The study established that banks with high non-performing loans take more risks in order to offset the losses associated with NPLs and hence NPLs increase further as a result of higher loan growth and find the evidences of moral hazard behavior among the banks with higher portion of problematic loans on the book, suggesting that its the level of assets quality that causes moral hazard behavior and not the vice versa.

Bank Size and Non-performing loans

Chege (2014) studied effect of firm size on information asymmetries surrounding earnings disclosure of firms listed at the Nairobi securities exchange in Kenya involving 41 listed firms (27 big firms and 14 small firms). The results showed significant changes in security returns and effective spread and high abnormal volume in the days surrounding annual earnings disclosure for listed firms, a situation that was interpreted as increased information asymmetries. The information asymmetries for small firms decreased before earnings disclosure and increased after but information asymmetries surrounding annual earnings disclosure of big firms was inconsistent. The study indicated that the result of the effect of the firm size on information asymmetries was inconclusive and did not consider the moderating effect of bank size in the relationship between asymmetric information and non-performing loans. This study thus study the effect of borrowers-managers asymmetric information and the moderating effect of bank size in the relationship between borrowers-managers asymmetric information and non-performing loans in commercial banks in Kenya.

METHODOLOGY

This study used descriptive survey design. A descriptive survey is a design that involves establishing what is happening as far as a particular variable is concern. The design was used to investigate the effect of borrowers-managers asymmetric information on non-performing loans in commercial banks in Kenya. The study used secondary data for the period between 2013 and 2022 to determine the effect of borrowers-managers symmetric information on non-performing loans in commercial banks in Kenya over the period under study. The moderating effect of bank size was also determined in the relationship between borrowers-managers asymmetric information and non-performing loans of commercial banks in Kenya. Borrowers–managers asymmetric information was taken as independent variable and non-performing loans for each year

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taken as dependent variable, whereas bank size was taken as moderating variable. This study used an OLS regression as used per (Micco & Panizza, 2006; Berrospide& Edge, 2010; Carlson et al., 2013). The significance of the coefficients was calculated at 95% confidence level. The study population consisted of 39 commercial banks licensed by the Central bank of Kenya and operational in Kenya in the period between 2013 to 2022. Secondary data was collected from the most recent annual published financial statements and central bank of Kenya supervision annual reports for the 39 commercial banks and presented in tabular form for the period year 2013 to 2022 for analysis. The study used panel data with 39 cross sections for a period of 10 years since out of the licensed 44 commercial banks in Kenya, only 39 commercial banks were fully operational and financial results were available for the years 2013-2022, the period of the study. Charterhouse Bank under statutory management, Fidelity Commercial Bank undergoing acquisition, Chase Bank and Imperial Bank Ltd in receivership during the period of the study have been excluded

FINDINGS

Descriptive statistics

Descriptive statistics were employed to provide: means, maximum, minimum, standard deviation of data collected on asymmetric information and non-performing loans in commercial banks in Kenya. Mean is total sum of data of variable divide by the number of data collected. A standard deviation (or σ) is a measure of how dispersed the data is in relation to the mean.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Dev.
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Borrowers-managers Asymmetric_Information	390	5.60	9.90	7.0640	.42122	1.33203
Bank_Size	390	14.79	15.69	15.2530	.09137	.28895
Non-Performing Loans	390	6.80	14.13	10.5220	.91861	2.90490
Valid N (listwise)	390					

Table 1 summarizes the dispersion part of descriptive statistics of the variables. Out of the licensed 44 commercial banks in Kenya, only 39 commercial banks were fully operational and financial results were available for the years 2013-2022, the period of the study. Charterhouse Bank, under statutory management, Fidelity Commercial Bank, undergoing acquisition, Chase Bank and Imperial Bank Ltd in receivership during the period of the study have been excluded. The descriptive statistics considered were minimum, maximum, mean, standard deviation, skewness and kurtosis. N The number of cases (observations or records) is indicated as 390 which is interpreted as 10 years observations for each of the 39 commercial banks resulting in 390 observations or records. This is consistent with the findings of Muriithi and Waweru (2017) in analyzing Performance of Commercial Banks in Kenya using 39 commercial banks licensed and operating in Kenya. This is also consistent with Kirimi, Kariuki and Ocharo (2022) who analyze financial soundness and performance of commercial banks in Kenya using 39 commercial banks licensed and operating in Kenya. The descriptive analysis results for borrowers-managers asymmetric information as measured by interest rate spread indicates mean of 7.06% with a maximum of 9.90 % and a minimum of 5.6 % with standard deviation of 1.3 on both sides of the mean. The standard deviation of 1.33 % indicating that data used for measuring borrowers-managers asymmetric information are clustered around the mean and indicate there are no out-liers in the data used. This is consistent with the findings of Onyango and Olando (2020) whose findings indicates low standard deviation and absence of outliers in Interest rate spread in commercial banks in Kenya.

Bank size results indicates mean value of 15.25, with a maximum of 15.61 and a minimum of 14.79 with standard deviation of 0.288 on both sides of the mean. The results indicates that commercial banks in Kenya

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had an average bank size of 4.2 trillion (antilog. of 15.25), a maximum of 6.6 trillion (antilog. of 15.69) and a minimum of 2.7 trillion (antilog. of 14.79) that deviated by 1.34 (antilog. of .0289) on both sides of the mean, which indicates general growth in bank sizes of commercial banks in Kenya during the period of study. This is in agreement with central bank of Kenya reports, (CBK 2013, 2015, 2017, 2021 and 2022).This is also in agreement with the findings of Ngungu and Abdul (2020) in the study of firm Characteristics and Non-Performing Loans of Commercial Banks in Kenya and report grow trend of commercial banks in Kenya.

Non-performing loans (NPL) as measured by non- Performing Loans to total loans on commercial bank has a positive mean of (10.522), which shows that commercial banks registered a high level of non-performing loans ratio and consequently declining assets quality over the period of study. Using non-performing loans to total loans as a measure of non-performing loans the findings indicate that commercial banks in Kenya reported an average non-performing loans ratio of 10.522 % with the maximum of 14.13 % and minimum of -6.80 % that deviated by 2.90 % on both sides of the mean. The standard deviation of non-performing loans was relatively low 2.90% which indicates data for non-performing loans are clustered around the mean with minimum and maximum values of 6.8 and 14.13 respectively indicating little dispersion of non-performing loans from mean. The study also shows increase in non-performing loans with positive growth of bank size and borrowers-managers asymmetric information which is consistent with the findings of Ndiritu (2021) who established rise in non-performing loans and deterioration of assets quality as bank size and Interest Rates rise in Kenyan bank Sector. The results are also in agreement with (CBK,2020) banking supervision report that registered increasing trend of non-performing loans (NPLs) in December 2020 that report increase levels of non-performing loans, bank size and interest rate spread.

The standard error of mean for the variables; borrowers-managers asymmetric information (0.42) bank size (0.91) and non-performing loans (0.92) respectively shows low standard error of mean for the variables indicating that the data is representative of the entire population since the standard errors are not less than -2 and not more than +2 for the variables.

Pearson Product Moment Correlation

To find out the relationship between borrowers-managers asymmetric information, Bank size and non-performing loans, Pearson Product Moment Correlation analysis was conducted. Pearson Correlation analysis was used to examine whether there is existing correlation between variables. Correlation coefficient is a measure of bivariate association between two variables. values of the association coefficient lies between -1 <0< +1. A correlation coefficient of +1 indicates that two variables are perfectly related in a positive linear model; a correlation coefficient of -1 indicates that two variables are perfectly related in a negative linear sense, and a correlation coefficient of 0 indicates the variables have no linear relationships between the two variables (Indiana, 2011). The Pearson correlation results is shown in table 2 below.

Table 2: Pearson Correlations

		Bank_Size	Non_performing loan	Borrowers_managers_Asymmetric_Information
Bank_Size	Pearson Correlation	1	.850**	-.943**
	Sig. (2-tailed)		.002	.000
	N	390	390	390
Non-Performing loan	Pearson Correlation	.850**	1	-.844**
	Sig. (2-tailed)	.002		.002
	N	390	390	390
Borrowers_managers_Asymmetric_Information	Pearson Correlation	-.943**	-.844**	1
	Sig. (2-tailed)	.000	.002	
	N	390	390	390

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

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The results table 2 indicates Pearson correlations of variables. The results shows that there exist negative and significant association between borrowers –managers asymmetric information as measured by interest rate spread and non-performing loans as measured by non-performing loans ratio (r=- 0.844, P=0.002<0.05). The results thus shows that higher the interest rate spread the lower the non-performing loans ratio and the better the assets quality of banks. This implied there is a significant effect of borrowers-managers –asymmetric information on non-performing loans. The results further revealed that there existed a negative correlation between bank size and non-performing loans ((r) = -0.850, P=0.002 <0.05)..

The effect of Borrowers-managers' asymmetric information on non-performing loans

To establish the effect of borrowers-managers' asymmetric information on non-performing loans in commercial in Kenya, analysis of effect of interest rate spread as a proxy of borrowers-managers asymmetric information and non performing loans ratio as a proxy of non-performing loans was done and results indicated in Table 3.

Table 3: ANOVA of borrowers-managers asymmetric information on non-performing loans

			Change Statistics	
Model	R	R Square	F Change	Sig. F Change
1	0.844[a]	0.712	19.810	0.002

a. Predictors: (Constant), Borrowers managers Asymmetric Information

In Table 3, F test of 19.81 indicates that the secondary data used to test variance between the asset quality (NPL) and borrowers-managers asymmetric information (X_1) are appropriate for the test. The *p* results indicate correlation coefficient R of positive 84.4% and significance of 0.002. The correlation indicates that there is significant effect of borrowers-managers asymmetric information(X_1). on non-performing loans (NPL). The significance is less than 0.05 and thus indicates the test is statistically significant. The F test of 19.81 shows that data used to test the variables is appropriate for the test.

R Square is 0.712 which means that Variable X_1 of borrowers-managers asymmetric information can only explains for 71.2 % of variance in asset quantity and Adjusted R square of positive 67.6% when other known variables' explanation of relationship are considered. This therefore denotes that borrowers-managers asymmetric information has significant effect on non-performing loans. The study result rejects the null hypothesis $\mathbf{H_01}$in favor of the alternative and affirms that there is significant effect of borrowers-managers asymmetric information on non-performing loans in commercial banks in Kenya. The findings are in agreement with Islam and Nishiyama (2017) who established that information asymmetry of borrowers affects non-performing loans and cause deterioration of assets quality. The findings are consistent with findings of Ndiritu (2021) who established causality between interest rates which is a proxy of borrowers-managers asymmetric information and non-performing loans in commercial banks in Kenya.

The Moderating effect of Bank Size

The test for moderation role of bank size in the relationship between asymmetric information and non-performing loans in commercial banks in Kenya was based on the approach by Whisman and McClelland (2015) and also used by (Ngungu and Abdul, 2020). The approach is based on two steps. The first step introduces the moderating variable as an explanatory variable. This is for purposes of ascertaining whether Bank size is an explanatory variable.

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Table 4: ANOVA of Bank Size And Non-performing loans

			Change Statistics	
Model	R	R Square	F Change	Sig. F Change
1	.828[a]	.686	17.443	.003

a. Predictors: (Constant), Bank_Size

The table 4 show Analysis of Variance (ANOVA) of independent variable , moderating variable and of dependent variable NPL. The F test of 17.443 shows that data used to test the variables is appropriate for the test. R Square is 0.686 which means that variable M_1 of Moderating variable bank size can only explains for 68.6 % of variance in asset quality. The correlation indicates that there is relationship of 68.6 % between Bank size (M_1) and non-performing loans (NPL) and at significance of 0.003. The results in step one thus indicate that with all other variables held constant, bank size has significant effect on non-performing loans of commercial banks in Kenya and passed the first step of moderation test by indicating that it significantly influences non-performing loans. The results is also consistent with the findings of Barrell nand Karim (2010) who found a strong negative relationship between bank size and non-performing loans and attributed the outcome with the existence of implicit too big to fail assurance which induces moral hazard and is also consistent with the findings by Akhter (2023) who established that large banks hold more poor quality assets as compared with small banks because of inducements of bailouts..

The second step of the moderation test was then done to further confirm whether Bank Size was simply an explanatory variable or whether it had a moderating effect on the relationship between borrowers-managers asymmetric information and non-performing loans.

Table 5: MANOVA of Borrowers managers asymmetric information, Bank Size And Non-performing loans

		Change Statistics		
Model	R	R Square Change	F Change	Sig. F Change
1	.783[a]	.613	5.554	.036

a. Predictors: (Constant), Bank_Size, Borrowers_managers_Asymmetric_Information

In table 5 after incorporating the moderating variable (bank size) , the results indicates R square of 61.3 % at significance of 0.036. The results after incorporating the moderator in table 5 shows that bank size did not change the direction of the relationship between borrowers-managers asymmetric relation and non-performing loans. This therefore denotes that there is no significant moderating effect of bank size in the relationship between asymmetric and non-performing loans as a whole in commercial banks in Kenya. The study result accept the null hypothesis **$H_0$2** and affirms that there is no significant moderating effect of bank size in the relationship between borrowers-managers asymmetric information and non-performing loans in commercial banks in Kenya. This is not consistent with Karray and Chichti (2013) who posit that size brings economies of scale and accompanying cost reductions and big banks are thus expected to have lower interest rates margins because they have more opportunities to leverage their size to achieve economies of scale resulting in decrease in asymmetric information and non-performing loans. This is also not in agreement with Akkaya and Uzar (2011) who established that large firms are more diversified; therefore they face less possibility of default than smaller firms.

This however support the position of Davila and Walther (2020) whose findings confirms that bank regulators adopts size-dependent regulatory policies that disproportionately restrict large banks effects and further that regulators adopt bank industry wide regulatory framework that equally tame the misbehavior of both small

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and big banks and all market actors. This is also consistent with the findings of Engwall (2017) that the Banks, regulators, market actors, and scrutinizers play significant role in effective management of commercial banks and in mitigating asymmetric information between different actors.

CONCLUSIONS AND RECOMMENDATIONS

The objectives of the study were to establish the effect of borrowers-managers asymmetric information on non-performing loans in commercial banks in Kenya. The study result rejects the null hypothesis **$H_0$1** in favor of the alternative and affirms that there is significant effect of borrowers-managers asymmetric information on non-performing loans in commercial banks in Kenya.

The study there is significant effect of bank size on non-performing loans in commercial banks in Kenya indicating that the bigger the bank size the higher the non-performing loans and vice versa. The study however failed to reject the null hypothesis **$H_0$2** and affirms that there is no significant moderating effect of bank size in the relationship between borrowers-managers asymmetric information and non-performing loans in commercial banks in Kenya.

The first policy recommendations that the regulatory authorities should review asymmetric information's detection and mitigation mechanism with a view to finding a level at which they would intervene in commercial bank's operations as far as asymmetric information is concern. The central bank of Kenya should come up with more robust method of sharing information across the stake-holders spectrum including management decisions. At the moment central bank policy has focused much on regulations of credit information sharing of borrowers alone and it should also come up with policy of information disclosures by the managers and other stake who play central role in the management of banks. The second policy is that central bank should also come up with policy of managing big banks due to too big to fail hypothesis that can result in increase in non-performing loans.

The study was on the effect of borrowers-managers asymmetric information on non-performing loans in commercial banks in Kenya and in recognition of the limitations and constraints in relation to the scope, further studies are recommended in the following areas: that future research should be directed towards validating the results of this study by conducting a similar research in a different country and/or by collecting data from different sources. Further research can also be done on the effect of borrowers-managers asymmetric information on non-performing loans in other institutions such as in microfinance institutions. The study further recommends that more studies should be done on managers-stakeholders asymmetric information because of the central role that managers play in the organization as a link between organization and all other stakeholders. There is also need to study management opportunism behavior which results in managers having more asymmetric information over borrowers as a result of borrower's credit information sharing by financial institutions.

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