Insider Loans, Loan Quality and Their Predictive Ability of Commercial Bank Fragility in Kenya

Bwire Albert Camus Onyango  
Ph.D. Candidate, Department of Accounting and Finance, School of Business and Economics,  
Moi University, Eldoret, Kenya

Dr. Joel K. Tenai  
Senior Lecturer, Department of Accounting and Finance, School of Business and Economics,  
Moi University, Eldoret, Kenya

Dr. Robert M. Odunga  
Lecturer, Department of Accounting and Finance, School of Business and Economics,  
Moi University, Eldoret, Kenya

Abstract: Purpose: The aim of the study was to assess the ex-ante predictive ability of Insider loans and Loan quality on Commercial banks fragility in Kenya. Methodology: The study utilised a sample of thirty (30) Commercial Banks with at least five (5) years data for period 2010-2014 before the distress events of 2015. Data were collected from Central Bank of Kenya. Panel data was analysed using descriptive and inferential statistics. The appropriate model was random effects as established using the Hausman test. Findings: The lagged dependent variable has significant predictive ability on bank fragility. Insider loan’s ability was significant consistent with findings by Central Bank of Kenya Inspection reports. The loan quality variable was insignificant. Using regression model lagged dependent variable had z-statistics 14.33, z-value of 0.000; loan quality z-statistic -1.28 with z-value 0.201 while insider loans had z-statistics of 2.00 with z-value of 0.045. At 95% level the lagged dependent variable and insider loans are able to explain bank distress in Kenya. The model had R-squared of 80.72% which means the variance in the bank distress variable could be explained at that percentage by the independent variables. Implications for Research: Most studies in Kenya show ex-post that insider loans are a problem. There is need for continued development of new matrix to identify how insider loans can be useful in early warning studies. Due to sophistication of Commercial banking business, loan quality as a measure of dependence on loans has less predictive ability. Policy makers should focus more on additional metrics utilising the non-performing loans as lagged variable has good predictive ability. Originality: This study is a continuation of early warning research in detection of bank weaknesses.

Keywords: Loan quality, insider loans, bank distress

1. Introduction  
The quality of a Commercial Bank’s financial performance can be measured by reliance on interest income. Banks that rely on interest income show evidence of non-diversification that can be perilous to their health. Besides, insider loans depict the use of depositors’ funds by directors, management and staff. Evidence will be provided in the analysis section on the significance of these variables on the health of commercial banks.

1.1. General Objective  
Assess the significance of loan quality and insider loans on bank instability in Kenya.

1.2. Research Hypotheses  
- H₀₁: Loan quality has statistically no significant relationship with bank instability  
- H₀₂: Insider loans have statistically no significant relationship with bank instability

1.3. Significance of the Study  
Bank distress is costly to the economy. It is due to these costs that efforts must be expended to minimise fragility in the sector. The study aimed at finding the significance of loan quality and insider loans on bank distress in Kenya. Loan quality is a measure of diversification of a bank’s income stream, while insider loans show the use of depositors’ funds by bank insiders. The inability to communicate all loan information to outsiders offers insiders an opportunity to misuse and or exploit fraudulent use of deposits. This study should be of interest to researchers, commercial banks and regulators as part of early warning signals.
1.4. Scope of the Study

The period of interest is 2010–2015, which is after the bank instability of the 1990s and early 2000 but before bank instability of 2015 and introduction of interest caps in 2016. The study focused on loan quality and insider loans to offer directions on future bank regulation. The paper is organised as follows; section two reviews the literature, section three is the methodology while section four focuses on results. In section five discussion of the regression is made, section six, seven and eight discuss implication of research, conclusion and areas for future research.

2. Literature Review

2.1. Bank Distress

The causes of bank distress are diverse, Bernanke (1983); Kaufmann (1988); Wheelock & Wilson (2000) find that USA bank distress of 1920s were caused by severe problems in the agricultural sector due to natural causes upon which many small rural banks foundered; a clear case of minimal sectoral and agricultural diversification.

Corruption, fraud and violations of laws have also been found to cause bank distress. Alston & Grove (1994); Kaufmann (1988); Chijoriga (1999) and Aharony & Swary (1983) point out that fraud is a cause of bank distress. Alston et al., aver that fraud becomes rampant when bankers conceal detection of malpractice. Prevention of fraud and other internal causes would limit failure even in bad times. It is evident that fraud becomes pronounced during bad times, because in bad times absorption of losses or concealment of fraud becomes difficult because profit can no longer cover financial impropriety. However, Aharony et al., find that bank distress due to specific or unique factors to the institution such as fraud or internal irregularities have no contagious effect.

Lack of public supervision, ill-equipped supervisors have been found to be a cause of bank distress. Chijoriga (1999) avers that poor supervision capacity was a cause of bank failures in Tanzania. The argument reinforces the need for well-equipped supervisory mechanisms by bank regulators. Due to the public nature of banking institutions and their impact on the financial system, public supervision in order to forestall a meltdown of the system is necessary. In the absence of supervision, it seems the case that banking institutions may indulge in overly risky undertakings and violation of established banking laws with distress as a consequence.

Wheelock et al., (2000) argue that diversification would have helped limit distress in the US due to sectoral shocks. In a study conducted in Tanzania by Chijoriga (1999) it was affirmed that concentration on a few borrowers or group of borrowers created a fertile ground for possibility of failure, the same applies to concentration on a few depositors.

Insider loans have been found to cause bank failure. Kenn-Ndubuisi & Akani (2015) and Babajide, Olokoye & Folasade (2015) show that insider loans or gross insider abuses are a cause of bank closures. Insiders are able to abuse the system due to information asymmetry and their ability to conceal loans to their family, related companies and themselves. Therefore, excessive loans to enterprises in which officers are interested, direct loans to officers for speculative purposes can cause bank distress.

Alvarez-Franco & Restrepo-Tobon (2016) state that banks with low quality loans are likely to fail. They measure the low-quality loans using non-performing loans and loan loss provisions. Shaffer (2012) finds that higher expenses and non-performing loans contribute to the risk of distress. Kenn –Ndubuisi et al., (2015); Frolov (2006) and Babajide et al., (2015) find poor credit base, credit quality and poor asset quality as causes of bank failure.

According to DeYoung & Torna (2013), declining net interest income leads banks into risky businesses in order to generate non interest income. These risky businesses elevate the leverage of the bank and non bank institution. Such risky business is the non-traditional banking activities which DeYoung et al., (2013) aver have economically meaningful effects on the probability of bank distress. They also find that income from non traditional banking activities can be quite volatile leading to volatile income by the banks.

2.2. Theoretical Framework

The agency cost theory is fundamental to the soundness of the banking system.

2.2.1. Agency Cost Theory and Bank Distress

Jensen (1986) shows that managers have incentives to cause firms to grow beyond optimal size. This growth is normally in the managers’ interest as growth increases their power because of the resources they control. Besides, growth of the firm is positively related to changes in compensation in managers interests rather than shareholders.

With positive growth, bank management can still plead bad luck when outcomes are poor according to Heffernan (2009). Ang, Cole & Lin (2000) aver that when managers own less than 100 per cent of the firm's equity, shareholders incur costs emanating from management shirking and perquisites consumption. Arnould (1985) argues that managers seek goals that deviate from those of the owners and especially where ownership of the firm is dispersed enough to put control in the hands of management.

Heffernan (2009) argues that in the process of aligning their interest’s officers create suboptimal credits which when expectations are good lead to good profits but when the expectations are negative lead to bank failure. The agency problem in which banks act as principal and debtors as agents; the debtors who are borrowers are expected to operate in the bank interests, invest in positive net present value and eventually pay back their loans. However due to information asymmetry, debtors maximize their interests as they know more than the bank about their projects. This is part of the reason for poor quality of loan portfolio. Where debtors act as principal and banks as agents, depositors entrust banks to utilise their savings in a manner the deposits will be repayable on demand or notice, however, banks in an effort to
make profits may lend to debtors who turn out to be bad credits thereby impacting the depositor's funds. In the case where the bank fails, depositors may not recover 100% of their deposits. It is those who are fully covered by the deposit insurance who receive their funds in full, the rest may have to wait for realisation of bank assets and recovery of loans before they are paid. The agents possess more information than the principals and will grow the loan portfolio knowing well that their remuneration will be measured by the bank performance.

The rapid growth in loan portfolio may come with bank management who are agents lending to themselves, that is insider loans for their own projects. This may have a negative impact on the quality of the loan portfolio.

2.3. Explanation of Variables

2.3.1. Non-Performing Loans

A number of researchers including Demirguc-Kunt (1989), Whalen (1991) find asset quality as a predictor of bank failures. Fofack (2005) states that the occurrence of banking crises is often associated with a huge accumulation of non-performing loans. Further non-performing loans account for a sizeable percentage of total assets of distressed banks. Fofack states that the banking crises that affected most sub-Saharan African countries was precipitated by an accumulation of nonperforming loans. Boudriga, Taktak & Jellouli (2009) argue that the aggregate rate of NPL is a frequently used measure of bank soundness. Further they state that NPLs are a major problem for international and local regulators and whereas aggregate NPLs exhibit wide disparities between countries, some suffer severely with rates greater than fifteen (15%) percent.

2.3.2. Insider Loans

The Banking Act and Central Bank of Kenya Prudential Guidelines (2013) limit borrowings by a single insider to twenty-five percent (25%) of the bank’s core capital. Besides, aggregate credit facilities to all insider is capped at 100% of core capital. These restrictions ensure that facilities to insiders are limited to owners’ capital component and therefore limit the level of depositors' funds that may be misapplied by directors, management and staff and their related associates. Brownbridge (1998a) finds that the single biggest contributor to bad debts of the failed banks in Kenya, Nigeria, Uganda and Zambia was insider lending. Insider loans accounted for 65% of the total loans of four banks liquidated in Nigeria in 1995, and almost half of the loan portfolio of a bank taken over by Bank of Uganda. According to Thomson (1991) insider loans act as a proxy for management risk that is the risk of fraud and or insider abuse. Insider loans can be treated as self-lending and this is to mainly take advantage of asset price booms.

2.3.3. Loan Quality

Logan (2001) states that management should diversify into other types of businesses to earn fees, commissions or trading income. However, this is in contrast to DeYoung et al., (2013) who show that non-traditional banking activities have a meaningful effect on probability of bank failure.

DeYoung et al., (2013) find that net interest income is the most traditional source of bank income. Besides, the probability of a bank failing declines with increase in net interest income. A declining net interest income can result from poor loan quality and also an increase in interest expense. An increase in interest expense means the sources of deposit are expensive and thereby undermining the return from interest on loans. Clancy & Zhao (1999) show performance of a bank is determined by its efficiency in the intermediation function. Failing banks pay higher interest rates in order to attract deposits and earn lower returns on loans due to underperforming assets.

High level of non-performing loans is therefore a pointer to poor loan quality. Lu & Whidbee (2016) affirm that non-performing loans increase the likelihood of failure. According to Cebula (2010) the worse the performance of the banks loan portfolio the greater the likelihood of bank closures. A declining net interest income could lead banks into other risky businesses in order for them to generate non-interest income and satisfy the various stakeholders demands.

Dependency on net interest income is a pointer to lack of functional diversification that could lead to distress. Jin, Kanagaratnam & Lobo (2018) find net interest margin as a key performance measure of a bank’s lending business. Variability of net interest margin may signal volatile bank performance showing a riskier strategy by the bank may lead to more uncertain interest margin with a negative impact on solvency.

The study adopted a 25% level of NPL/Gross loans as a measure of fragility consistent with Fofack (2005) who made similar observations about the Asian crisis of 1997.

3. Methodology

The study was conducted in Kenya. The period of the study was 2010 to 2014. The population for the study was thirty (30) Commercial banks. The study period does not extend data collection to 2016 and 2017 financial year following the Banking (Amendment) Act of 2016, which introduced interest rate caps in Kenya in September 2016. The controls may have an impact on banks in operation yet bank distress in 2016 occurred before interest rate controls. The research philosophy adopted was epistemology, which according to Saunders, Lewis & Thornbill (2009) relates to the development of knowledge and the nature of that knowledge and underpinned by positivism which Bryman (2012) states that it advocates the application of natural sciences to study social reality and beyond. According to Smith, Thorpe & Jackson (2012), with positivism, hypothesis can be derived from existing theory and literature, data collected, analysed and tested to either accept or reject the hypotheses. The research design in this study was explanatory research. Saunders et al., (2009), Adams, Khan, Raeside, & White (2007) argue that explanatory research seeks to establish causal relationships.
between variables, seeks explanation of observed phenomena, problems or behaviours and aims at advancing knowledge about structure, process and nature of social events.

3.1. Model Specification

Multiple regression analysis was considered ideal in establishing if a relationship existed between variables. The regression equation was specified as follows:

\[ Y_{BDit} = \alpha + \beta_1 Y_{BDit-1} + \beta_2 X_{it} + \beta_3 X_{it} + \epsilon. \]

The variables were defined as follows:

- \( \alpha \) = intercept for each entity
- \( \epsilon \) = Error term
- \( \beta_1 \) to \( \beta_3 \) = Coefficient of independent variables
- \( Y_{BDit-1} \) = lagged dependent variable
- \( i = 1, 2, \ldots, 30 \) (Individual banks)
- \( t = 1, 2, 3, \ldots, 5 \) (time indicator)
- \( X_{it} \) = Independent variable for firm \( i \) in year \( t \)

The independent variables \( X \) are defined below:

- \( Y_{BDt-1} \) = lagged bd = lagged dependent variable
- \( X_1 = il \) = Insider Loans
- \( X_2 = lq \) = Loan Quality

3.2. Hausman Test

Gujarati & Porter (2009) show that the Hausman test can be used by researchers to decide whether it is the fixed effect model (FEM) or random effect model (REM) to be applied.

**Table 1:** Results of Hausman Test

|     | (b)  | (B)  | (b-B) | sqrt(diag(V_b-V_B)) |
|-----|------|------|-------|--------------------|
| lagbd1 | .6759926 | .8737238 | -.1977513 | .0887748 |
| lq   | -.0776288 | -.0635673 | -.0140614 | .0668337 |
| il   | .2300612 | .4470335 | -.2169723 | .2896981 |

Test: Ho: difference in coefficients not systematic

\[ \text{chi2}(3) = ((b-B)')[(V_b-V_B)^{-1}][(b-B)] \]

= 5.41

Prob > chi2 = 0.1443.

The prob > chi2= 0.1443 is greater than 0.05 therefore failed to reject the null hypothesis. Consequently, the effective model is the random effects.

3.3. Multicollinearity

The multicollinearity test confirmed the data was devoid of serious collinearity. The presence of multicollinearity normally leads to inaccurate estimates of the slopes. Ott & Longnecker (2010) indicate that the variance inflation factor of 1 indicates no collinearity at all, VIF of 10 would mean serious collinearity problem.

**Table 2:** Test of Multicollinearity

| Variable | VIF | 1/VIF |
|----------|-----|-------|
| lagbd1   | 1.60 | 0.626175 |
| il       | 1.42 | 0.706286 |
| lq       | 1.22 | 0.821468 |

Mean VIF = 1.41
3.4. Stationarity test

Stationarity of data is important in regression analysis in order to avoid spurious correlation.

| Harris-Tzavalis unit-root test |
|-------------------------------|
| Ho: Panels contain unit roots  |
| IIa: Panels are stationary     |
| Number of panels = 30         |
| Number of periods = 5         |

| Loan Quality | \( \rho \) | -0.2744 | -8.7040 | 0.0000 |
| Insider Loans| \( \rho \) | -0.2130 | -8.0134 | 0.0000 |
| Lagged dependent variable \( \rho \) | 0.1347 | -2.5130 | 0.0060 |

*Table 3: Results of Stationarity Test*

The null hypothesis that the data contains unit root is rejected and therefore conclude that the data is stationary.

3.5. Variable Measurement

3.5.1. Bank Distress

The variable is a standard proxy for bank asset risk according to Shehzad, Haan & Scholtens (2000), Galili, Samuel & Shapir (2018) state that the higher the ratio the poorer the quality of the loan portfolio and can trigger financial problems and accelerate bank fragility. Dimitrios, Helen & Mike (2016) concur with the above conclusion and state that bank insolvency arises from deterioration in asset quality over time. Jing & Fang (2018) conclude that it is important to predict bank distress to enable regulatory authorities to take timely action and reduce the costs associated with resolving distress. The variable was found appropriate as a dependent variable of the study following the empirical review of literature.

3.5.2. Loan Quality

Galili et al., (2018), Altman et al., (2016) employ net interest margin to total assets as an explanatory variable to measure earnings. The ratio shows the income the bank earned on assets during the period. When expressed as a ratio of total income, it measures dependency on loans as a source of income.

3.5.3. Insider Loans

Loans to directors, management and staff and their associates can be a source of fraud, bank instability or misuse of fiduciary responsibility. Commercial banks have a duty to invest depositors’ funds responsibly. Brownbridge (1998a), Thomson (1991) find insider abuse a significant factor in bank failure. According to Thomson it is a proxy for management risk.

3.5.4. Lagged Dependent Variable

Iftikhar (2015) utilised lagged dependent variable of the relationship between impaired loans to gross loans and found financial weaknesses of the previous year have an impact on the current year. Flannery & Hankins (2013) Iftikhar (2015) and Baltagi (2005) state that dynamic relationships are characterised by the presence of a lagged dependent variable among the explanatory variables. Gujarati et al., (2009) states that autoregressive and distributed lag models are used extensively in economic analysis. Autoregressive models show the path of the dependent variable in relation to its past. The reasons for lags include psychological reasons as a result of habits which do not change immediately, technological reasons where imperfect knowledge accounts for lags and also institutional factors contribute to lags, in case of contracts it may switch to alternative easily.

| Variables          | Researcher(s)                      | Measures                                 |
|--------------------|-----------------------------------|------------------------------------------|
| Bank Distress      | Carapeto, Moeller, Faelten, Vitkova & Bortolotto (2010) | Gross Non-Performing Loans/Total loans   |
| Loan quality       | Calomiris & Mason (2003), Logan (2001) | Net Interest Income/Total Income         |
| Insider Loans      | Thomson, James B (1991)            | Total Insider Loans/Total Assets         |

*Table 4: Measurement of Research Variables*

*Source: Researcher 2020*
4. Results / Findings

4.1. Descriptive Statistical Analysis

The data collection and variable computation was conducted using Microsoft Excel before exporting to Stata statistics/Data Analysis package for data analysis. The mean for the dependent and independent variables of the study were highlighted and discussed in view of the literature reviewed. The data analysis was conducted for 2010-2014 on cross sectional analysis to identify commercial banks with results above the industry averages.

4.1.1. Bank Distress Variable

During the period under review Imperial Bank and Chase Bank had maximum bank distress ratios of 6.97% and 5.03% respectively. On the other hand, Dubai Bank Ltd gross non-performing loans to total loans was 79.41%. The mean bank distress variable consistently declined to a low of 10.15% in 2014. It is evident that over the period Dubai bank exhibited financial instability. With average distress indicators above industry average. The explanation on Dubai Bank state of health can be drawn from Bongini, Claessens and Ferri (2000) who indicate that politics, regulatory capture and forbearance have a role in dealing with financial crisis. Fofack (2005) reports NPL/total loans in sub-Saharan Africa reached 32% in 1993, and 25% during the 1997 Asian financial crisis. The level of Kenya's bank distress variable was at crisis level if compared to the period 1993 sub-Saharan Africa banking industry problem and 1997 Asian financial crisis.

4.1.2. Loan Quality Variable

Loan quality is a measure of dependency on interest income. The three distressed Banks had the following ratios, Dubai Bank 30.2% minimum with maximum of 45.76%; Imperial Bank had minimum 38.07% and maximum 51.11% while Chase Bank had minimum 34.53% and maximum 48.09%. The industry average was 43.23%, this confirms dependency on interest income as a source of revenue for Commercial Banks in Kenya. It also shows the structure of deposit and Loans in the Commercial banks' businesses. Alvarez-Franco et al., find that loan quality is a significant predictor of bank survival. It is in this light they argued that less diversified banks are more likely to fail due to dependence on interest income.

4.1.3. Insider Loans Variable

The level of insider loans at Dubai Bank was minimum 4.23%, maximum 18.38% while at Imperial bank the level was 3.42% and 5.53% being minimum and maximum. Chase Bank had minimum insider loans level of 19.98%, maximum 30.19%. Whereas insider loans did not seem a problem, Central Bank of Kenya and the external auditors found Chase Bank Ltd had falsified records of actual insider loans before the bank was distressed.

| Stats | Bd | lagbd1 | lq | il |
|-------|----|--------|----|----|
| N     | 150| 120    | 150| 150|
| Mean  | 0.1015994| 0.0983025| 0.4323862| 0.0361422|
| Sd    | 0.1138603| 0.1039462| 0.1109743| 0.026284|
| Min   | 0.0105613| 0.0105613| 0.01128168| 0.0027605|
| Max   | 0.7940975| 0.6784101| 0.6212121| 0.1838235|

Table 5: Summary of Industry Descriptive Statistics
Source: Research Data, 2020

4.2. Correlation Analysis

Correlation analysis shows the relationship between variables. It may be the case that the relationship is positive or negative, high or low or no relationship at all.

|             | bd  | lagbd1 | lq    | il    |
|-------------|-----|--------|-------|-------|
| bd          | 1.0000 |       |       |       |
| lagbd1      | 0.8948* | 1.0000 |       |       |
| lq          | -0.3032* | -0.3403* | 1.0000 |       |
| il          | 0.4747* | 0.4897* | 0.0519 | 1.0000 |

Table 6: Results of Correlation Analysis
* Correlation Significant At 5% Level
There is a significant high and positive relationship between lagged dependent variable and bank distress 0.8948, p-value 0.0000. Loan quality exhibits a low negative relationship between bank distress and lagged bank distress variable significant at 5% level. On the other hand, the insider loan variable shows a positive intermediate relationship with bank distress and lagged bank distress.

4.3. Regression Results

| Random-effects GLS regression | Number of obs | 120 |
|-------------------------------|---------------|-----|
| Group variable: bankname1     | Number of groups | 30 |
| R-sq. within = 0.3261         | Obs per group: min | 4 |
| between = 0.9172             | avg = 4.0      |
| overall = 0.8072             | max = 4        |
| corr (u_i, X) = 0 (assumed)  | Wald chi2(3)   | 331.90 |
|                              | Prob > chi2    | 0.0000 |

Table 7: Regression Results

The overall R-squared 80.72% indicates the model can explain 80.72% of the variances in the dependent variable. The z-statistic for the lagged dependent variable 14.33 with p > z = 0.0000, the variable has a significant positive effect on bank distress. The loan quality variable has z-statistic -1.28, p > z = 0.201 while insider loans have z-statistic 2.00 and p > z = 0.045. The loan quality variable had insignificant negative influence on bank distress in Kenya for the period 2010-2014. The insiders loans variable had a positive and significant effect on bank distress. The findings for insider loans effect are consistent with Central Bank of Kenya Inspection reports that have highlighted the relationship between insider loans and bank distress at Chase Bank Ltd.

5. Discussion

Bank fragility has been a problem in Kenya since mid 1980s when the first banks to encounter financial weaknesses were closed. Since 1984, there has been evidence of weak banks but of which the regulatory authorities have allowed to operate or have been provided financial assistance by government. In this study a total of seven banks had NPL/Gross loans above 25%. Of the seven banks, Dubai bank had NPL/Total loans ratio at 79.4% the highest for these banks. The other six had the ratio ranging from 25.9% to 36.4%. The six remain operational but with varying degrees of financial performance. The level of loan quality above 51% which means over-reliance on interest income had a total of eleven banks with the ratio ranging from 54% to 62%. It is noteworthy that the large banks in Kenya had high loan quality ratios. Though, it is argued that large banks tend to be well diversified, however, the evidence shows the large banks still derive most of their income from loans. The level of insider loans as a ratio of total assets ranged between 0.2% and 18.38% considered low. However, evidence from Central Bank of Kenya shows part of the reason Chase Bank entered distress was creative accounting of insider loans on its balance sheet.

The regression results highlight the stickiness of non-performing loans in bank fragility. The previous period NPLs impact future NPLs and the health of the bank. The lagged dependent variable had a major impact on the bank instability. With respect to Insider loans, the regression results are near the border line with p > z = 0.045 yet it has been established the 2015-2016 bank instability was among other factors caused by fraudulent application of insider loans. Kenyan banks exhibit mixed loan quality signals with large banks showing dependence on interest income, yet literature seems to suggest they are diversified.

The results of this study confirm agency cost theory, where insider loans are treated as perquisites. Insiders utilise these funds for their investments. Such loans generate interest income however they also peril the banks in case of down-turn in investment fortunes.
The study found loan quality to be statistically insignificant in explaining bank distress. However, the lagged dependent variable non-performing loans on the financial health of banks in Kenya is also confirmed. The lagged dependent variable non-performing loans as a ratio of total loans shows that the NPL in the previous year tends to have influence on subsequent years.

7. Conclusion

The study found loan quality to be statistically insignificant in explaining bank distress. However, the lagged dependent variable and Insider loans were found to be statistically significant.

The research therefore recommends (i) new measures for insider loans as a predictor of bank distress to help in ex-ante predictions. (ii) The Loan quality variable should be measured against total loans to indicate the income generating ability of loans and the predictive ability. (iii) Regulatory authorities should expand the measure of non-performing loans as they are better predictors of distress.

8. Future Research

Regulatory authorities should design new metrics to measure insider loans and loan quality. Banks have reduced reliance on Loans yet NPL remains a variable without the regulator finding out in good time. The focus should be new measures. Further research should also examine the relationship between non-performing loans and other bank variables apart from loans.

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