The Distressing Effect of Non-Performing Assets to Asset Quality for Commercial Banks in Kenya

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Abstract: Non-performing Assets is a ratio necessary when identifying financial distress effect on asset quality of financial institutions in Kenya specifically commercial banks in Kenya. Financial distress and asset quality have often been discussed separately in details, but not as satisfactorily this is because of its role of asset quality on distress risk levels of commercial banks. The current research established the distressing effect of non-performing assets on asset quality of Kenyan commercial banks. Nonloan ratio was represented by two variables: Non-performing assets to total loans ratio and Loan loss provision ratio. Thirty-eight Kenyan commercial banks were used for analysis for an eleven year period (2005-2015). Financial statements of commercial banks from CBK was used to extract secondary data for analysis. Results indicated that there a relationship between financial performance and capital adequacy regarding financial distress risk level. A correlation and panel regression analyses were carried out mainly to determine whether there was a relationship of non-performing assets and asset quality of commercial banks in Kenya, the outcome of the study indicated a positive relationship between Non-performing assets and asset quality. This study specifically gives a mindful and sense of reference to the depositor, all banking institutions including the commercial banks and policy-makers to high standards of asset quality by ensuring proper additional guidelines and controls are put in place to guard against non-performing loans.

Keywords: Non-performing loans, Asset quality, Commercial banks, Distressing effect

1. Introduction

The study of asset quality of banks is enhanced by studying the environmental variables that are likely to influence it. These environmental variables are financial distress factors that affect asset quality. A study in the United Kingdom by Keasey, Pindado, and Rodrigues (2014) defined financial distress as the probability of voluntary exit which increases with higher levels of debt and lower levels of cash resulting in an inability to make payments for various financial costs for small and medium-size enterprises in the United Kingdom.

Tesfamariam (2014) emphasized that factors like profitability, efficiency, and inflation insignificant effect on a firm’s financial distress. Gebreslassie (2015) contended that capital to loan ratio, net interest income to total revenue ratio has a statistically significant positive influence on the financial health of banks whereas the nonperforming loan ratio has a statically significant negative influence on the financial health of the banks. Hajek, Olej, and Myskova (2015) indicated that non-financial and financial types of information are the vital classifications of financial distress prediction. They further claimed that financial information on asset quality, management efficiency, leverage are the most distressing factors to be used as proxies of financial distress. Poghosyan and Cihak (2011) debated on the most significant strategic distress factors in the banking industry and identified capital adequacy, and asset
quality are the second most ranking distress factor after leverage. Zhang, Xie, and Lu (2015) indicated that non-performing loan ratio representing asset quality and capital adequacy are the most influential indicators predicting financial distress. Kalemli-ozcan and Sorensen (2011) argued that leverage as a distress factor is procyclical for large commercial banks in the United States.

Trend analysis in NSE indicates fluctuations of asset prices in the banking industry. John, Hilscher, Szilagyi, and Link (2011), Husna and Rahman (2012), Kamonye (2012), Petajisto (2013), and Steven and Gray (2015) echoed that Share prices are positively related to financial performance, financial distress and investment switching behavior. It was noted that between June 2015 and December 2015, asset prices in the banking sector, investment, and investment services declined by 8.9%, 9.5%, and 7.1% respectively unlike in other industries (NSE, 2015).

A bank’s assets comprise mainly of its loans and advances to customers. These from a shareholders perspective are meant to earn returns through various investments but mainly through interests from loans to customers to ensure profitability of the entity (Love et al., 2014). Vigneswara (2015), found out that the stability of the banking stability affects the stability of any given economy. Vigneswara (2015) further asserted that banking industry should ensure proper and high asset quality to achieve banking stability. Vigneswara (2015), also concluded that financial fragility and market crisis due to market illiquidity and a contagion effect if proper asset quality is not put in place.

Vigneswara (2015) suggested that CRAR, provisions to NPAs and ROA of third world countries have different levels approaches of NPA management in different countries. According to Vigneswara (2015), these ratios are ordinarily used to measure assets quality. Ongore and Kusa (2013) suggested that many other ratios can be used to study the performance of banking sector and other related industries and concluded banking industry will always ensure that non-performing loans are put at their minimums to improve quality of assets.

According to Barus, Muturi, and Kibati (2017) and Nazir (2010), asset quality ratios should be NPA to total net loans and loan loss cover. Nazir (2010) further asserted that high non-performing loans affect the profitability of the bank and low ratios indicate that the bank is in noble health. This study, therefore, used total NPA to total loans ratio and loan loss provision to operating income ratio where lower values will be desirable. Here the study hypothesizes that:

Ho4: Non-performing assets have an insignificant effect on asset quality of commercial banks in Kenya.

2. Literature Review

2.1 Theoretical Review

2.1.1 Wrecker’s Theory of Financial Distress

The wreckers theory was developed initially by Campbell, Hilscher, and Szilagyi (2005) suggested that stocks of distressed firms perform in a manner which is vastly inferior to stocks of financially healthy firms. The wreckers’ theory of financial distress seeks to explain the benefits that may step out of financial distress to stakeholders (Kalckreuth, 2005). This theory contributes to an efficient-market interpretation of a stock market, and usually, it links work on private benefits to the literature on the empirics of asset pricing and that the financial structure and the probability of default may be essential for determining the size of private benefits of control (Kalckreuth, 2005). Kalckreuth (2005) claimed that with a cumulative probability of default, there is a superior incentive to withdraw resources from the firm as private and non-dividend benefits. Shareholders will feel the full opportunity costs only in
states where default does not occur. If default is definite, withdrawing resources is a free lunch. In this theory, this is termed "wrecking".

The wrecker's theory of financial distress seeks to justify various benefits as a result of a financially distressed firm to stakeholders. It is not necessary to attribute the negative excess returns of distressed firms to inefficient or irrational markets; such negative excess returns can be shown to the equilibrium outcome under efficiency in a financially distressed firm, then the participants can draw return in kind. Wrecker's theory of financial distress paints an illusion of a firm being hit by a series of negative shocks, making losses and approaching a state of financial distress. Since shareholders expect the withdrawal from the firm in the form of dividend payments, loans, advances, and bank-runs, thus affecting the asset quality since there will be low deposits and high non-performing loan and advances resulting from high withdrawals.

According to Wrecker's theory, asset quality is a significant factor in financial distress. With higher leverage, volatility of share prices increases concerning private information; the ultimate fate of the firm depends on issues unknown to the general public (Nyamboga, Omwario, and Muriuki, 2014). Since investors or shareholders will start demanding for returns on their investments, there will be frequent withdrawals regarding loans, advances and bank runs; consequently, the firm will be financially distressed, as it will be required to make massive payments to the shareholders.

2.1.2 Modern Portfolio Theory
This theory was developed by Markowitz (1952), and it is a mathematical framework for assembling a collection of assets such that the expected return is maximized for a given level of risk. Its significant concept is that an asset's risk and return should not be assessed by themselves but how they contribute to a group's overall risk and return. Portfolio theory approach is the most relevant in explaining the relationship of asset management and financial performance; it plays an influential role in bank performance studies as indicated by Cochrane (2014).

According to the Portfolio balance model of asset diversification, the optimum holding of each asset in a wealth holder's portfolio is a function of policy decisions determined by a number of factors such as the vector of rates of return on all assets held in the collection, a vector of risks associated with the ownership of each financial assets and the size of the portfolio. It implies portfolio diversification and the desired portfolio composition of commercial banks as a result of decisions taken by the bank management. Further, the ability to obtain maximum profits depends on the feasible set of assets determined by the management and the unit costs incurred by the bank for producing each component of assets (Belete, 2013). This theory proposes proper asset rebalancing for necessary changes by purchasing underperforming assets to retain the original asset allocation mix (Harry Markowitz, 1991).

This theory suggests that the ability to maintain sufficient returns or profits will mainly depend on the feasible combinations of assets that will result in quality assets and as a result, there will be high performance targeted by the selected combinations of assets. Further, poor choice of asset combination will result in low profits leading to financial distress. Also, this theory is relevant to the current study because it is applied by banks in diversifying their loan portfolios to optimize unsystematic credit risk. The possibility of a sudden decline in credit portfolio in a particular industry should not be assumed. Therefore, banks ensure that there is proper asset selection and balance to avoid financial distress (Arzac and Bawa, 1977; Caprio and Klingebiel, 2002). This theory, however, has a shortcoming; it cannot allow both more and less risk-averse investors to find their optimal portfolio, a problem surmounted by the capital asset pricing model (CAPM) (Fama and French, 2004)
2.2 Empirical Review

Vigneswara (2015) carried out a study on the determinants of bank’s asset quality and profitability for banks in India. The study used panel data techniques between 1997-2009, and the research findings revealed an inference contrary to the established and expected outcome. It was established that non-performing assets do not affect the profitability of commercial banks and further, the research asserted that asset size has no significant impact on the profitability of commercial banks. The study was based in India’s commercial banks over eleven years between 1997 and 2009. The current study will fill a research gap in determining the effect of asset quality as a financial distress factor on the financial performance of commercial banks in Kenya for eleven years between 2005 and 2015.

Akhtar and Hayati (2016) used an empirical Study on Islamic banking system of Pakistan in assessing the effect of asset quality, income structure and macroeconomic factors on insolvency risk to determine the insolvency risk in Islamic banking system of Pakistan for the years 2007 to 2015. To determine the insolvency risk in Islamic banks of Pakistan, a variety of bank-specific and macroeconomic variables were used. The results were obtained using OLS estimation. The results reveal that asset quality of Islamic banking system does not pointedly impact insolvency, whereas, interaction with capital asset ratio expressively impact asset quality.

Olweny and Mamba (2011), carried out a study on the effect of bank sectorial factors on bank performance and asset quality was one of the bank-specific factors under study. The study adopted an explanatory approach by using panel data research design. The study used annual financial statements of 38 Kenyan commercial banks from 2002 to 2008 and data analyzed using multiple linear regression methods. The findings indicated that there is a negative and robust relationship between poor asset quality and profitability. According to Olweny and Mamba (2011), the findings further meant that banks which fail to monitor their credit loans tend to be less profitable than those who pay particular attention to assets quality. Olweny and Mamba (2011), indicated that small and medium banks that had the highest ratio of non-performing loans to gross loans are associated with low profitability. The findings are in line with the theory that increased exposure to credit risk which is typically associated with decreased bank profitability.

Barus, Muturi, and Kibati (2017) carried out a study to establish the effect of asset quality on the financial performance of savings and credit societies in Kenya. The study employed an explanatory research design with a target population of 83 registered deposit-taking saccos in Kenya that had been in operation in the period 2011-2015. The study used a census to collect both primary and secondary data. Multiple linear regression models were used to analyze the data using statistical package for social sciences (SPSS) and STATA. The findings of the study concluded that asset quality influenced the financial performance of savings and credit societies in Kenya. This was explained by the regression results that showed the influence was positive and showed the magnitude by which asset quality influenced the financial performance of savings and credit societies. The univariate regression results showed that asset quality influenced the financial performance of savings and credit societies in Kenya.

The above studies on firm’s asset quality were based on results of other countries; Adeolu (2014), Vigneswara (2015), Akhtar and Hayati (2016), others were based on saccos. Studies by Barus, Muturi, and Kibati (2017) and Olweny and Mamba (2011) whose were mainly based on banks sectorial factors and not Financial distress factors. Findings did not link the effect of assets quality of commercial banks as a financial distress factor on the financial performance of Kenyan banking industry. However, the researchers identified asset quality as a factor of performance.
3. Methodology

3.1 Data Collection
Hui Cheng and Phillips (2014) observed that benefits of secondary data are very clear and the most benefit being the low cost of collecting data. However, there are also barriers to secondary data such as getting access to the secondary data. Melissa (2014) asserted that secondary data analysis is a viable method of utilizing in the process of inquiry in cases where a systematic procedure is followed in research. The data collection covered an eleven (11) year period from 2005 to 2015, this period of eleven years was selected for the study to establish the changes in the commercial bank over time and to base the analysis on as recent data as possible. This could also be important since several banking regulations for financial institutions had been put in place.

3.2 Data Processing
The study extracted data containing quantitative details from financial institutions, the panel data collected was analyzed quantitatively through a mathematical and regression equations and this was solved by using a statistical tool (STATA). Olweny (2012) argued that multiple regression techniques give both quantitative and qualitative result that is conclusive and robust as well. STATA analyzed descriptive statistics and multiple linear regression analysis between dependent variables (financial performance) and independent variables.

3.3 Regression Analysis
This statistical model determined the effect of independent variables on the dependent variable. The multiple regressions used had the following form:

$$\text{ASQ}_t = a + \beta_1 \text{NPA}_1t + e$$

Where:
- ASQ is the Asset quality
- NPA is the non-performing assets.
- $a =$ Constant
- $\beta_1 =$ coefficients of determinants of non-performing Asset for commercial banks in Kenya.
- $e =$ error term

4. Results and Discussion

4.1 Response Rate
The study targeted 44 commercial banks that are licensed and regulated by CBK out of which two were under statutory management as at 31st December 2015. The study sought to explore the effect of financial distress factors on the financial performance of commercial banks in Kenya. The researcher used the census technique and considered the entire population; secondary data was collected for various financial ratios used to measure financial performance across a period of 11 years yielding a panel data.

According to Table 4.1, the researcher managed to collect data from 43 commercial banks out of 44 banks yielding 98% response rate. The response rate was considered adequate given that Beauvais, Stewart, Denisco, and Beauvais (2014) maintained that a response rate of between 50% and 70% is a worthy response rate. Runnels and Thomas (2006) reasoned that a response of more than 75% would give rise to best analysis. Runnels and Thomas (2006) further reasoned that a response rate of 30%-40% should be considered sufficient.

Past studies on commercial banks have reported a response rate lower than 80% including Muiruri (2015) with a response rate of 78% Ngumi (2013) recording a response rate of 62%, Kamau and Ngari (2014) with a response rate of 71.6% except for Kosikoh (2014) whose response rate on insurance companies was above 80% translated to approximately 94%.
Based on these studies a response rate of 98% due to the statutory management of Charter House Bank in tier III was considered adequate.

<table>
<thead>
<tr>
<th>Bank Category</th>
<th>No. of Banks</th>
<th>Response</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier I</td>
<td>6</td>
<td>6</td>
<td>100%</td>
</tr>
<tr>
<td>Tier II</td>
<td>8</td>
<td>8</td>
<td>100%</td>
</tr>
<tr>
<td>Tier III</td>
<td>13</td>
<td>12</td>
<td>96%</td>
</tr>
<tr>
<td>Tier IV</td>
<td>16</td>
<td>16</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>43</td>
<td>98%</td>
</tr>
</tbody>
</table>

4.2 Descriptive Analysis of Study Variables

4.2.1 Non-performing Assets to Total Loans

The measures for asset quality used were non-performing loans and loan loss provisions. Non-performing assets to total loans ratio were measured as the sum of the non-performing loans divided by the total loans of the firm. As reflected from Table 2, there was a decline in the level of non-performing assets to total loans over time especially from 2005 to 2012, but an increase in 2013 and later a decline in 2014 and 2015. This could be as a result of a decline in Non-performing loans due to enhanced corporate governance and risk management as well as the enforcement of strict provisioning policy by the Central Bank. This finding of the current study indicates that asset quality is a factor of financial distress and this might have an effect on financial performance.

The current study found out a decline of asset quality in the banking sector, and this was in agreement with (CBK,2015) banking supervision report that also registered a decline in asset quality with the non-performing loans (NPLs) ratio increasing in December 2015. According to CBK (2015), the increase in NPLs was attributed to delayed payments to contractors and suppliers, enhanced reclassification and provisioning of loans and challenges in the business environment in 2015. However, the sector recorded solid capitalization levels as a result of additional capital injections (CBK, 2015).

<table>
<thead>
<tr>
<th>Year</th>
<th>Obs</th>
<th>Mean</th>
<th>Std.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>38</td>
<td>16.4758</td>
<td>16.8595</td>
<td>0.9000</td>
<td>70.4200</td>
</tr>
<tr>
<td>2006</td>
<td>38</td>
<td>14.8967</td>
<td>15.9708</td>
<td>0.5700</td>
<td>64.6900</td>
</tr>
<tr>
<td>2007</td>
<td>38</td>
<td>12.4255</td>
<td>15.1334</td>
<td>0.3100</td>
<td>70.7900</td>
</tr>
<tr>
<td>2008</td>
<td>38</td>
<td>10.0455</td>
<td>9.2485</td>
<td>0.3700</td>
<td>40.0500</td>
</tr>
<tr>
<td>2009</td>
<td>38</td>
<td>8.0448</td>
<td>6.4911</td>
<td>0.0000</td>
<td>22.4800</td>
</tr>
<tr>
<td>2010</td>
<td>38</td>
<td>7.4294</td>
<td>7.0364</td>
<td>0.0000</td>
<td>29.4400</td>
</tr>
<tr>
<td>2011</td>
<td>38</td>
<td>5.0009</td>
<td>6.9897</td>
<td>0.0000</td>
<td>40.6000</td>
</tr>
<tr>
<td>2012</td>
<td>38</td>
<td>4.5345</td>
<td>3.3561</td>
<td>0.0000</td>
<td>10.8100</td>
</tr>
<tr>
<td>2013</td>
<td>38</td>
<td>20.9394</td>
<td>12.7302</td>
<td>1.0000</td>
<td>42.0000</td>
</tr>
<tr>
<td>2014</td>
<td>38</td>
<td>7.5845</td>
<td>7.0476</td>
<td>0.0000</td>
<td>30.0000</td>
</tr>
<tr>
<td>2015</td>
<td>38</td>
<td>9.6358</td>
<td>7.7373</td>
<td>0.0000</td>
<td>32.5700</td>
</tr>
</tbody>
</table>

Based on these studies a response rate of 98% due to the statutory management of Charter House Bank in tier III was considered adequate.
4.2.2 Loan Loss Provision Ratio

Loan loss provision ratio was determined by loan loss provision divided by Operating income. Loss provisions made to cater for non-performing assets loans which are referred to as loan loss provisions. This study considered the ratio of these provisions to operating income as a measure of asset quality. This measure was determined by dividing the bank's loan loss provisions by the operating income for the period. Considering the descriptive analysis of this indicator, the commercial banks in Kenya kept high provisions for non-performing loans high above their operating income. From Table 4:15 the mean ratio, however, high seemed to have a decreasing trend with time the highest mean being in the year 2005 which was 69.6279 and the lowest mean being 8.6613 in the year 2014.

The variations of the ratio also seemed high in the earlier years but declined with the decline in the mean ratio of loss provisions. This could mean that the firms that kept high provisions in the earlier years that caused high means and standard deviations improved thus normalizing the ratio since the ratio was observed to be generally decreasing over the eleven years. The current study contradicts with Nazir (2010) whose study on banks indicated an increasing loan loss provision over ten years.

Table 3: Loan Loss Provisions

<table>
<thead>
<tr>
<th>Year</th>
<th>Obs</th>
<th>Mean</th>
<th>Std.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>38</td>
<td>69.6279</td>
<td>132.3048</td>
<td>5.1200</td>
<td>719.9700</td>
</tr>
<tr>
<td>2006</td>
<td>38</td>
<td>60.0064</td>
<td>99.0819</td>
<td>3.8700</td>
<td>494.0700</td>
</tr>
<tr>
<td>2007</td>
<td>38</td>
<td>37.7964</td>
<td>53.6845</td>
<td>2.8200</td>
<td>266.0200</td>
</tr>
<tr>
<td>2008</td>
<td>38</td>
<td>31.7103</td>
<td>42.1656</td>
<td>-16.7100</td>
<td>193.0500</td>
</tr>
<tr>
<td>2009</td>
<td>38</td>
<td>26.3785</td>
<td>34.2778</td>
<td>-7.8300</td>
<td>152.8000</td>
</tr>
<tr>
<td>2010</td>
<td>38</td>
<td>21.3149</td>
<td>20.8021</td>
<td>0.0000</td>
<td>83.3900</td>
</tr>
<tr>
<td>2011</td>
<td>38</td>
<td>18.5830</td>
<td>16.6225</td>
<td>0.0000</td>
<td>74.0100</td>
</tr>
<tr>
<td>2012</td>
<td>38</td>
<td>18.9594</td>
<td>19.4915</td>
<td>0.0000</td>
<td>94.9400</td>
</tr>
<tr>
<td>2013</td>
<td>38</td>
<td>21.2424</td>
<td>12.4148</td>
<td>1.0000</td>
<td>43.0000</td>
</tr>
<tr>
<td>2014</td>
<td>38</td>
<td>8.6613</td>
<td>12.0263</td>
<td>-2.5900</td>
<td>63.1700</td>
</tr>
<tr>
<td>2015</td>
<td>38</td>
<td>13.3658</td>
<td>13.6535</td>
<td>1.5800</td>
<td>59.1900</td>
</tr>
</tbody>
</table>

Source: Overall Descriptive Analysis of Asset Quality

The overall mean ratio for non-performing assets to total loans was found to be 10.064. This was accompanied by a high dispersion with a standard deviation of 11.681 that is even higher than the mean. This implies that the banks are very heterogeneous regarding this measure. Despite the mean being 10.064, there is a high risk of a firm having a ratio of non-performing assets to total loans more than twice as high as the mean or more than two times lower than the mean. This is confirmed by the minimum of 0.000 and maximum of 70.79. The high dispersion of this ratio is a contribution of differences both across the years and across the panels, but the variation within the panels have a higher contribution. The standard deviation between and within panels are 7.788 and 8.802 respectively.

The overall mean loss provisions to operating income were found to be 29.84 which is high above one for all the firms all the years combined. The figure could be high due to the high variation implying heterogeneity about this ratio across firms and years as depicted by the high standard deviation of 58.427. The variation seems to be as a result of differences in the years within the panels than across the panels. From the observed ratios of non-performing loans to
total loans and of loan loss provisions to operating income, the unobserved latent factor was computed from factor analysis as the measure of asset quality. The overall mean asset quality for all the firms across the years was found to be $8.550E-11$ which was low but with relatively high dispersion. The overall high standard deviation was 0.824, and this is also depicted by the range with a minimum of 0.750 and a maximum of 7.607. The large variation is caused by differences both within panels and between panels but more by the differences within panels.

Asset quality as measured by the ratio of non-performing loans to gross loans and loan loss provision to income resulting to an overall mean of 0.0086 with an overall standard deviation of 0.084. This indicates that only 0.08% of all loans granted by commercial banks in Kenya are likely to default. It is also necessary to note that there exists a significant difference in between the Commercial banks in Kenya (standard deviation=0.054) and within the same commercial banks over the years (standard deviation=0.063). This implies that there exist some elements of instability in the asset quality of commercial banks over the years and as compared to other commercial banks in Kenya. The difference might be attributed by the size of commercial banks, and this indicates further that asset quality as a financial distress factor could greatly influence the financial performance of commercial banks especially those of low levels and poorly managed asset quality.

Table 4 further indicates that asset quality is a crucial financial distress factor and those commercial banks that do not correctly manage their credit loans tend to be less profitable than those who pay particular attention to assets quality. These results are in agreement with Olweny and Mamba (2011) whose study found that small and medium banks that had the highest ratio of non-performing loans to gross loans are associated with low profitability. This results slightly concurs with Wangombe (2016) whose findings indicated that asset quality of Deposit-Taking saccos has an intermediation effect and financial performance of saccos.

### Table 4: Overall Descriptive Analysis of Non-performing Assets to Total Loans

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-performing Assets to</td>
<td>1.064E+1</td>
<td>11.681</td>
<td>0.000</td>
<td>70.790</td>
<td>N=418</td>
</tr>
<tr>
<td>total loans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>7.788</td>
<td>0.351</td>
<td>33.009</td>
<td>n=38</td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>8.802</td>
<td>15.142</td>
<td>52.000</td>
<td>T=11</td>
<td></td>
</tr>
<tr>
<td>Loan loss provisions to</td>
<td>2.984E+1</td>
<td>58.427</td>
<td>16.710</td>
<td>719.97</td>
<td>N=418</td>
</tr>
<tr>
<td>operating income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>34.155</td>
<td>2.425</td>
<td>176.26</td>
<td>n=38</td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>47.720</td>
<td>130.510</td>
<td>573.55</td>
<td>T=11</td>
<td></td>
</tr>
<tr>
<td>Asset Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall</td>
<td>8.550E-11</td>
<td>0.824</td>
<td>0.750</td>
<td>7.607</td>
<td>N=418</td>
</tr>
<tr>
<td>between</td>
<td>0.537</td>
<td>0.067</td>
<td>1.834</td>
<td>n=38</td>
<td></td>
</tr>
<tr>
<td>within</td>
<td>0.630</td>
<td>1.933</td>
<td>5.773</td>
<td>T=11</td>
<td></td>
</tr>
</tbody>
</table>

### 4.3 Statistical Modelling

#### 4.3.1 Bivariate Analysis of Asset Quality and Performance of Commercial Banks

Another objective of the research was to determine the influence of asset quality on how commercial banks perform in Kenya. Tables 5 and Table 6. Table 5 below shows the model summary of the random effect. There were a total of 418 observations used in this analysis considering 38 groups of entities implying strongly balance panels. The R2s within, between and the overall R2 are 0.0034, 0.0054 and 0.0001 respectively. The ANOVA statistics measure the general significance of the model. The p-value of the F statistic to the model is less than
0.05 implying that the estimated parameters in the model are at least not equal to zero. This implies that Asset quality influences performance of commercial banks.

### Table 5: Model Summary Within Group variable entity; Asset Quality

<table>
<thead>
<tr>
<th>Model Statistics</th>
<th>Panel Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-sq: Within</td>
<td>Number of Obs</td>
</tr>
<tr>
<td>R-sq: Between</td>
<td>Number of groups</td>
</tr>
<tr>
<td>R-sq: Overall</td>
<td>= 0.0001</td>
</tr>
<tr>
<td>Wald chi2(1)</td>
<td>Obs per group:</td>
</tr>
<tr>
<td>Prob &gt; chi2</td>
<td>avg</td>
</tr>
<tr>
<td>corr(u_i,X)</td>
<td>max</td>
</tr>
</tbody>
</table>

Table 6 is the coefficients table of the analysis that presents the model coefficients. The fixed effect model confirms the significance of the influence of asset quality ratios on the performance of commercial banks. The estimated coefficient of asset quality is meaningfully not equal to zero (β=0.001, t= 0.940, p-value= 0.0347). The P-value is less than 0.05 which implies that the estimated coefficient is significant at 0.05 level of significance. The p-value of the constant is also less than 0.05 which shows a significant constant term. Sigma_u is the standard deviation of residuals within groups while Sigma_e is the standard deviation of the overall error term. Rho is calculated from sigma_u and sigma_e and gives the intra-class correlation. Form the table; the intra-class correlation is 0.556 implying that 55.6% of the variance is due to the differences across panels. The estimated coefficient of asset quality here implies that a unit increase in asset quality ratios would cause the levels of performance to increase by 9.333 units.

### Table 6: Coefficients table; a model with asset quality as a predictor

<table>
<thead>
<tr>
<th></th>
<th>Coef.</th>
<th>Std. Err.</th>
<th>Z</th>
<th>P&gt;t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset quality</td>
<td>0.001</td>
<td>0.001</td>
<td>0.940</td>
<td>0.047</td>
</tr>
<tr>
<td>Constant</td>
<td>0.001</td>
<td>0.033</td>
<td>0.020</td>
<td>0.981</td>
</tr>
<tr>
<td>sigma_u</td>
<td>0.176</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sigma_e</td>
<td>0.157</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rho</td>
<td>0.556</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4.4 Hypothesis Testing

#### 4.4.1 Non-Performing Assets as a Financial Distress Factor on Asset Quality

The ratio of nonperforming loans and loan loss provision were used as proxies of asset quality. The asset quality is therefore critical in an organization since it predicts the amount of nonperforming assets (Kimanzi, 2015; Wang’ombe, Muturi, and Ngugi, 2016). Kimanzi (2015) maintained that a higher ratio depicts poor asset quality as it indicates that commercial banks in Kenya are having a higher proportion of its assets (loans) as nonperforming or loss provisions. The following null hypothesis was tested:

H04: Non-performing assets have no influence on asset quality of commercial banks in Kenya.

The fitted FGLS model showed that the p-value of the t-statistic for the estimated coefficient of asset quality is 0.002 while the p-value was 0.015, which is less than 0.05. The null hypothesis was rejected at 0.05 level of significance and a conclusion drawn that asset quality as a financial distress factor has the appositive influence of 0.002 on the financial performance of commercial banks in Kenya, this is expected since asset quality as a financial distress factor
comprises of loans and advances issued by commercial banks in Kenya. An increase in loans and advances will imply high-interest income thus better performance. However, this performance will be affected by default of loans and advances leading to an effect on financial performance thus. As a result, asset quality will not have the much-expected effect on financial performance as compared to other financial distress factors.

The current study agrees with Barus, Muturi, and Kibati (2017) and Ogilo (2012) who concluded that asset quality influenced the financial performance of savings and credit societies in Kenya. According to Ogilo (2012), a unit increase in asset quality will lead to a unit decrease in financial performance by 16.913 and by a factor of 0.079. Ogilo (2012) carried out a study using asset quality as an indicator of credit risk on financial performance. Wang’ombe, Muturi, and Ngugi (2016) and Kimanzi (2015)’s studies also found out that asset quality has a weak relationship with financial intermediation of sacco and financial performance of commercial banks respectively. Wang’ombe, Muturi, and Ngugi (2016) also found that a decline in asset quality is associated with a decline in efficiency of deposit-taking saccos. While Kimanzi (2015) found out a negative relationship between asset quality and financial performance of commercial banks in Kenya.

This result contradicted with Umoru and Osemwegie (2016) whose results on the effect of asset quality on financial performance of Nigerian banks found a significant adverse effect and noted that banks had been confronted with a crisis of non-performing loans. However, Olweny and Mamba (2011) agree with the current study that; failing to monitor asset quality regarding credit loans gives rise to low profit.

The findings of Akhtar and Hayati (2016) revealed that asset quality of Islamic banking system does not suggestively impact financial distress and later insolvency, whereas, interaction with capital asset ratio considerably impact asset quality. Similarly, the findings were in contrast with findings by Nasieku (2014) in a study on commercial banks in Kenya and Gebreslassie (2015) whose study found that nonperforming loan ratio has a statistically significant negative influence on the financial health of the banks.

5. Summary, Conclusion and Recommendations

The objective of the study was to establish whether nonperforming assets as a distress factor affects the Asset Quality of the commercial banks in Kenya. Non-performing assets were found to have an influence on asset quality of commercial banks in Kenya. According to the findings, asset quality which was measured regarding non-performing assets to total loans ratio and loss provisions to operating income ratio was found to have a positive influence on the financial performance of commercial banks in Kenya. The final combined generalized least squares model results showed a significant positive coefficient of asset quality in the model implying the significant influence of asset quality on performance of commercial banks. The result gives a robust indication that an increase in asset quality as a financial distress factor, by reducing the ratio of non-performing loans to total loan would reduce the financial distress and as a result give rise to the better financial performance of commercial banks in Kenya.

5.1 Recommendations

Continued expansion of the loan book is therefore encouraged to facilitate this; there should be a continued mobilization of deposits not only from their customers but from CBK as the last lending resort to meet the credit needs. The regulator and other policy makers should draft guidelines that encourage commercial banks to have sufficient deposits to necessitate interest and non-interest incomes. A bank’s major assets are the loans it gives to its customers, such that a bank becomes prudent while lending by ensuring that the borrower can repay.
With a failure to repay loans and advances, individual commercial banks will experience financial distress resulting in a decline in their performance of giving loans and advances. When loans go bad, both the profit or loss and statement of financial position will be affected since the bank must provide for the losses. Therefore, commercial banks must adhere to the prudential guidelines on asset quality to keep watch on the effect of asset quality as a financial distress factor on the financial performance of commercial banks in Kenya.

6. Suggestions for Further Study
The current study captured the only available secondary data for the period 2005 to 2015 that are in CBK records, and a further study is recommended to include a longer period for the panel data. This would help in capturing the potential effects across the economic cycles. This study focused on determining the distressing effect of non-performing loans on asset quality of commercial banks in Kenya. A study on how non-performing assets as a distressing factor are managed in banks and other institutions will be beneficial. The current study recommends that a similar study to be carried out for other deposit-taking financial institutions such as microfinance institutions, investment banks, mortgage firms and saccos since the financial institutions face many challenges of nonperforming loans that may affect asset quality.

References
Fred Sporta

The Distressing Effect of Non-Performing Assets to Asset Quality for Commercial Banks in Kenya

Fred Sporta

*The Distressing Effect of Non-Performing Assets to Asset Quality for Commercial Banks in Kenya*