

## **Effect of the Asset Quality on the Bank Profitability: A Study of US Commercial Small Banks**

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### **Abstract**

The study examined the correlation between the Return of Assets, Total Noncurrent Loans, and Leases, Loans and leases 90 days or more past due to plus loans in nonaccrual status by using the Pearson Product Moment Correlation (PPMC). As well, we examined the correlation between the Return of Equity and Total Noncurrent Loans and Leases, Loans and Leases 90 days or more past due to plus loans in nonaccrual status following the same methods. The study examined the correlation commercial banks with assets size from \$100 million-\$300 million between the period of 2010 to 2017. The study revealed that the strength of negative correlation between ROA to Total Noncurrent Loans and Leases, Loans, and Leases 90 days or more past due plus Loans in nonaccrual status. As well, the study showed that ROE to Total Noncurrent Loans and Leases, Loans, and Leases 90 days or more past due plus Loans in nonaccrual status were decreased between the period of 2011 to 2016 and negative correlation. The results of the study can be explained by the increase of regulations and control of the interest rates.

**Keywords:** Asset Quality, Non-Performing Loans, Bank Profitability, Commercial Banks, US Banks

**JEL classification:** G20, G21, G24

### **I. Introduction**

Asset quality considers being one of the most significant areas in determining the overall the financial healthiness of a bank. The quality of the bank's loan portfolio will be determining the quality of asset credit worthiness of a bank. These portfolios loans typically include many of the bank's assets, which associated with a large amount of risk to their capital. Therefore, assets quality comprises many securities with a large portion of the assets such as real estate, other assets, off-balance sheet items, cash and due from accounts, and premises and fixed assets. Asset quality in bank system is associated with the quality of loans provided by the bank. Furthermore, the and the quality of loans can be assessed with the non-performing loan (NPL).

According to Adhikary, (2006); Barr & Siems, (1994); Berger & DeYoung, (1997); Demirguc-Kunt, (1989); Whalen, (1991), there is correlation between the bank's loan portfolios and the economic activities. Which Klein (2013) stated that non-performing loans would have a negative effect on the bank profitability which can cause the instability and the loss of trust in the financial system. 2008 global crisis was an example of how lower quality assets that explained by the Federal Reserve to be toxic assets to be the cause of slow economic growth and the major bailout.

Therefore, many nations have position and enforced regulations to determine asset quality with regards to specifications for safety and financial soundness to examine risks associated with asset quality and handling any problem arise with regard the quality of assets in early stages to avoid what is known as Credit Crunch according to Bernanke, Lown, and Friedman (1991).

In addition, different Central banks, Federal Reserve, and Basel Committee on Banking Supervision (BCBS) have established the foundations of an effective supervision system and

evolving criteria that deal with asset quality and loan risk management and meet the financial markets transparency and avoid new financial crisis (Abata, 2014) due to the deteriorated loans have been a related problem in the financial crisis: banks have accumulated too many bad loans to become incapable to repay its debts, because total assets had lost value.

Shareholders can assess banks profitability using ROE (return on equity) and ROA (return on assets). The ROE is expressed by net profit after tax/equity capital while ROA is articulated by net profit after taxes/total assets examined the bank's level of effectiveness in the managing of assets quality.

The some of the studies such as Abata (2014), Pasiouras and Kosmidou (2007), Adebisi and Matthew (2015), Bace (2016), Bhattarai (2016), Kiran and Jones (2016), Taşkın (2011), Akbaş (2012), Miller and Noulas (1996), Duraj and Moci (2015), Etale, Ayunku, and Etale (2016), Güneş (2015), Hashem (2016), Ongore and Kusa (2013), Ozgur and Gorus (2016), Ozurumba (2016), Sarıtaş, Uyar, and Gökçe (2016) examined the asset quality or non-performing loans affecting and profitability on banks which result on an effect negatively on the banks probability.

Furthermore, other studies such as Adebisi and Matthew (2015), Güneş (2015), Samırkaş, Evci, and Ergün (2014) were unable to reveal that there was a correlation between Return on Equity (ROE) and NPL; while Afiriye and Akotey (2013) and Bhattarai (2016) showed that they were a positive correlation between ROE and NPL and Buchory (2015) found positive correlation between Return on Assets (ROA) and NPL.

The present study will be the analyzing of the relationship between the qualities of assets with the US small commercials banks by examining NPL loans to the commercial banks profitability by examining the ROE and ROA. The signification of the study that management regularly utilizes significant time, and resources managing the bank's assets, mainly the loan portfolio.

Consequently, issues within the bank's portfolio can influence management their ability to operate other areas of the institution successfully and profitably. Examiners should be diligent and focused when reviewing a bank's assets, as they can significantly influence most other facets of bank operations.

The rest parts of this paper are as follows; section two-literature review, section three discusses the methods adopted in the study, section four presents and analyzes results while section five concludes and makes recommendations from the findings.

## **II. Literature review**

Profitability is the lifeline of any bank to keep operating and establishing a sound financial system. Therefore, banks will need to manage and master the profitability factors that influence banking system (Ćirović, 2007).

In 2013, the Basel Committee determined the scope of effective supervision of banking sector. Under the Bases, a bank's total capital is determined by adding its tier 1 and tier 2 capital together. Officials and policies makers employ the capital ratio to find out, the rank, and the bank's capital adequacy. Tier 1 represents bank's financial health and is utilized to assess the bank ability to absorb losses and continue their operations.

Under Basel III, the minimum requirement for tier 1 capital ratio is 10.5%. While Tier 2 capital express and evaluates the reserves of the financial institution. In 2017, Basel III stated the minimum total required for the capital ratio is 12.5%, which shows the minimum tier 2 capital ratio is 2%, as opposed to 10.5% for the tier 1 capital ratio.

In addition, the FIDC has published Part 324; Subpart H (Prompt Corrective Action) after section 38 of the foreign direct investment Act was issued. The subpart H has established the capital levels of measurement that are employed to regulate supervisory actions allowed under Section 38 of the Foreign direct investment Act.

Subpart H also showed the measurement for the submission and review of capital restoration plans and other directives under Section 38.

The following table showed the Prompt Corrective Action categories.

Table 1				
PCA Category	Total RBC Ratio	Tier 1 RBC Ratio	CET1 RBC Ratio	Tier 1 Leverage Ratio
Well Capitalized	10%	8%	7%	5%
Adequately Capitalized	8%	6%	5%	4%
Undercapitalized	< 8%	<6%	<4.5%	<4%
Significantly Undercapitalized	< 6%	<4%	<3%	<3%
Critically Undercapitalized	Tangible Equity/Total Assets $\leq$ 2%			

Therefore, banks that do not meet the minimum requirement that is set by the FDIC will be violating the PCA. Also, these banks will be considered engaging in unsafe or unsound financial practices and required the bank comply with the regulations and provide a written plan approved by the FDIC. Under Subpart H regulation, the FDIC may reclassify a well-capitalized FDIC-supervised institution as adequately capitalized, or lack an adequately capitalized or undercapitalized FDIC-supervised institution to follow with several obligatory or discretionary supervisory actions as if the bank were in the next lower PCA category.

Abata (2014) examined six large publicly commercial banks performance using the annual reports from 1999-2013 by using ratios to assess the assets quality and bank performance using the Pearson correlation and regression analysis. The study findings showed that there is a statistical relationship between the assets quality and the bank performance. Also, Vighneswara (2015) revealed that capital adequacy and investment activity have a significant effect on the profitability of commercial banks.

Furthermore, the study showed some interesting finding suggested that the sector credit was found not to be significant in affecting the non-performing assets, which are an opposing to the general perception. While Khalid (2012) analyzed the impact of asset quality on the profitability of private banks in India using the financial ratios and multiple regression analysis. The study showed that there was a positive correlation between banks asset quality and operating performance.

There are various studies examined non-performing loans as an explanatory variable in regards determining bank profitability and conditioning the correlation between NPL and profitability.

Some studies such as Abata (2014), Pasiouras and Kosmidou (2007), Adebisi and Matthew (2015), Bace (2016), Bhattarai (2016), Kiran and Jones (2016), Taşkın (2011), Miller and

Noulas (1996), Duraj and Moci (2015), Etale et al. (2016), Hashem (2016), Ongore and Kusa (2013), Ozurumba (2016), investigated relationship between NPL and profitability.

The result has revealed that there was a negative relationship connecting non-performing loans lowering the asset quality and bank profitability. While, another study by Adebisi and Matthew (2015), stated the lack of any statistical significant between the profitability and NPL. Other studies such as Afiriyie and Akotey (2013), Bhattarai (2016) found a positive association between ROE and NPL while Buchory (2015) observed a positive relationship between ROA and NPL.

To our best knowledge, although there is no study investigated directly the effect of asset quality on bank profitability in small commercial banks in the US with a total of assets between \$100,000,000-\$300,000,00.

#### **IV. Research Question**

Does the ROA, ROE of the commercial banks with total asset between 100 Million-300 Million correlated to nonperforming loan ratio?

#### **V. Definition of Variables and Data**

The researcher has followed Chiaku at el (2006) in determining the size of the banks. The Sample studied includes all Commercial small U.S. banks with total asset sizes \$100 million-\$300 million from 2010 to 2017. The data that used for the study was obtained from The Federal Deposit Insurance Corporation (FDIC). The variables were calculated by using the data from the balance sheet and income statement accounts stated below.

Table 2.  
Variables used within the scope of this study

Variable	Type	Formula
ROE	Dependent	Net Profit/Equity
ROA	Dependent	Net Profit/Total Asset
Noncurrent loans to loans	Independent	Total noncurrent loans and leases, Loans and leases 90 days or more past due plus loans in nonaccrual status

The study followed the other studies such as Adebisi & Matthew, 2015; Bhattarai, 2016; Güneş, 2015; Ozgur & Gorus, 2016; Sevim & Eyüboğlu, 2016; Taşkın, 2011 in measuring the Equity profitability (ROE) and asset profitability (ROA) to assess the bank profitability.

Descriptive statistics regarding the data used under our study is indicated under Table 3 as follows.

Table 3. Descriptive Statistics

	ROA	ROE	Noncurrent loans to loans
Average	0.77	6.71	1.74
Median	0.79	7.09	1.10
Maximum	4.19	23.51	15.78
Minimum	(3.14)	(35.12)	-
Std. Dev.	0.72	6.82	2.10
Observation	233.00	233.00	233.00

Table 3 showed the descriptive statistics of variables that used within the study between the period of 2010 to 2017 for 233 commercial banks within assets between 100 million-\$300 million.

**VI. Methodology**

To examine the correlation between the Return of Assets and Total noncurrent loans and leases, Loans and leases 90 days or more past due to plus loans in nonaccrual status we use Pearson Product Moment Correlation (PPMC).

As well, we examined the correlation between the Return of Equity and Total noncurrent loans and leases, Loans and leases 90 days or more past due to plus loans in nonaccrual status following the same methods. The study examined the correlation commercial banks with assets size from \$100 million-\$300 million between the period of 2010 to 2017.

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Where,  
 X= ROA, ROE  
 Y=Total noncurrent loans and leases, Loans and leases 90 days or more past due plus loans in nonaccrual status.  
 n= 233

**V. Results**

The study examined the correlation ROA and ROE to Total noncurrent loans and leases, Loans and leases 90 days or more past due plus loans in nonaccrual status. Of 233 small commercial banks that operate in the US with the total assets between the \$100 million to \$300 million using the use Pearson Product Moment Correlation (PPMC).

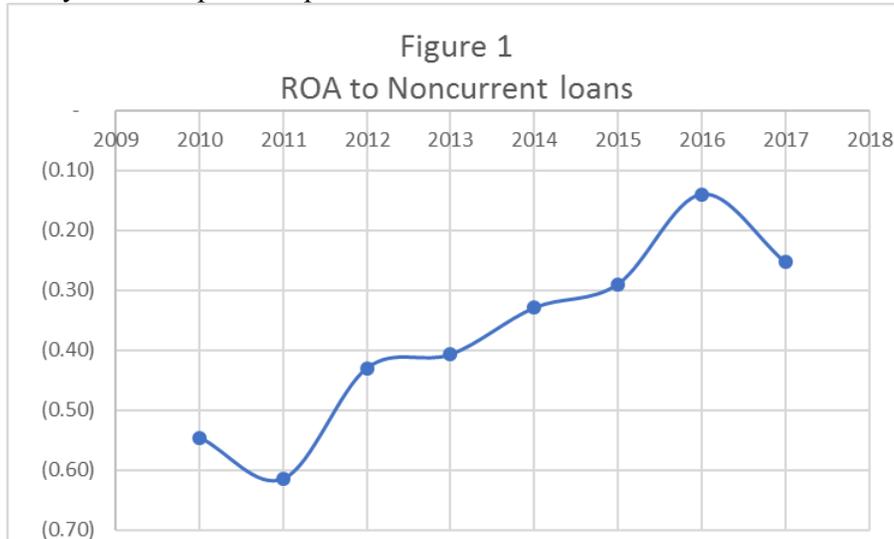
Table the correlation results of ROA to Total noncurrent loans and leases, Loans and leases 90 days or more past due plus loans in nonaccrual status and the correlation result of ROE to Total noncurrent loans and leases, Loans and leases 90 days or more past due plus loans in nonaccrual status for each year. The results have revealed a significate negative correlation between the variables.

Table 4.  
 Correlation Noncurrent leans to ROA and ROE

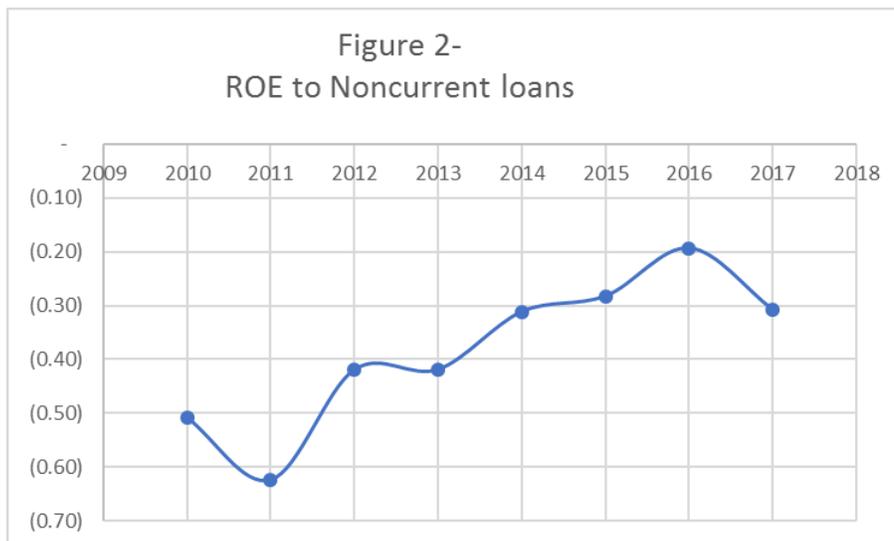
	ROA	ROE	Observation
2017	(0.25)	(0.31)	233
2016	(0.14)	(0.19)	233
2015	(0.29)	(0.28)	233
2014	(0.33)	(0.31)	233

2013	(0.41)	(0.42)	233
2012	(0.43)	(0.42)	233
2011	(0.62)	(0.62)	233
2010	(0.55)	(0.51)	233

The result revealed an interesting information about the negative correlation get reduced by the year from the 2011 to 2016 for the ROA to Total noncurrent loans and leases, Loans and leases 90 days or more past due plus loans in nonaccrual status we can see that in (figure 1).



Similar thing was for ROE to Total noncurrent loans and leases, Loans and leases 90 days or more past due plus loans in nonaccrual status the negative get reduced by the year. Which we can expect the reduction of the negative correlation due to the strict regulations and the low interest rate for the period we can see that in (figure 2)



However, the negative correlation in both figures 1 and 2 increased in the 2017, which we can expect that it's, contribute changing getting more loose regulations by the government and increase of interest rate.

## **VI. Conclusions**

This paper has presented evidence about the negative correlation between nonperforming loan ratio and the ROA, ROE of the commercial banks with total asset between 100 million-300 million. The results have shown the loan quality effect the differently and depend on the size of the bank. Second, the supply of credit is different between these banks, which affect the nonperforming loan ratio due to the size of assets. Third, loan quality will have a big impact of the bank's future profitability according to the size of the bank assets.

The study revealed that the strength of negative correlation between ROA to Total noncurrent loans and leases, Loans and leases 90 days or more past due plus loans in nonaccrual status, and ROE to Total noncurrent loans and leases, Loans and leases 90 days or more past due plus loans in nonaccrual status were deceased between the period of 2011 to 2016 which was result of regulations and interest rates. The following year of 2017, there were starting of shift within the political system and the start of the interest rate.

The study can be benefit management and lawmakers to show the quality loans to ROA and ROE with be affected by the regulations and the level of government involvement within the banking industry. Our recommendation for future study to focus on the environment and the impact of the outside variables on the relationship.

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