# EXAMINING THE RAMIFICATIONS OF INCREASING PAID-UP CAPITAL FOR COMMERCIAL BANKS IN DEVELOPING ECONOMIES: A CASE STUDY OF NEPAL

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**Abstract**: Commercial banks hold a pivotal role in driving economic growth within developing countries by serving as essential financial intermediaries. In regions where a substantial portion of the population depends on low-wage livelihoods, particularly in traditional agriculture, commercial banks are instrumental in supplying vital capital for infrastructure development and the establishment of new businesses. Term loans serve as a primary mechanism through which these banks channel funds to businesses, but efficient asset management and loan collection pose continuous challenges for commercial banks in developing nations. This paper focuses on the context of Nepal, tracing the evolution of commercial banking from its inception with Nepal Bank Ltd. in 1937 to the substantial entry of the private sector in the 1990s. Nepal Rastra Bank (NRB) acts as the central bank overseeing monetary policy regulation. As of 2018, Nepal hosted 28 commercial banks, categorized into public sector, joint venture, and domestic private banks. Historically, public sector banks have dominated loan distribution, but their performance has lagged considerably behind joint-venture and domestic private banks, which exhibit similar performance metrics.

This research delves into the dynamics of commercial banking in Nepal, shedding light on the disparities in performance and the implications for economic growth and financial stability in the region.

**Keywords:** Commercial Banks, Economic Growth, Nepal, Asset Management, Loan Collection.

## 1. Introduction

Commercial banks play a very important role as financial intermediaries in promoting economic growth in developing countries. This is because the majority of the population in these areas lives on low wages, and is engaged in traditional agriculture.

Because of their size, commercial banks provide critical capital needed to develop and maintain infrastructure as well as to create new businesses (Beck, Demirgüç-Kunt, & Levine, 2010). Term loans are often the instrument used to channel money from the banks to businesses and asset management or loan collection is an ongoing issue with commercial banks in developing countries (Dziobek & Pazarbasioglu, 1997; Gizaw, Kebede, & Selvaraj, 2015). In the case of Nepal, commercial banking began in 1937 with the formation of Nepal Bank Ltd. (Baral, 2005), with the private sector entering the market on a large scale in the 1990-s. The Nepal Rastra Bank (NRB) serves as the national or central bank that regulates monetary policy. There were 28 commercial banks as of 2018 (Gnawali, 2018), which may be broadly divided into public sector banks, joint venture banks and domestic private banks. While the public sector banks have historically enjoyed the largest share of loans, they have also

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historically significantly underperformed compared to joint-venture and domestic private banks, both of which were found to be similar in performance (Jha & Hui, 2012).

Many developing countries, including Nepal, have attempted systemic bank restructuring over the last few decades (Pazarbaşioğlu, 1998). Restructuring may include new regulations designed to improve the profitability and solvency of banks, and regulations designed to increase the intermediating role of the banks in the economy. With the imposition of successive standards from the Basel Committee on Banking Supervision (BCBS), popularly known as Basel I (1988), Basel II 2004 and Basel III (2010), the Nepalese commercial banks have seen increasing levels of monitoring and supervision, largely strengthening their stability (Uprety, 2013). An earlier examination of Nepalese banks using the CAMEL (capital adequacy, asset quality, management quality, earning and liquidity) framework found that joint venture banks had a fair capital base and higher liquidity than needed, resulting in lower profitability (Baral, 2005). The paid-up capital requirement (common stock) for commercial banks was Rs. 2 billion. However, from 2015, the paid-up capital requirement was increased to Rs. 8 billion, thereby increasing the lending capacity, and the credit exposure as well. The primary contribution of this work is to analyze if the factors that have driven the operating profitability of commercial banks in Nepal have changed as a result of the increased paid-up capital requirement. In order to accomplish this, we performed a panel data regression analysis on multiple commercial banks in Nepal over two separate time periods: 2007-2014 and 2015-2017.

The rest of this paper is organized as follows. Section 2 describes the background and the hypotheses tested. Section 3 describes the data collection and presents the analysis. Section 4 discusses our findings from a theoretical and practical standpoint. We conclude with limitations and suggestions for future studies in section 5.

**1. Background and Hypotheses Development**

Until the mid-1970-s, bank safety worldwide was largely the domain of national regulators without regard to interdependence among banks (Rost, 2010). The failures of the Herstatt Bank in Germany and the Franklin National Bank in New York caused effects across national boundaries, leading to the formation of the Basel Committee on Banking Supervision (Basel). The committee consisted of central bankers from the G10 countries and Switzerland. The main thrust was to delineate supervisory authority between national and transnational bodies. Basel 1 was a framework released in 1988 to primarily address the capital adequacy requirement for banks. The main driver here was the Latin American debt crisis that occurred in the early 1980-s. A minimum ratio of capital to risk-weighted assets of 8% was established starting from 1992 (Jokipii & Milne, 2008).

Basel 2 was a three pillar framework that expanded on the rules in Basel 1 regarding capital adequacy, and additionally recommended supervisory review of institutions" capital adequacy and internal assessments. A third pillar was also proposed to promote market disclosure, in order to promote sound banking practices (Herring, 2002). Basel 3 was begun to be developed in 2007 upon the imminent collapse of Lehman Brothers. It includes liquidity requirements and safeguards, such as a counter-cyclical capital buffer and a minimum liquidity to cover a 30-day period of stress. While Basel 1 and 2 steered away from defining operational risk, Basel 3 seeks to address this to some degree by enforcing liquidity standards and curtailing non-performing assets (Bace, 2016).

While the Basel standards have increased the stability of the banking system, the stringent requirements that accompany them have impeded the ability of commercial banks to lend in developing economies. Basel 2 and 3 have also improved the internal and external operations of commercial banks. However, critics of Basel 3 point to the reduced availability of credit and curtailment of economic activity if they are to be implemented (Allen, Chan, Milne, & Thomas, 2012).

Are non-performing loans an issue in developing economies, post Basel 2 and 3? In a recent dissertation (Havemann, 2019) points out how capital adequacy requirements instituted pre-2008 prevented bank failures during the 2008 crisis. African Bank was an institution that made loans almost exclusively to low-income earners on an unsecured basis. Funding came primarily from bond holders as opposed to retail deposits. African Bank

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placed into curatorship in 2014, but central bank intervention led to limited loss spillovers and increased losses to the creditors who provided the bail-in.

Banks in Botswana were studied in (Mathame, 2018) who found that the capital adequacy ratio (CAR) was lower based on credit risk and non-performing loans, primarily since the banks were heavily dependent on the mining sector. In another survey of 109 European banks in (Bongini, Cucinelli, Di Battista, & Nieri, 2018) from 2006-2016, the loss of profitability was found to be influenced by the deterioration of the loan portfolios of the banks.Banks that adopted a more conservative lending policy went back to profitability more quickly. The lack of an appropriate credit culture in some developing countries also leads to increased non-performing loans (Bonga, Chirenje, & Mugayi, 2019). In a study of banks in Albania (Duraj, 2015), non-performing loans were found to decrease bank profitability. A similar situation was found in a study of banks in Ethopia(Gizaw et al., 2015).

However, NPLs have not always been found to affect bank performance negatively. As per (Andesfa & Masdupi, 2019) some researchers found that non-performing loans did not affect return on assets (ROA). A study of Jordanian banks in (Alshatti, 2015) found a positive influence of NPL on ROA. A similar finding was reported in (Zou & Li, 2014), where a positive effect was found between NPL ratio and ROA as well as return on equity (ROE). Possible explanations for this may include that depositors do not take into consideration the credit risk exposure of the bank when deciding to make their deposits (Agwu, 2018). This explanation becomes more plausible if the Basel safeguards are in place in the banking system of the country, leading to a macro perception of stability. Macroeconomic factors like the money supply and deposit to lending ratios can also drive increased deposits into banks. This increases the bank"s ability to make more loans, and hence improves profitability, even if the percentage of nonperforming loans is higher than for smaller banks.

In the case of Nepal, credit risk (defined as the ratio of non-performing loans to total loans) was found to be negatively affected by the capital adequacy ratio in (Poudel, 2013). In a more recent study of Nepalese commercial bank ROA performance from 2010-2015, a strong negative relationship between non-performing loans and ROA was found, along with a positive influence of costs per loan assets (Bhattarai, 2017). Bank size was also found to be positively correlated to bank performance, measured by ROA. Based on the review of prior work shown above, we conclude that Basel 2 and 3 requirements have imposed some stability in the banking systems of developing economies. However, non-performing loans or credit risk are still relevant drivers affecting banks" financial performance.

In 2015, the NRB (Nepal Rastriya Bank) mandated banks and financial institutions to raise the minimum paid-up capital, or common stock, from Rs. two billion to Rs. eight billion, a four-fold increase, to be implemented over a two year period (Sharma, 2015). A similar move was instituted by the bank of Ghana, in 2017 (Young, 2017). The goal behind these moves was to increase the minimum size of institutions to improve theoverall stability in the banking systems. While such moves have an immediate positive stock market effect, the effect of the increased capitalization requirements on bank behavior is not clear. For example, as banks make more loans, will their nonperforming loans have an increased affect on profitability? In this work, we investigate the performance of a sample of Nepalese commercial banks pre and post mandate, to see how behavior has changed.

**Factors in the Study:**

Operating Profit:

The dependent variable we look at is the operating profitability of the bank. This is reported in rupees every year and is the earnings before interest and tax. A common formula for calculating operating profit is: Operating Profit = Operating Revenue – Cost of Goods and Services – Operating Expenses – Depreciation & Amortization  Non Performing Loans:

NPL is a ratio defined as:

NPL = (Non-PerformingLoans / Total Loans) * 100

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Liquidity:
This is defined as a ratio:
Current Assets/ Current Liabilities
Deposits to assets:
This ratio is defined as:
(Total Deposits/ Total Assets) * 100
Credit exposure:
This variable looks at the overall amount of loans made by the bank, in Rupees.
Training ratio:
This ratio is defined as:
Training = Overall Rupee Amount Spent on Training / Total Number of Staff]
Based on these variables, the following hypotheses were tested:
**H1**: Training ratio affects the Bank‟s operating profit
**H2**: Deposits to Assets affect the Bank‟s operating profit
**H3**: Credit Exposure affects the Bank‟s operating profit
**H4:** NPL affects the Bank‟s Operating profit
**H5**: Liquidity affects the Bank‟s Operating profit
We tested these hypotheses using two separate sets of data: a sample of Nepalese commercial banks between 2007-2014, and another sample of the same banks between 2015-2017.

**2. Data Collection and Analysis**

Publicly available financial statements from 2007 – 2017 for six well known joint-venture commercial banks in Nepal were used for this study. The data we used are shown in Appendix 1.The names of the banks have been masked for anonymity. Panel data regression analysis using the PLM package in the R system was used since data is across banks and across time for each bank(Croissant et al., 2017).

Table 1 shows the summary statistics for each factor used in our study. The relative standard deviation, or the coefficient of variation is (standard deviation / mean) * 100, and gives a dimension free illustration of variation in the data (Everitt, 1998). We see that NPL had the most variation while deposits to total assets had the least. This is not surprising since NPL reflects the managerial policies of the bank regarding lending criteria, while banks are tightly regulated on the latter metric.

**Table 1. Descriptive Statistics for Factors**

|  | Minimum | Maximum | Mean | Std. Deviation | Coefficient of Variation % |
|---|---|---|---|---|---|
| **Training ratio** | 748 | 16187 | 6942 | 4176.20 | 60.16 |
| **Operating Profit** | 78701459.0 | 5464678241.0 | 1778578035.25 | 1127167487.71 | 63.38 |
| **Credit Exposure** | 3839128465.0 | 144429063000.0 | 46535702441.50 | 27833065588.74 | 59.81 |
| **NPL** | .004 | 4.220 | 1.10 | .978 | 88.58 |
| **Liquidity** | 3.0200 | 30.96 | 13.56 | 7.42 | 54.95 |

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| Deposits to total assets | 67.89 | 90.27 | 85.64 | 3.87 | 4.51 |
|---|---|---|---|---|---|

The model we used is shown below.

$Y_{it} = \beta_0 + \beta_1(L)_{it} + \beta_2(NPL)_{it} + \beta_3(CR)_{it} + \beta_4(D)_{it} + \beta_5(TR)_{it} + \mu_{it}$,     where

Y – Operating Profit

NPL – Non-Performing Loan

CR – Credit exposure

D - Deposits

L – Liquidity

TR – Training Ratio

$\beta_0$ - Constant parameter/Intercept  $\beta_{1-5}$– Coefficient of independent variables

$\mu$ - Error term  i – Cross Sectional  t – Time Period

**Table 2 shows the correlation between the factors.**

| | Training Expense | Credit Exposure | NPL | Liquidity | Deposits to total assets |
|---|---|---|---|---|---|
| **Training Expense** | 1 | | | | |
| **Credit Exposure** | 0.212 | 1 | | | |
| **NPL** | 0.08 | .160 | 1 | | |
| **Liquidity** | -0.368 | -.228 | -.505 | 1 | |
| **Deposits to total assets** | 0.261 | .177 | .349 | -.0.49 | 1 |

**Table 2 Correlation Matrix of Independent variables**

The correlations are low to moderate amongst the factors, with NPL-Liquidity and Liquidity-deposits to total assets being the highest in magnitude. Given these correlations, multicollinearity amongst factors appears to be low in our sample. Since the levels of correlation are below 0.7, the variance inflation values were not calculated for any variable in our analysis.

**3.1 Panel Data Regression Results**

Time Period 2007-2014

```
R-Squared:       0.74889
Adj. R-Squared:  0.66789
```

**Table 3 Analysis of Model in 2007-2014**

Adjusted R Square is 0.66789 i.e. 66.79% variation of dependent variable is explained by the independent variables.

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**Table 4 Coefficients in 2007-2014**

```
Coefficients:
                                Estimate   Std. Error  t-value   Pr(>|t|)
X1Liquidity                    4.3957e+06  1.2598e+07   0.3489    0.7295
X1Credit Exposure              4.8079e-02  6.0250e-03   7.9800  5.209e-09 ***
X1NPL                         -1.1494e+07  8.1309e+07  -0.1414    0.8885
X1Deposits to total assets   -2.7655e+07  2.2440e+07  -1.2324    0.2271
X1Training Ratio               4.2442e+04  2.6857e+04   1.5803    0.1242
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

From the coefficients, credit exposure is the only independent variable, which is statistically significant. Other Independent variables such as liquidity, NPL, Deposits and training ratio are not statistically significant.

Time Period 2015-2017

**Table 5 Analysis of Model in 2015-2017**

```
R-Squared:      0.97321
Adj. R-Squared: 0.92855
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Adjusted R Square is 0.92855 i.e. 92.86% variation of dependent variable is explained by the independent variables.

**Table 6 Coefficients in 2015-2017**

```
Coefficients:
                                Estimate   Std. Error  t-value   Pr(>|t|)
X1Liquidity                    1.6863e+07  1.3835e+07   1.2189  0.2686350
X1Credit Exposure              4.2017e-02  6.5266e-03   6.4378  0.0006645 ***
X1NPL                         -5.5478e+08  1.3854e+08  -4.0044  0.0070833 **
X1Deposits to total assets   -1.8167e+07  4.4342e+07  -0.4097  0.6962552
X1Training Ratio              -3.7071e+04  2.0331e+04  -1.8234  0.1180686
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Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

From the coefficients, credit exposure and NPL are the only independent variable, which are statistically Significant. Other independent variables such as liquidity, Deposits and training ratio are not statistically significant. Tables 7 and 8 summarize which hypotheses were supported in the two data sets. Note that a null being rejected implies support for the hypothesis.

**Table 7 Analysis of Hypothesis for 2007-14**

| HYPOTHESIS | VARIABLES | NULL REJECTED? |
|---|---|---|
| H1 | Liquidity | |
| H2 | Credit Exposure | Rejected |
| H3 | NPL | |
| H4 | Deposits | |
| H5 | Training | |

**Table 8 Analysis of Hypothesis for 2015-17**

| HYPOTHESIS | VARIABLES | NULL REJECTED? |
|---|---|---|

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| | | |
|---|---|---|
| **H1** | Liquidity | |
| **H2** | Credit Exposure | Rejected |
| **H3** | NPL | Rejected |
| **H4** | Deposits | |
| **H5** | Training | |

## 3.    Discussion

Earlier work has shown that non-performing loans impact banks" financial performance in developing economies. For example, the return on assets of Nigerian banks was found to be affected by the default ratio (NPL / total loans) in (Kurawa & Garba, 2014). The return on assets and return on equity of Turkish banks was found to be affected by non-performing loans in (Kadioglu, Telceken, & Ocal, 2017). However, the impact of non-performing loans on the financial performance of Nepalese banks is uncertain. Two unpublished masters theses cited in (Gnawali, 2018) indicate that non-performing assets negatively impact commercial banks" financial performance in Nepal. In contrast, another study found no evidence of non-performing loans impacting financial performance (Subedi & Neupane, 2013). Our study, using panel data analysis, agreed with the latter finding, and found that non-performing loans did not impact the operating profit of the commercial banks in our sample during the 2007-2014 pre-mandate period.

This is in contrast to studies done on banks in other countries described above. One explanation for this finding may be found in the reputation for reliability that is part of the national character of Nepal. Nepalese workers, for example, have a well-deserved reputation for reliability and honesty, and are in demand around the world(Lokshin, Bontch‗Osmolovski, & Glinskaya, 2010; Yamanaka, 2000). Nepalese men also serve in military and security functions globally(Gould, 2000; Vines, 1999). Another reason for the finding in the 2007-2014 periodmay be the Debt Recovery Act passed in 2002 that required all Nepal banks to address the large percentage of non-performing loans in their portfolios (Shrestha, 2004).

A       third possible explanation is that depositors do not consider the credit risk exposure of the bank when making deposits (Agwu, 2018), especially if they have underlying faith in the regulatory framework of the banking system. For the 2007-2014 pre-mandate period, we found that credit exposure, indicating the overall loans made by the bank, did positively affect the operating profit. The paid-up capital (or common stock equity) lower limit till 2014 was Rs. 2 billion. During this period, banks that gave out more loans showed greater profitability, as per our findings.This follows directly from greater income derived from more loans, especially since non-performing loans were brought under control after 2002.

From 2015 onwards, the paid-up capital requirement minimum was mandated to increase from Rs 2 billion to Rs. 8 billion for Nepalese banks (Acharya, 2017; Sharma, 2015). Our analysis of the 2015-2017 post-mandate time period shows that while credit exposure continued to affect operating profit positively, *non-performing loans now had a significant negative effect*. This indicates that credit risk had now become an issue. One possible explanation for this finding comes from the fact that in order to comply with the paid-up capital requirements, several banks had to merge. The increased paid-up capital also increased the amount of loans that banks could provide to borrowers. As confirmation, the credit exposure of every bank in our sample increased significantly starting from 2015 onwards (see data in Appendix 1). However, apart from size increases, mergers typically lead to rapid change in the collective competence and tacit knowledge of the new organization (Kreiner & Lee, 2000) and provide a "diminished resource base for organizational learning" (Lei & Hitt, 1995). Thus, a merger may lead to a loss of knowledge of local lending practices, and the credit profile of the local business community. Localized lending practices have been shown to give greater risk-adjusted yield, for example in (Carter, McNulty, & Verbrugge, 2004). The effect of distance between the bank and the borrowers was greater in lesser developed economies (Alessandrini, Croci, & Zazzaro, 2009).  Hence, a mandate to significantly increase the size of banks

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in a system may lead to deteriorated lending practices, at least in the short term, to the point where the financial performance of the banks can be significantly affected, as in our sample.

The theoretical contribution of this work is an analysis of the effect of increasing minimum capital requirements rapidly and significantly on commercial banks in a developing economy. We find that the expected consolidation of banks and increase in number of loans leads to greater credit risk assumed by the banks, even if nonperforming assets were not a factor earlier, as was the case in our sample. On the methodological side, we use panel data analysis to account for correlation within each bank across time.

From a practical perspective, our work offers many guidelines. First, increases in capital adequacy requirements as a result of Basel 2 and 3 must be implemented gradually, so that lending strategies by bank management have time to adapt to the larger volume of loans. The situation in Nepal is likely to improve since prior to the significant paid-up capital increase, non-performing assets were not an issue in determining profitability.However, in other economies where non-performing assets are already negatively affecting financial performance, policies regarding an increase in paid-up capital and bank consolidation should offer an even more gradual time line than would have been appropriate for Nepal. Resources should also be provided to ensure that localized knowledge specific to lending practices is not lost in the bank consolidation that follows. In the case of Nepal, it is important for banks to review and tighten lending practices and for regulators to increase monitoring, going forward. Any asset bubbles created as a result of the increased lending also need to be closely monitored.

4.      **Conclusion**

In this work we analyzed the results of a significant increase in paid-up capital or common stock equity requirements on the operating profit of a sample of commercial banks in Nepal. The data we used offered a unique opportunity to analyze this effect. Prior policies such as the Debt Recovery Act (2002) had reduced credit risk to lower levels. The only driver of profit in the 2007-2014 period that we found was the total amount of loans (credit exposure) issued by the bank.

A      very significant four-fold increase in paid-up capital led to widespread consolidation among banks and a significant increase in the number of loans being issued. A rapid increase in the number of loans issued led toa significant negative impact by non-performing loans on operating profit after the policy was implemented. Our recommendations include a cautionary approach to implementing similar banking requirements in other economies, coupled with adequate training to ensure that specialized local lending knowledge is not lost, and the newly formed larger banks do not become more distant from their borrowers.

Our work has some limitations. First, we relied on publicly available data and measures in our model. Variables measuring actual lending practices were not available for this study. Second, we used a sample of 6 banks over 10 years. A larger sample may have yielded more significant results, though statisticians warn of overly large sample sizes where small effects are found to be statistically significant (Aguinis & Harden, 2009).

For future research, we recommend that as Basel 3 is implemented, the performance of banks be studied using the increased information that will be available under Basel 3, especially with regard to liquidity requirements and management practices. A follow up study on the financial performance of Nepalese commercial banks over the next few years is also recommended, to measure if lending practices have stabilized and investigate if non-performing assets are still a significant factor.

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**Appendix 1: Data Used in Study**

**Table 1. Training Ratio, Operating Profit and Credit Exposure**

| Year | Banks | Training Expense | Total Staff | Training Ratio | Operating Profit | Credit Exposure |
|------|-------|------------------|-------------|----------------|------------------|-----------------|
| 2017 | Bank1 | 17,092,478 | 1,187 | 14,400 | 4,729,782,804 | 144,429,063,000 |
| 2016 | Bank1 | 5,667,870 | 1,005 | 5,640 | 3,699,688,752 | 111,780,681,000 |
| 2015 | Bank1 | 3,543,367 | 969 | 3,657 | 2,545,848,091 | 89,584,665,000 |
| 2014 | Bank1 | 4,633,683 | 942 | 4,919 | 2,891,610,284 | 71,708,512,000 |
| 2013 | Bank1 | 6,400,375 | 910 | 7,033 | 2,145,299,600 | 60,622,076,000 |
| 2012 | Bank1 | 3,953,243 | 883 | 4,477 | 1,357,096,209 | 55,874,347,000 |
| 2011 | Bank1 | 4,380,696 | 877 | 4,995 | 1,783,662,202 | 52,029,461,000 |
| 2010 | Bank1 | 3,162,162 | 877 | 3,606 | 1,928,425,381 | 50,041,481,000 |
| 2009 | Bank1 | 4,162,374 | 766 | 5,434 | 1,310,854,953 | 42,975,192,000 |
| 2008 | Bank1 | 4,330,860 | 622 | 6,963 | 1,013,331,907 | 36,518,503,000 |
| 2017 | Bank2 | 5,194,596 | 495 | 10,494 | 1,985,842,742 | 50,192,675,000 |
| 2016 | Bank2 | 2,295,460 | 435 | 5,277 | 1,701,248,338 | 41,402,347,000 |
| 2015 | Bank2 | 2,457,880 | 433 | 5,676 | 1,827,019,810 | 41,171,574,000 |
| 2014 | Bank2 | 1,553,093 | 460 | 3,376 | 1,978,908,777 | 39,210,395,000 |
| 2013 | Bank2 | 2,801,446 | 454 | 6,171 | 1,862,481,497 | 34,321,758,000 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| 2012 | Bank2 | 3,800,616 | 424 | 8,964 | 1,694,009,908 | 26,974,977,000 |
| 2011 | Bank2 | 5,695,246 | 429 | 13,276 | 1,707,316,216 | 23,401,460,000 |
| 2010 | Bank2 | 6,554,738 | 429 | 15,279 | 1,612,467,214 | 20,701,946,000 |
| 2009 | Bank2 | 4,800,913 | 392 | 12,247 | 1,506,108,858 | 18,758,432,000 |
| 2008 | Bank2 | 4,714,722 | 377 | 12,506 | 1,248,432,244 | 17,587,870,443 |
| 2017 | Bank3 | 10,360,820 | 848 | 12,218 | 5,464,678,241 | 105,621,541,000 |
| 2016 | Bank3 | 5,444,033 | 792 | 6,874 | 4,344,447,596 | 91,993,791,000 |
| 2015 | Bank3 | 11,428,342 | 706 | 16,187 | 3,235,924,937 | 78,774,890,000 |
| 2014 | Bank3 | 7,326,161 | 724 | 10,119 | 3,549,363,372 | 66,294,545,000 |
| 2013 | Bank3 | 8,737,232 | 742 | 11,775 | 3,464,952,933 | 57,191,503,224 |
| 2012 | Bank3 | 8,934,625 | 650 | 13,746 | 2,640,336,248 | 50,021,684,138 |
| 2011 | Bank3 | 7,467,211 | 657 | 11,366 | 2,081,190,251 | 44,468,804,901 |
| 2010 | Bank3 | 8,822,575 | 557 | 15,839 | 1,709,121,201 | 39,016,206,023 |
| 2009 | Bank3 | 5,681,241 | 505 | 11,250 | 1,570,204,646 | 32,500,502,288 |
| 2008 | Bank3 | 4,796,328 | 416 | 11,530 | 1,122,713,930 | 30,256,652,353 |
| 2017 | Bank4 | 7,153,814 | 601 | 11,903 | 1,998,089,550 | 58,025,513,277 |
| 2016 | Bank4 | 4,395,400 | 470 | 9,352 | 1,478,537,702 | 45,079,836,617 |
| 2015 | Bank4 | 4,060,981 | 415 | 9,785 | 925,693,203 | 30,651,616,831 |
| 2014 | Bank4 | 2,111,199 | 311 | 6,788 | 654,893,931 | 22,680,658,738 |
| 2013 | Bank4 | 678,950 | 231 | 2,939 | 458,938,092 | 15,989,208,846 |
| 2012 | Bank4 | 396,270 | 232 | 1,708 | 189,934,364 | 10,212,474,617 |
| 2011 | Bank4 | 238,503 | 197 | 1,211 | 241,935,219 | 7,200,551,543 |
| 2010 | Bank4 | 111,384 | 149 | 748 | 135,407,713 | 7,238,558,764 |
| 2009 | Bank4 | 299,978 | 120 | 2,500 | 78,701,459 | 5,845,136,972 |
| 2008 | Bank4 | 114,864 | 61 | 1,883 | 78,701,459 | 3,839,128,465 |
| 2017 | Bank5 | 4,471,852 | 835 | 5,356 | 2,449,761,449 | 91,557,768,233 |
| 2016 | Bank5 | 5,441,894 | 857 | 6,350 | 2,297,520,673 | 79,796,981,782 |
| 2015 | Bank5 | 3,538,858 | 856 | 4,134 | 679,560,515 | 62,815,599,427 |
| 2014 | Bank5 | 3,504,526 | 835 | 4,197 | 982,579,118 | 55,329,593,123 |
| 2013 | Bank5 | 5,075,617 | 830 | 6,115 | 1,145,973,993 | 49,526,322,948 |
| 2012 | Bank5 | 3,659,884 | 793 | 4,615 | 1,057,056,360 | 42,584,895,177 |
| 2011 | Bank5 | 3,184,322 | 647 | 4,922 | 1,015,213,473 | 39,545,254,061 |
| 2010 | Bank5 | 3,176,851 | 577 | 5,506 | 579,231,460 | 36,049,314,954 |
| 2009 | Bank5 | 5,538,572 | 591 | 9,372 | 1,029,535,742 | 32,628,846,005 |
| 2008 | Bank5 | 4582364 | 584 | 7,847 | 954,953,506 | 26,006,889,740 |
| 2017 | Bank6 | 5,903,090 | 748 | 7,892 | 3,089,925,916 | 80,133,906,000 |
| 2016 | Bank6 | 2,169,371 | 739 | 2,936 | 2,666,102,674 | 71,827,799,000 |
| 2015 | Bank6 | 1,112,129 | 696 | 1,598 | 2,252,640,623 | 56,381,528,000 |
| 2014 | Bank6 | 735,113 | 696 | 1,056 | 2,338,065,548 | 50,599,467,000 |
| 2013 | Bank6 | 1,488,497 | 643 | 2,315 | 2,302,748,773 | 44,793,263,000 |
| 2012 | Bank6 | 1,938,143 | 625 | 3,101 | 1,538,338,190 | 37,792,502,000 |
| 2011 | Bank6 | 1,198,785 | 586 | 2,046 | 1,418,397,900 | 31,440,377,000 |
| 2010 | Bank6 | 1,824,053 | 568 | 3,211 | 1,272,090,189 | 27,499,899,000 |

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| 2009 | Bank6 | 2,280,943 | 534 | 4,271 | 972,950,326 | 19,509,798,000 |
|------|-------|-----------|-----|-------|-------------|----------------|
| 2008 | Bank6 | 2,495,154 | 449 | 5,557 | 718,833,853 | 24,131,922,000 |

**Table 2. Non-Performing Loans (NPL), Liquidity**

| Year | Banks | Capital | NPL | Total Assets (Size) | Liquidity | CAR | NumYears |
|------|-------|---------|-----|----------------------|-----------|-----|----------|
| 2017 | Bank1 | 20,367,203,000.00 | 0.830 | 150,818,033,554 | 10.50 | 13.02 | 32 |
| 2016 | Bank1 | 18,182,544,000.00 | 0.680 | 129,782,705,314 | 7.20 | 14.92 | 32 |
| 2015 | Bank1 | 11,754,294,000.00 | 1.250 | 104,345,436,413 | 12.00 | 11.9 | 32 |
| 2014 | Bank1 | 8,993,849,000.00 | 1.770 | 86,173,927,574 | 19.20 | 11.27 | 32 |
| 2013 | Bank1 | 7,813,057,000.00 | 1.910 | 73,152,154,761 | 16.00 | 11.49 | 32 |
| 2012 | Bank1 | 6,963,182,000.00 | 3.320 | 65,756,231,954 | 13.60 | 11.1 | 32 |
| 2011 | Bank1 | 6,324,627,000.00 | 0.940 | 58,356,827,501 | 7.70 | 10.91 | 32 |
| 2010 | Bank1 | 5,651,045,000.00 | 0.620 | 57,305,413,482 | 7.80 | 10.55 | 32 |
| 2009 | Bank1 | 5,095,354,000.00 | 0.580 | 53,010,803,126 | 10.30 | 11.24 | 32 |
| 2008 | Bank1 | 3,891,236,000.00 | 1.120 | 38,873,306,084 | 10.90 | 11.28 | 32 |
| 2017 | Bank2 | 11,975,101,000.00 | 0.190 | 77,408,597,693 | 19.71 | 21.08 | 31 |
| 2016 | Bank2 | 7,779,408,000.00 | 0.320 | 65,185,732,479 | 7.98 | 16.38 | 31 |
| 2015 | Bank2 | 6,111,788,000.00 | 0.340 | 64,926,805,120 | 24.03 | 13.1 | 31 |
| 2014 | Bank2 | 5,333,516,000.00 | 0.480 | 53,324,102,172 | 21.18 | 12.27 | 31 |
| 2013 | Bank2 | 4,828,551,000.00 | 0.770 | 45,631,100,342 | 16.43 | 12.54 | 31 |
| 2012 | Bank2 | 4,295,167,000.00 | 0.780 | 41,677,052,360 | 22.40 | 13.93 | 31 |
| 2011 | Bank2 | 3,835,592,000.00 | 0.620 | 43,810,519,664 | 6.10 | 14.22 | 31 |
| 2010 | Bank2 | 3,498,973,000.00 | 0.610 | 40,213,319,926 | 6.74 | 14.51 | 31 |
| 2009 | Bank2 | 3,190,367,000.00 | 0.660 | 40,587,468,009 | 8.18 | 14.7 | 31 |
| 2008 | Bank2 | 2,630,900,636.00 | 0.920 | 33,335,788,326 | 5.84 | 13.15 | 31 |
| 2017 | Bank3 | 14,752,639,000.00 | 0.790 | 140,332,060,182 | 10.02 | 12.42 | 36 |
| 2016 | Bank3 | 12,203,615,000.00 | 1.140 | 127,300,195,373 | 6.77 | 11.73 | 36 |
| 2015 | Bank3 | 10,154,456,184.00 | 1.830 | 115,985,701,411 | 14.15 | 11.57 | 36 |
| 2014 | Bank3 | 8,259,701,304.00 | 2.230 | 87,274,545,920 | 11.32 | 11.24 | 36 |
| 2013 | Bank3 | 7,364,514,686.00 | 2.130 | 73,343,593,148 | 9.32 | 11.59 | 36 |
| 2012 | Bank3 | 6,086,741,224.00 | 2.330 | 63,250,488,220 | 8.60 | 11.01 | 36 |
| 2011 | Bank3 | 5,173,399,192.00 | 1.770 | 58,099,619,842 | 4.90 | 10.58 | 36 |
| 2010 | Bank3 | 4,390,228,607.00 | 1.480 | 52,079,725,697 | 3.02 | 10.5 | 36 |
| 2009 | Bank3 | 3,727,082,787.00 | 0.800 | 43,867,397,504 | 9.03 | 10.7 | 36 |
| 2008 | Bank3 | 2,968,913,131.00 | 0.740 | 37,132,759,149 | 8.37 | 11.1 | 36 |
| 2017 | Bank4 | 9,870,186,114 | 0.010 | 69,995,901,442 | 26.08 | 15.57 | 14 |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2016 | Bank4 | 6,039,446,132 | 0.019 | 55,964,557,699 | 24.24 | 12.36 | 14 |
| 2015 | Bank4 | 3,734,498,766 | 0.070 | 40,301,197,377 | 22.32 | 11.08 | 14 |
| 2014 | Bank4 | 3,069,210,208 | 0.017 | 29,376,985,784 | 26.68 | 12.54 | 14 |
| 2013 | Bank4 | 2,565,034,704 | 0.027 | 21,976,539,752 | 30.96 | 14.87 | 14 |
| 2012 | Bank4 | 2,211,515,612 | 0.479 | 13,722,466,141 | 30.24 | 20.74 | 14 |
| 2011 | Bank4 | 2,173,184,816 | 0.004 | 9,363,380,873 | 26.57 | 28.41 | 14 |
| 2010 | Bank4 | 932,609,659 | 0.080 | 7,238,558,764 | 28.19 | 16.51 | 14 |
| 2009 | Bank4 | 909,860,064 | 0.175 | 5,845,136,972 | 11.97 | 19.02 | 14 |
| 2008 | Bank4 | 456,006,865 | 1.513 | 3,839,128,465 | 17.61 | 17.73 | 14 |
| 2017 | Bank5 | 12,613,817,027 | 0.850 | 107,255,479,966 | | 12.15 | 25 |
| 2016 | Bank5 | 9,815,198,969 | 1.230 | 99,863,008,080 | 6.27 | 10.84 | 25 |
| 2015 | Bank5 | 8,041,967,083 | 3.220 | 82,801,550,614 | 8.32 | 11.14 | 25 |
| 2014 | Bank5 | 7,155,579,476 | 1.960 | 73,589,845,698 | 8.72 | 11.23 | 25 |
| 2013 | Bank5 | 6,414,437,452 | 2.890 | 61,113,501,223 | 6.08 | 11.55 | 25 |
| 2012 | Bank5 | 5,283,900,074 | 2.090 | 54,364,427,882 | 8.72 | 11.02 | 25 |
| 2011 | Bank5 | 4,711,243,495 | 4.220 | 46,736,203,884 | 5.75 | 10.68 | 25 |
| 2010 | Bank5 | 4,218,361,500 | 3.520 | 42,717,124,613 | 6.76 | 10.72 | 25 |
| 2009 | Bank5 | 3,845,211,300 | 2.160 | 39,330,131,823 | 6.76 | 11.02 | 25 |
| 2008 | Bank5 | 3,253,515,981 | 2.360 | 36175531637 | 5.13 | 12.42 | 25 |
| 2017 | Bank6 | 13,063,702,000 | 0.250 | 116,510,445,575 | 16.52 | 14.69 | 24 |
| 2016 | Bank6 | 10,094,804,000 | 0.380 | 113,885,046,402 | 16.61 | 12.66 | 24 |
| 2015 | Bank6 | 8,457,023,000 | 0.660 | 99,167,293,661 | 24.27 | 13.33 | 24 |
| 2014 | Bank6 | 6,422,257,000 | 0.970 | 70,445,082,845 | 16.91 | 11.31 | 24 |
| 2013 | Bank6 | 5,777,682,000 | 0.620 | 65,741,150,457 | 15.91 | 11.59 | 24 |
| 2012 | Bank6 | 4,574,753,000 | 0.840 | 55,813,129,057 | 17.22 | 11.02 | 24 |
| 2011 | Bank6 | 3,605,841,000 | 0.340 | 46,236,212,262 | 9.55 | 10.43 | 24 |
| 2010 | Bank6 | 3,257,142,000 | 0.160 | 41,382,760,711 | 15.53 | 10.77 | 24 |
| 2009 | Bank6 | 2,348,390,000 | 0.480 | 36,916,848,654 | 14.26 | 11.34 | 24 |
| 2008 | Bank6 | 2,703,870,000 | 0.680 | 27,149,342,884 | 4.56 | 11.44 | 24 |