

5-2018

Financial Institutions and Systemic Risk: The Case of Bank of America 2006-2017

Jeffrey Mills
University of Arkansas, Fayetteville

Follow this and additional works at: <https://scholarworks.uark.edu/finnuht>



Part of the [Finance and Financial Management Commons](#)

Citation

Mills, J. (2018). Financial Institutions and Systemic Risk: The Case of Bank of America 2006-2017. *Finance Undergraduate Honors Theses* Retrieved from <https://scholarworks.uark.edu/finnuht/44>

This Thesis is brought to you for free and open access by the Finance at ScholarWorks@UARK. It has been accepted for inclusion in Finance Undergraduate Honors Theses by an authorized administrator of ScholarWorks@UARK. For more information, please contact scholar@uark.edu, uarepos@uark.edu.

Financial Institutions and Systemic Risk: The Case of Bank of America 2006-2017

By

Jeffrey Davis Mills

Advisor: Dr. Craig Rennie

**An Honors Thesis in partial fulfillment of the requirements for the degree Bachelor of
Science in Business Administration in Finance**

Sam M. Walton College of Business

University of Arkansas

Fayetteville, Arkansas

May 11, 2018

Abstract

This paper explores systemic risk and financial institutions before, during, and after the financial crisis. It focuses on Bank of America the 2nd largest bank in the United States by assets. The paper includes an introduction to systemic risk and a review of literature on systemic risk. A few traditional measures of systemic risk will be defined, such as nonperforming loans, return on assets, return on equity, earnings per share, net interest margin, and capital adequacy ratio. Finally, the paper will take a look at how these traditional measures specifically relate to Bank of America from 2006 to 2017. This time period was chosen to show how the risk measures fluctuate before, during, and after the 2008 financial crisis. This crisis is considered by many to be a time when systemic risk was relatively high in the banking sector. This study finds that systemic risk can be evaluated in many different ways. Outside forces also have an impact on systemic risk in the banking environment. Systemic risk is a financial topic that will only increase in importance as financial innovation and globalization continue to evolve.

1. Introduction

Systemic risk in banks is an important topic because banks are an integral part of society that bring users and savers of funds together. Systemic risk is defined by Rimkus (2016) as, the risk of the failure of a financial system by means of a crisis where providers of capital lose faith in the users of capital or a medium of exchange. An important attribute of systemic risk is that the risk that can potentially travel from unhealthy institutions to healthy institutions. Systemic risk can do this through a transmission channel, such as leverage. This is one reason systemic risk can be hard to identify and measure. If too much systemic risk is inserted into the banking system, then it could contribute to the collapse of the whole network to the detriment of society. A recent example of this is the financial crisis of 2008, which started in the United States and spread to other parts of the world. The crisis shows that financial institutions are interconnected. A case study of systemic risk could allow for a greater understanding of this concept.

This paper explores the relationship between financial institutions and systemic risk by examining the case of Bank of America from 2006 to 2017. Specifically, I look at traditional indicators of systemic risk, such as nonperforming loans, earnings and profitability ratios, and capital adequacy. Bank of America is the best example because it is a bank that was able to navigate the financial crisis and come out successful even with the acquisition of Countrywide and Merrill Lynch. While it went through a transformation process during a time of regulatory reform, Bank of America has regained its status as a top tier financial institution. This study will first report traditional measures of systemic risk by analyzing Bank of America's financial statement data. I then evaluate the trends and performance of Bank of America by observing its stock price as these indicators fluctuate during the specified time period.

There are multiple observations that I found from this study. First, nonperforming loans can be considered a source of systemic risk for banks. Data shows that Bank of America's nonperforming loans rapidly increased as they entered the financial crisis and slowly returned to healthy levels afterward. Second, Return on Assets and Return on Equity decrease as systemic risk increases. Both ROA and ROE trended down during the crisis and moved even lower in the years thereafter, due to acquisitions and legal issues. It was difficult to observe the relationship between net interest margin and systemic risk due to the federal reserve's extremely accommodative monetary policy. Earnings per share decreased as systemic risk increased in the financial crisis, but the post crisis earnings have been volatile. Capital adequacy slightly

increases throughout the study, possibly due to the U.S. government and Federal Reserve intervening to prevent an even larger crisis. These observations were all made retrospectively, and with the evolving banking environment, the relationships these measures have with systemic risk may change in the future.

This study contributes to literature on systemic risk of banks in three ways. First, this case study portrays a clear example of the relationship traditional measures have with systemic risk over an 11-year period, and that there is not a single variable or indicator to illustrate systemic risk. Second, it illustrates that outside forces such as the Federal Reserve have an impact on systemic risk. Lastly, the study is an example of how complex the modern banking network has become, and that it will only continue to evolve. This study acquaints someone that is interested in banks, systemic risk, or the financial crisis to learn one facet of a complex financial topic.

The rest of the paper proceeds as follows. The second section reviews relevant literature. The third discusses traditional measures of systemic risk. The fourth summarizes these measures for Bank of America and its performance. Finally, the paper concludes with closing remarks and ideas for future research.

2. The literature on Financial Institutions, Systemic Risk, and the Financial Crisis

The main literature related to this case study involves three topics: financial institutions, systemic risk, and the financial crisis. According to Schwarz (2008), financial institutions are essential sources of capital. Their failure would constrain capital available and increase its cost. The most direct consequences of systemic failure are a surge in the cost of capital or a reduction in the amount of capital available. While banks and finance have faced a lot of scrutiny from the government and general public, their role in society is invaluable.

There has been a lot of research done on the topic of systemic risk, especially since the financial crisis. One topic related to systemic risk, is how it interacts with the entire financial network. The structure of the banking system and interbank liabilities make diversification complicated. Diversification is a common strategy used to hedge risks. This can be illustrated by the relationship between systemic risk and a financial network. According to “Systemic Risk and Stability of financial networks” there are two competing views. Allen and Gale (2000) and Freixas, Parigi, and Rocket (2000) suggest that a heavier interconnected banking system

amplifies the strength of the system to withstand the insolvency of an individual bank. Allen and Gale (2000) believe that in a more interconnected financial system, the losses of a bank experiencing distress are divided among more creditors. This therefore reduces the impact of negative shocks to all institutions in the system. The contending view suggests that the higher interconnection could be contradictory and a source of systemic failure. Viver-Lirimont (2006) argues that an increase in a bank's counterparties, increases the possibility of a systemic collapse. This is just one example of how the complexity of systemic risk can breed opposing views.

The last area of interest is the financial crisis itself. The crisis directly influenced the transformation that has taken place in the post financial crisis banking environment. Borio (2003, 2006) notes that regulation was primarily focused on the soundness of an individual bank. Now regulators have started to focus on the stability of the entire banking system. This is often called the macro-prudential perspective. A good example of this would be the Financial Sector Assessment Program, an international effort by the International Monetary Fund (IMF) and World Bank with the end goal of boosting efforts to promote the stability of financial systems within their member countries (Huang, Zhou, and Zhu (2009)).

3. Traditional indicators of Systemic Risk

Traditionally, systemic risk has been measured by analyzing the balance sheet, as well as applying certain ratios like return on assets or return on equity, to indicate whether systemic risk is rising or falling. No market-based measures of systemic risk have been used in this study because the case study takes place in a time of crisis, so the market measures may not be accurately indicative of value. I will first go over some measures including non-performing loans, earnings and profitability ratios, capital adequacy, and how they play a role in systemic risk.

3.1 Nonperforming loans (NPL)

According to Das (2017), a loan is typically deemed a non-performing loan (NPL) or “bad debt” when a borrower has not made an agreed upon payment on the principal or interest within 90 days. However, a loan can be non-performing before 90 days have passed under circumstances that indicate that the debtor is unlikely to pay back the creditor. The discretionary nature of “unlikely to pay” can have different implications depending on market and jurisdiction.

Performing loans are needed for a bank to issue new loans and profit. NPLs require a bank to set aside capital and hinder banks' ability to issue new loans and therefore hinders their profitability.

Both macro-related factors and factors specific to the bank contribute to an increase or decrease in NPL's. NPL's are anti-cyclical because as the economy and Gross Domestic Product (GDP) grows, the ability of debtors to repay creditors increases. It is logical to assume that as the unemployment rate goes up, more people will be unable to repay their debt. There is not a clear pattern for all macro factors. For example, when inflation increases, the amount of real debt owed decreases, but the real income of the borrower is also reduced. In theory, they may cancel each other out. The bank-specific factors that affect NPLs involve management and their profit maximization strategy. If the bank decides to ease lending standards to make a higher profit, this could impair the quality of the loans. Management must also find a balance between low and high cost efficiencies.

There are generally three main strategies associated with the management of NPLs according to (Das 2017). First, the on-balance sheet approach allows the bank to protect part of the portfolio through external guarantees or the creation of an internal bad bank. This approach allows for quick implementation but is complex and offers limited outside investor interest. Another approach is the off-balance sheet approach in which a bank attempts to recycle the NPLs using arm's length transactions at fair value to entities not on their balances sheet but often funded by the bank. This allows NPLs to be removed entirely from the balance sheet, but the operation can be complex and there can be unfavorable transaction costs. The last approach, the passive rundown, involves the bank keeping the NPLs on its books and managing the problem internally. Overall, banks and regulators should consider NPLs a source of systemic risk. An increase in NPLs within a bank or banking system will have a positive correlation with systemic risk.

3.2 Earnings and Profitability

Earnings and profitability are important to all internal and external stakeholders. Several key ratios such as Return on Assets (ROA) and Return on Equity (ROE), as well as Earnings per Share (EPS) and Net Interest Margin (NIM), can offer insights into systemic risk within a bank or banking system.

3.2.1 Return on Assets (ROA)

Gallo (2017) explains return on assets (ROA) in plain terms, as the ultimate indicator of return on investment. It reveals what percentage of dollars invested is returned as a profit. It is a simple overall high-level number that can help one understand how profitable a company's assets are. The calculation is as follows:

$$\text{Return on Assets} = (\text{Net Income} / \text{Total Assets})$$

The major assets of a bank are loans to individuals, businesses, and other organizations, as well as any securities that it owns. A bank is able to obtain such assets due to capital from shareholders, depositors, and money that is borrowed from other banks. A bank cannot use all of its assets to generate income. Because of required reserves, cash must be available for customers. Because of leverage a bank's ROA is typically much lower than their ROE. Leverage is the concept of using borrowed funds to increase possible return on investment. As ROA decreases like it did prior to and during the financial crisis, systemic risk logically increases.

3.2.2 Return on Equity (ROE)

Return on equity is used to show what percentage of a profit is made for every dollar of shareholders' equity invested in the company. The profitability metric indicates how effectively a corporation uses a key source of capital namely, funds from shareholders. ROE can be used to compare companies within the same industry; for example, the average ROE in the first half of 2017 for the banking industry was 9.75% (Maverick (2017)). The higher the ROE, the more productive the corporation is using the resources provided by shareholders to increase profits and then return them to the shareholders. One problem with the ROE calculation occurs if the bank has a disproportionate capital structure. This could lead to a high ROE due to a large percentage of debt and small percentage of equity. Just like ROA as ROE increases, systemic risk will likely decrease and vice versa. The calculation is as follows:

$$\text{Return on Equity} = (\text{Net Income} / \text{Shareholder Equity})$$

3.2.3 Earnings per Share (EPS)

Earnings per share is a common performance metric that equity research analysts model and predict before a bank reports its earnings. It allows one to look at firms' profits on a cost

share basis, which is important when analyzing a company from a fundamental standpoint. It is an important determinant for stock prices but perhaps not as helpful for identifying systemic risk. EPS can be manipulated due to GAAP accounting rules, as well as management decisions. The systemic risk and earnings per share have a complicated relationship, but in general as EPS increases, the level of systemic risk should be decreasing. The basic calculation for EPS is:

Earnings Per Share = (Net Income – Dividends on Preferred Stock) / Average Outstanding shares

3.2.4 Net Interest Margin (NIM)

Net interest margin is a profitability metric specific to banking. As the margin widens, the bank profitability will increase and vice versa. Constable (2017) explains net interest margin in simple terms: the difference between what a bank spends to receive deposits and other funds, and what it makes lending. When net interest margin is negative it shows that the bank has not used its funds efficiently, because the expenses are greater than the returns. Net interest margin tends to decrease before recessions when systemic risk is historically pretty high and then increases towards the end of the recession. One could possibly infer that as net interest margin decreases systemic risk increases because banks are not using their funds as efficiently, or risk factors have increased that had an adverse effect on the banks. The calculation for net interest margin is:

Net Interest Margin = (Investment Returns – Interest Expenses) / Average Earning Assets

3.3 Capital Adequacy

Capital adequacy can be portrayed in ratios that help give an understanding to systemic risk of a bank. The capital adequacy ratio (CAR) is one of those ratios, but there are other ways, as well. The Federal Reserve performs stress tests that evaluate the credit, market, and liquidity risk of the financial institution. These tests were not implemented until after the financial crisis in 2008.

3.3.1 Capital Adequacy Ratio (CAR)

Capital Adequacy Ratio (CAR) measures a bank's capital compared to its risk weighted credit exposures. The ratio is used to protect depositors as well as promote banking efficiency and stability across the financial network. Banks are required to have a minimum CAR because it gives the bank a margin of error to take losses before becoming insolvent, and in turn creating

losses on depositors' funds. If suppliers of capital experienced losses that would lead to decreased confidence in financial institutions and markets. An example of this is the bank runs during the beginning of the Great Depression. When calculating CAR, two types of capital are used, tier one and tier two capital. The main distinction between the two is that tier one capital is able to absorb losses without the bank being required to stop trading; tier two absorbs losses in the case of liquidation or winding up. Tier two is used to cushion losses if all of tier one capital has been wiped out. The relationship between systemic risk and the CAR is an inverse relationship. For example, as CAR increases, the greater level of unexpected losses the particular bank can absorb before becoming insolvent increases. In most cases, when a bank increases capital distancing itself from insolvency, systemic risk is decreasing. The calculation for CAR is as follows:

$$\text{Capital Adequacy Ratio} = (\text{Tier One Capital} + \text{Tier Two Capital}) / \text{Risk Weighted Assets}$$

4. Bank of America's Performance

Naturally, if a bank is publicly traded, we quantify its performance by looking at the bank's stock price. The stock price of Bank of America, and the traditional measures mentioned earlier could determine if there is an underlying trend. By looking at pre, during and post stages of the financial crisis we will be able to evaluate measures during a time where there was an unusually high level systemic risk in the U.S. banking system. The collapse of Lehman Brothers, fire sale of Bear Sterns, and Bank of America's eventual acquisition of Merrill Lynch, all provide evidence that the financial crisis was a time of concentrated systemic risk.

4.1 Bank of America's Nonperforming Loans

During 2006 the first year of the study, Bank of America's nonperforming loans as a percentage of total assets are fairly low at 0.13%. Even today we have not seen percentages this low, but that may have to do with the growth that has taken place in the bank. In 2007, we start to see a substantial increase compared to 2006, as nonperforming loans to total assets expands to 0.34%. This is a troubling prelude to the financial crisis. During the financial crisis, the time period deemed to have the highest amount of systemic risk in the study, we see NPLs as a percent of total assets grow exponentially, growing 233% year over year between 2007 and 2008. As the post financial crisis period begins, NPLs as a percentage of total assets peak at

1.80% in 2009. As the post crisis period continues, we see a very gradual decrease in NPLs while total assets have been fairly steady. It is now 9 years after the financial crisis, and NPLs have still some room to decline until they reach the levels we observed in 2006. Nonperforming loans are an inevitable part of bank assets, and so as the total asset base grows like Bank of America's did over 11 years, it is only natural to see slight growth in nonperforming loans. Charts of Bank of America's total assets and nonperforming assets as a percentage of total assets are show in Figure 1 and 2.

<Insert Figures 1 and 2 here.>

4.2 Bank of America's Return on Assets

As shown in Figure 4, in 2006 before the financial crisis Bank of America's ROA was higher than we have seen it in the past 10 years at a little over 1.50%. Starting in 2007 ROA starts to deteriorate when it decreases 38.57% year over year. ROA hits an extreme low in 2010 at negative 0.09%. This is partly because Bank of America acquired Countrywide in 2008, and Merrill Lynch in 2009. While these may have been cheap acquisitions they did not come without lawsuits and fines to deal with. In addition, stricter regulation after the mortgage industry had devastated the banking sector and restricted growth. If you look at the income statement under the unusual items section in 2010 there is a charge of \$1.82 billion related to merger and related restructure costs and a charge of \$12.4 billion related to goodwill impairment. These costs have the end result of Bank of America having a negative net income in 2010, this is the only year in the study that this occurs. All banks were in recovery mode after the financial crisis, so it is not unusual to see this downturn in ROA. Since 2012, ROA has been positive and has slowly made its way to 0.82% in 2017.

<Insert Figure 4 here.>

4.3 Bank of America's Return on Equity

In Figure 5 provided below it is easy to spot the steep descending trend occurring for ROE prior and during the financial crisis. The study's peak is in the beginning of 2006, with a 17.85% return on equity. During the financial crisis we see ROE go from 10.62% in 2007 to 2.47% in 2008, a 76.74% decrease year over year. Then ROE bottoms out in 2010 at negative 0.97%. This is partly due to unusual items and expenses relating to acquisitions that are mentioned in section

4.2. In 2012, ROE returns positive, but ROE for the year 2017 was only 6.8%, a little more than a third of what we observed before the financial crisis.

<Insert Figure 5 here.>

4.4 Bank of America's Earnings per Share

Earnings per share shows a similar trend that other indicators have shown. In Figure 6, we see the largest decrease in EPS during the financial crisis. EPS goes from \$3.32 in 2007 to \$0.54 in 2008, an 83.73% decrease. Then, there is much volatility in the earnings as Bank of America works its way through the financial crisis while being involved in a multitude of lawsuits and evolving its business model with the new acquisitions. We see negative EPS in 2009 of \$0.29 and in 2010 of \$0.37 respectively. The 2009 negative EPS is primarily due to line item "preferred dividends and other adjustments" which is an outlier that year totaling at \$8.49 billion. The 2010 negative EPS is primarily due to goodwill impairment and restructuring costs that result in a negative net income. EPS returns positive in 2011, but we have not seen earnings reach pre-crisis level yet. In 2017 EPS was a \$1.63. less than half of 2006 EPS.

<Insert Figure 6 here.>

4.5 Bank of America's Net Interest Margin

Net interest margin has a different trend than the other indicators we have observed. In the study, NIM peaks 2008 at 2.46%, notably the same year that the Federal Reserve started implementing quantitative easing. After the policy was implemented we see a decline in NIM, as we enter a historically low period for interest rates. For the next 8 years NIM fluctuates in a tight range between 1.80% and 2.00% NIM is still below pre-crisis levels, but the federal reserve has begun to reduce its balance sheet and raise interest rates in order to normalize the effects of quantitative easing. We will see in the near future if this will be a smooth transition, or a period of time where negative effects of quantitative easing are realized.

<Insert Figure 7 here.>

4.6 Bank of America's Capital Adequacy Ratio

During the entire study Bank of America's combined Tier 1 and Tier 2 capital adequacy ratio steadily increased. First, there is a steep increase during the crisis period from 11.02% in 2007 to

13.00% in 2008. This may be a direct effect of the Troubled Asset Relief Program (TARP). According to Rucker and Stempel (2009), Bank of America received \$25 billion in October of 2008 and an additional \$20 billion in January 2009 from the treasury. The second insertion of bailout money also came with a guarantee for almost \$100 billion of potential losses on toxic assets to alleviate any financial struggles associated with the recent acquisition of Merrill Lynch & Co. CAR then peaks in 2011 at 16.75%, we then see a decline through 2015. Then CAR increases in 2016 and 2017 as Bank of America continues to be a top performer among large banks. The increased CAR ratio could also be an effect from an increase in capital requirements in the post financial crisis period. Figure 8 tracks capital adequacy throughout the study:

<Insert Figure 8 here.>

4.7 Bank of America's Stock Price and Volume

Equity markets are one of the most watched financial markets in the world, so as we observe an increase in systemic risk within the banking environment it should have an effect on publicly traded bank stocks. It doesn't help that selloffs can incur as they did when people start to lose faith in individual banks or the banking system as a whole. This downward pressure bank stocks faced led to the Lehman collapse, as well as the M&A activity that occurred during the crisis that the federal reserve had encouraged.

Bank of America's stock has been highly volatile from 2006 to 2017. By looking at figure 9 below you can see that large amounts of volume being traded during the crisis and the years following. During the pre-financial crisis period the stock traded at a high of \$54.90 per share. In 2009 right after the crisis the stock traded at \$3.14. This is a 94% decline in the stock price within a few years. It is just now reaching levels level that are 50% of its pre-crisis high. The stock is down 37.30% over the time the case study takes place, and trades at an average price of \$21.82. The stock price of a bank is likely to be affected by systemic risk. As systemic risk increases in the banking environment, stock price will likely decrease.

<Insert Figure 9 here.>

4.8 Further Analysis

Further analysis of Bank of America examines the income statement and balance sheet. For the income statement interest income, interest expenses, and their effect on net interest income are important factors that influence Bank of America's revenues. Provision for loan losses is also a key line item to examine on the income statement. The balance sheet items of focus are investment securities, loans, total assets, and total deposits. These line items will help illustrate the impact systemic risk had on Bank of America through the 17-year period.

4.8.1 Bank of America's Income Statement

The main goal of any business no matter the industry is to make a profit. A necessary top line item to calculate profit is revenue. If revenues do not exceed expenses, then that company will not be successful. Revenue is reported on the Income Statement. The income statement in short is a financial statement that tells the story of a company's financial performance over a period time, usually fiscal year or quarterly. Bank of America's revenues throughout the study increase from about \$67 billion to around \$84 billion over the course of 11 years. This clearly shows the magnitude and relevance that banks have in our society following the financial crisis. It is interesting to see a decline in revenues throughout 2006, but then revenues increase throughout the financial crisis period and don't take decline again until 2010. It seems out of the ordinary for a bank to have increasing revenues during a time of crisis, so I evaluated the income statement. Interest income, a major source of revenue for banks, peaks in 2008 at close to \$87 billion dollars. In the last year of the study interest income is approximately \$57 billion. While interest income has decreased since the financial crisis, you cannot look at interest income without also observing interest expense. The combination of the two give us net interest income. Due to monetary policy and quantitative easing impacting interest rates, interest expense decreased at a faster rate than interest income. This resulted in net interest income peaking at \$51 billion in 2010, and never experiencing much deterioration in 2007 or 2008 despite the highly systemic environment. Provision for loan losses is another important line item for revenues. Between 2008 and 2009 the provision for loan losses increased 357% or close to \$38 billion, this is a direct result of the financial crisis. Provision for loan losses then peak in 2009 and slowly decreased as default rates went down in the post crisis environment. Graphs below evaluate revenues, net interest margin, non-interest expense, and earnings before income taxes.

<Insert Figure 9 Figure 10 and Figure 11 here.>

4.8.2 Bank of America's Balance Sheet

The balance sheet is a snapshot of bank's assets, liabilities, and stockholders' equity at a certain point in time. After analyzing Bank of America's balance sheet, some observations on investment securities, loans, total assets, and total deposits, immediately stand out. First off, investment securities experience a lot of growth. As a percentage of total assets, investment securities grow from 25% in 2006 to 35% in 2017. Total assets grow from 2006 to 2017 but, investment securities grow at faster rate. If you index the first year of the study to the last investment securities grow 748% over the 11-year time period. A lot of the growth has to do with the changing regulatory environment during this study. Net loans peaked at 50% of total assets in 2008 and have since then declined. Loan growth indexed from the 2006 only experienced 33% growth, which is vastly lower than investment securities. Regulation forced banks to have a stricter loan practice in order to limit risk, so banks have focused a lot more on investment securities in the post financial crisis period. This is just one-way systemic risk influenced asset activity. Total deposits which is a major liability for banks grows from \$693 billion to \$1.309 trillion as Bank of America has an increasing presence in the market. Capital structure which is shown in the graph below does not change from 2006 to 2017. Banks tend to be highly levered so it is normal to see very high debt with little equity.

5. Conclusion

A key takeaway from this study is that currently there is no single way to measure and quantify systemic risk of a particular banking network. Traditional measures are one method to observe systemic risk. Market-based measures are another method and have the advantage of using more data points not limited to normal quarterly financial reporting.

However, there are outside forces that must be taken into account when measuring systemic risk. Take monetary policy for example. The accommodative interest rate policy kept interest rates low and caused a decline in Net Interest Margin for Bank of America throughout the 17-year study. Also, regarding the capital adequacy ratio, during the financial crisis normally there would be a decline, but it actually increased due to bank bailouts.

Lastly, systemic risk is a reminder that banking institutions and networks are complex. Finance is an industry that is often disrupted. As globalization and financial innovation continues through technological advances it will be interesting to see if we are able to better identify and measure systemic risk in a way that will minimize or possibly predict financial crises.

References

- Allen, Franklin and Douglas Gale (2000), "Financial contagion." *Journal of Political Economy*, 108, 1-33.
- Borio, C., 2003. Towards a macro prudential framework for financial supervision and regulation? BIS Working paper No. 138
- Borio, C., 2006. Monetary and financial stability: Here to stay? *Journal of Banking and Finance* 30, 3407-3414.
- Constable, S. (2017, May 08). What Is Net Interest Margin? Retrieved April 06, 2018, from <https://www.wsj.com/articles/what-is-net-interest-margin-1494209342>
- Das, M. (2017, March 28). Non Performing Loans NPL An Overview. Retrieved April 06, 2018, from <https://www.duffandphelps.com/insights/publications/alternative-asset/non-performing-loans-npl-an-overview>
- Freixas, Xavier, Bruno M. Parigi, and Jean-Charles Rochet (2000), "Systemic risk, interbank relations, and liquidity provision by the central bank." *Journal of Money, Credit, and Banking*, 32 611-638
- Gallo, A. (2017, October 05). A Refresher on Return on Assets and Return on Equity. Retrieved April 06, 2018, from <https://hbr.org/2016/04/a-refresher-on-return-on-assets-and-return-on-equity>
- Huang, Xin and Zhou, Hao and Zhu, Haibin, A Framework for Assessing the Systemic Risk of Major Financial Institutions (May 1, 2009). *Journal of Banking and Finance*, Vol. 33, No. 11, pp. 2036–2049, November 2009; BIS Working Paper No. 281; PBCSF-NIFR Research Paper No. 08-01. Available at SSRN: <https://ssrn.com/abstract=1335023>
- Maverick, J. (2017, September 15). What Level of Return on Equity is Common for Bank? Retrieved April 13, 2018, from <https://www.investopedia.com/ask/answers/040815/what-level-return-equity-common-company-banking-sector.asp>
- Rimkus, R. (2016, October 11). Systemic Risk: Definition and Application. Retrieved April 04, 2018, from <https://blogs.cfainstitute.org/investor/2016/09/28/systemic-risk-definition-and-application/>
- Rucker, P., & Stempel, J. (2009, January 16). Bank of America gets big government bailout. Retrieved from <https://www.reuters.com/article/us-banks/bank-of-america-gets-big-government-bailout-idUSTRE50F1Q720090116>
- Schwarcz, Steven L., Systemic Risk. Duke Law School Legal Studies Paper No. 163; Georgetown Law Journal, Vol. 97, No. 1, 2008. Available at SSRN: <https://ssrn.com/abstract=1008326>
- Viver-Lirimont, Sebastain (2006), "Contagion in interbank debt networks." Working paper.

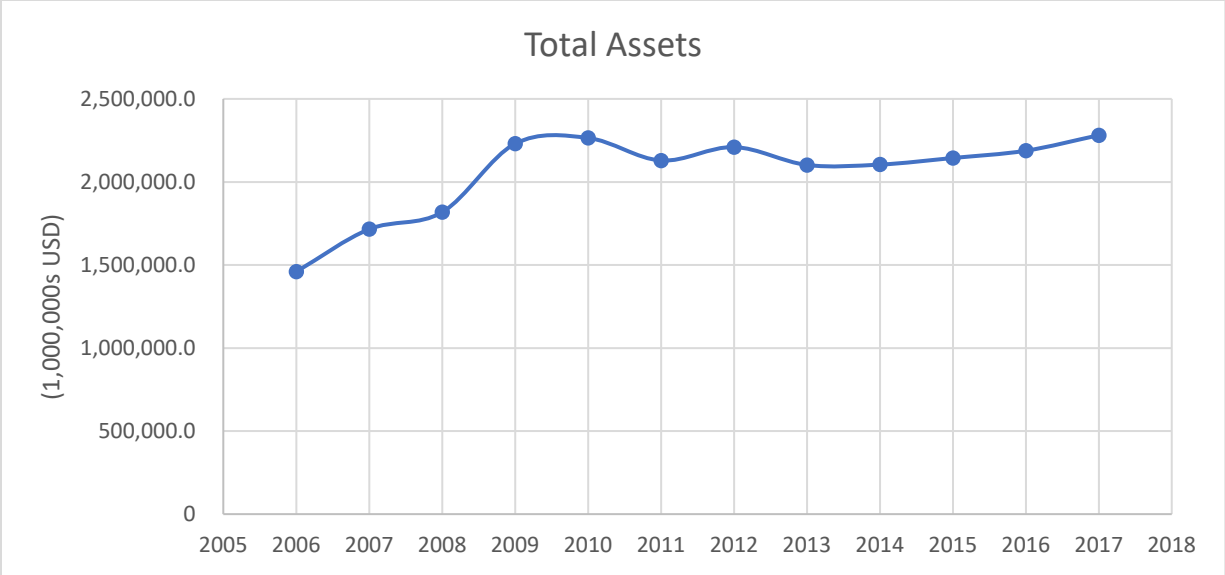


Figure 1. Total Assets. This figure shows Bank of America’s total assets from 2006 to 2017 on an annualized basis.

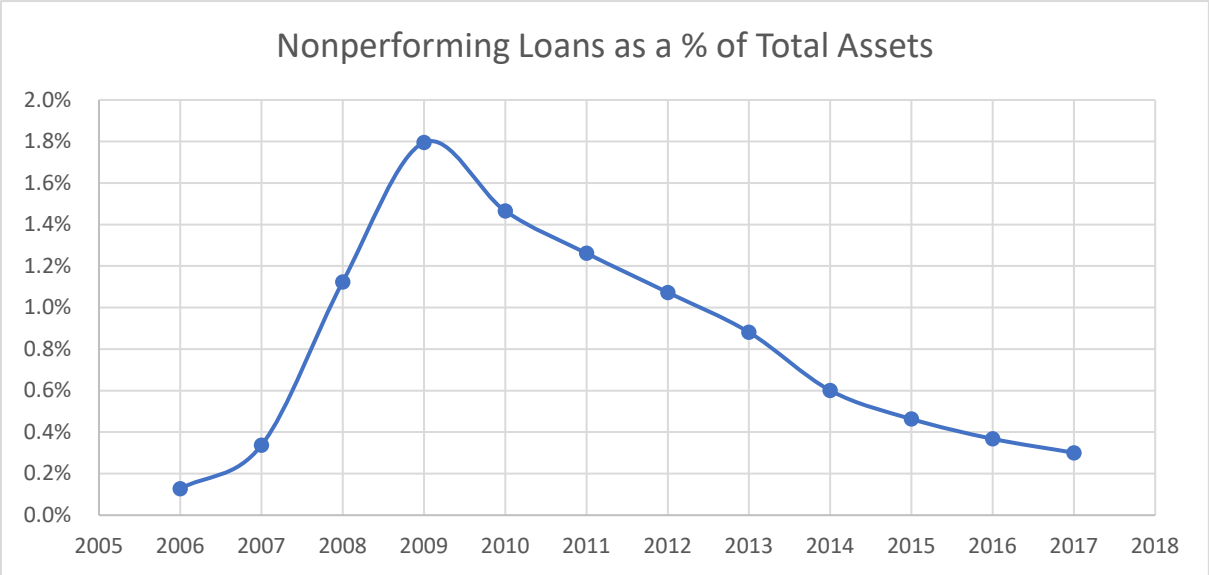


Figure 2. Nonperforming loans as a % of Total Assets. This figure shows nonperforming loans as a percentage of total assets from 2006 to 2017 on an annualized basis.

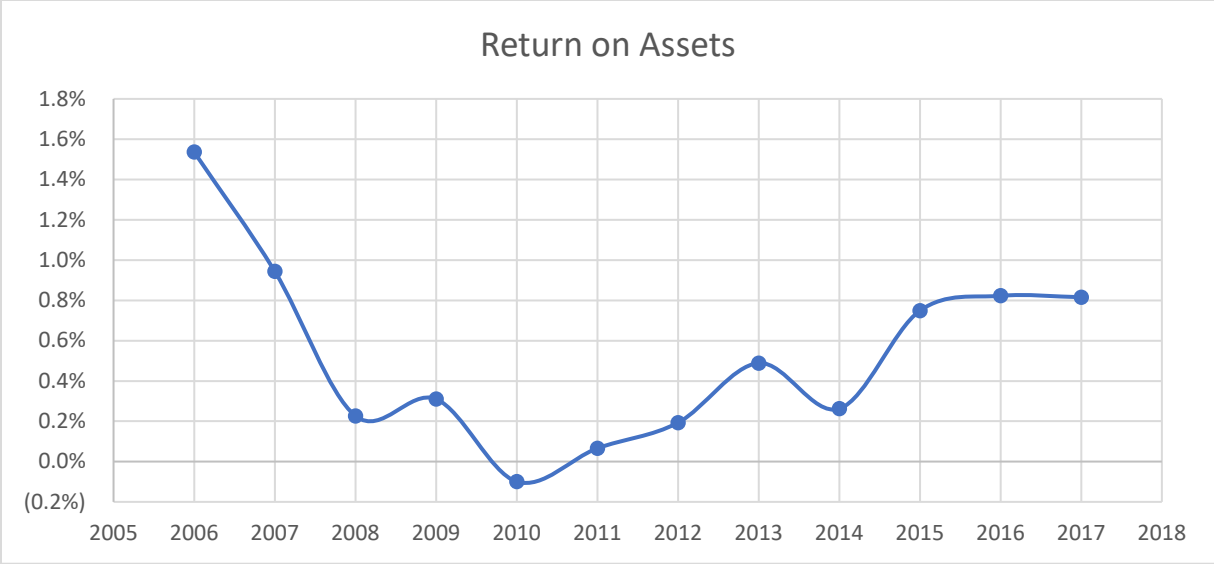


Figure 4. Return on Assets. This figure shows Bank of America’s Return on Assets as defined earlier from 2006 to 2017 on annualized basis.

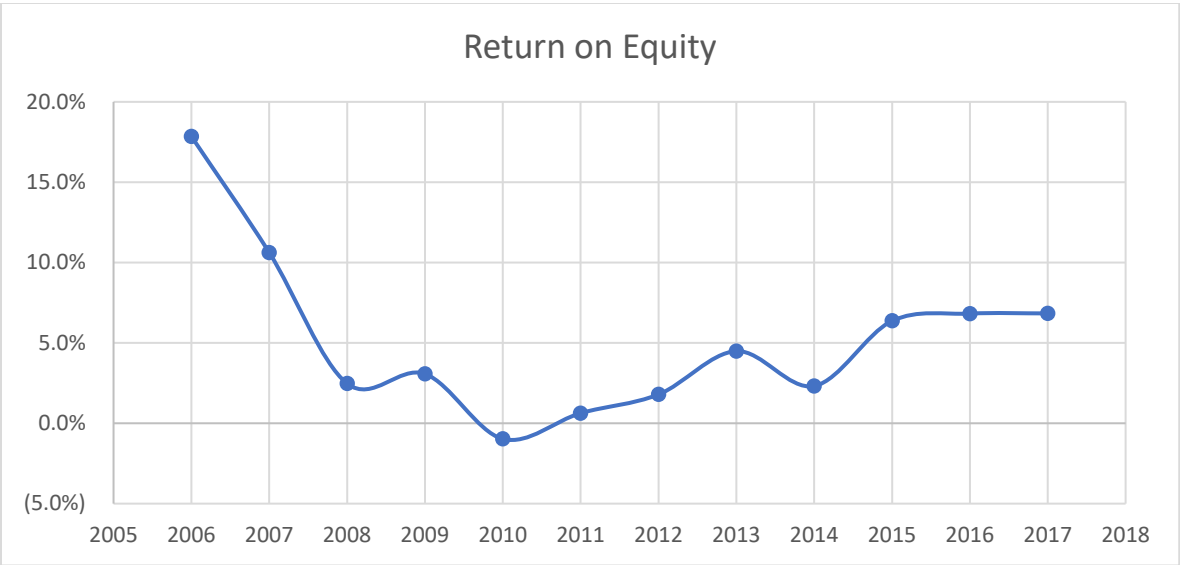


Figure 5. Return on Equity. This figure shows Bank of America’s Return on Equity as defined earlier from years 2006 to 2017 on an annualized basis.

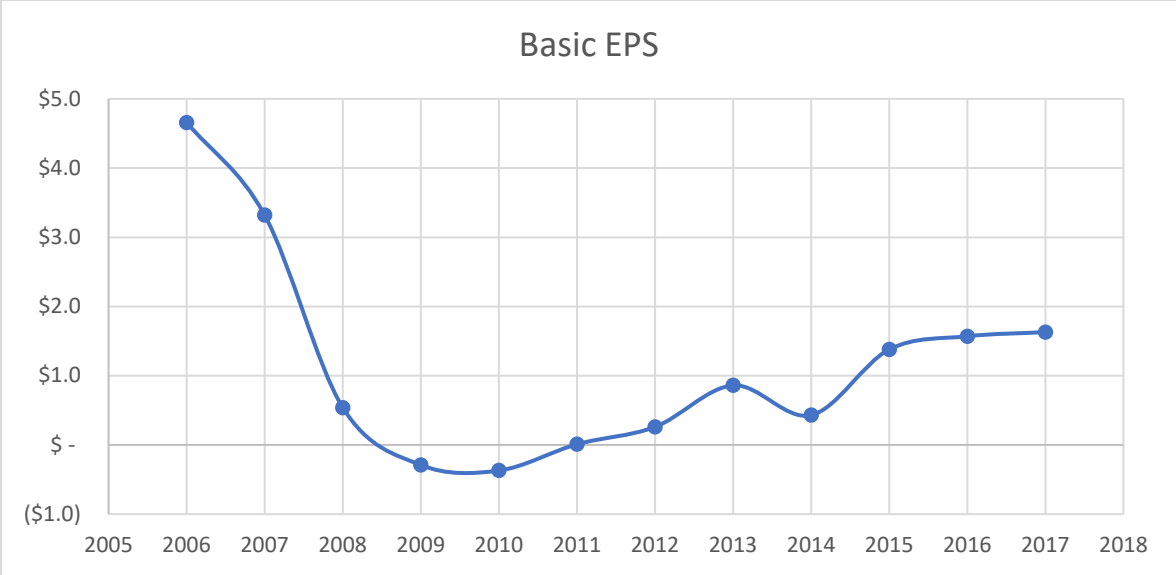


Figure 6. Normalized Basic EPS. This figure shows Bank of America’s basic earnings per share on an annualized basis from 2006 to 2017.

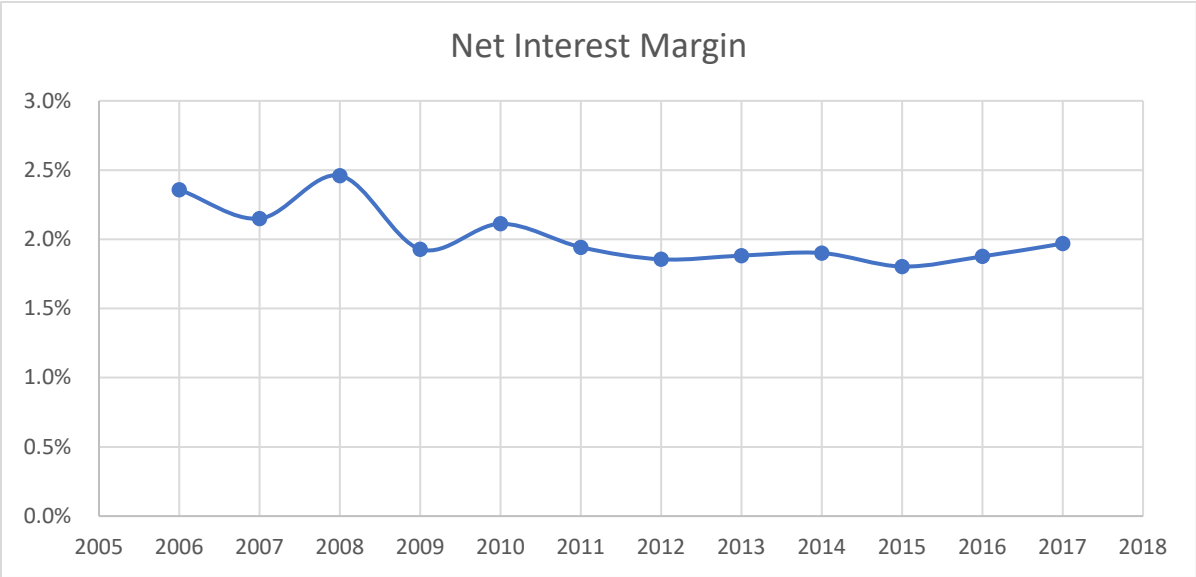


Figure 7. Net Interest Margin. This figure shows Bank of America’s net interest margin from 2006 to 2017.

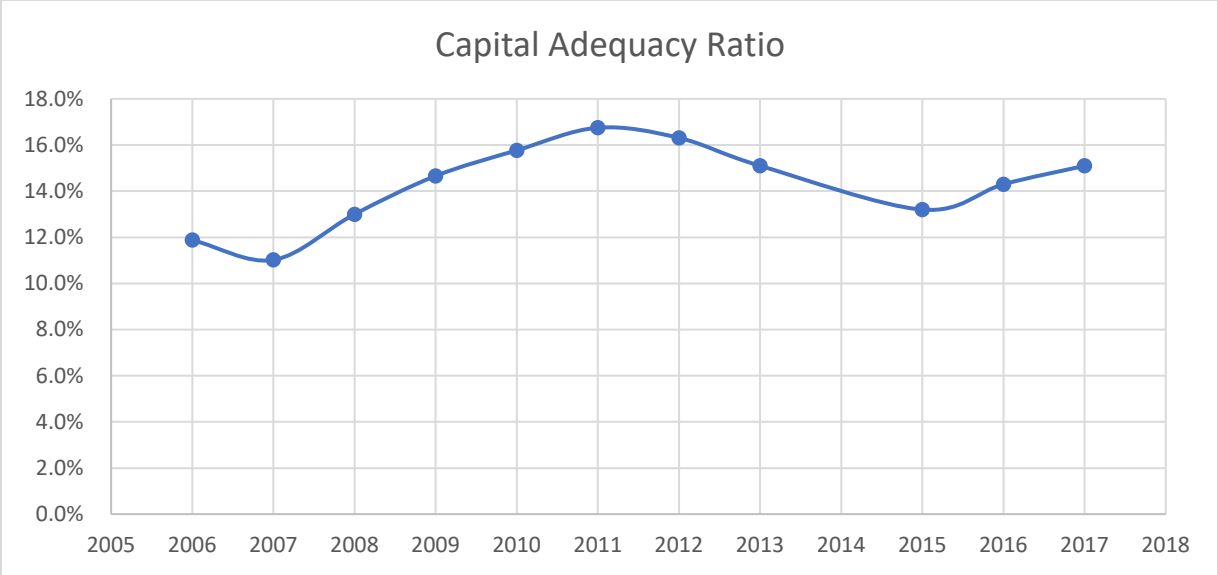


Figure 8. Capital Adequacy Ratio. This figure shows Bank of America’s capital adequacy ratio from 2006 to 2017.

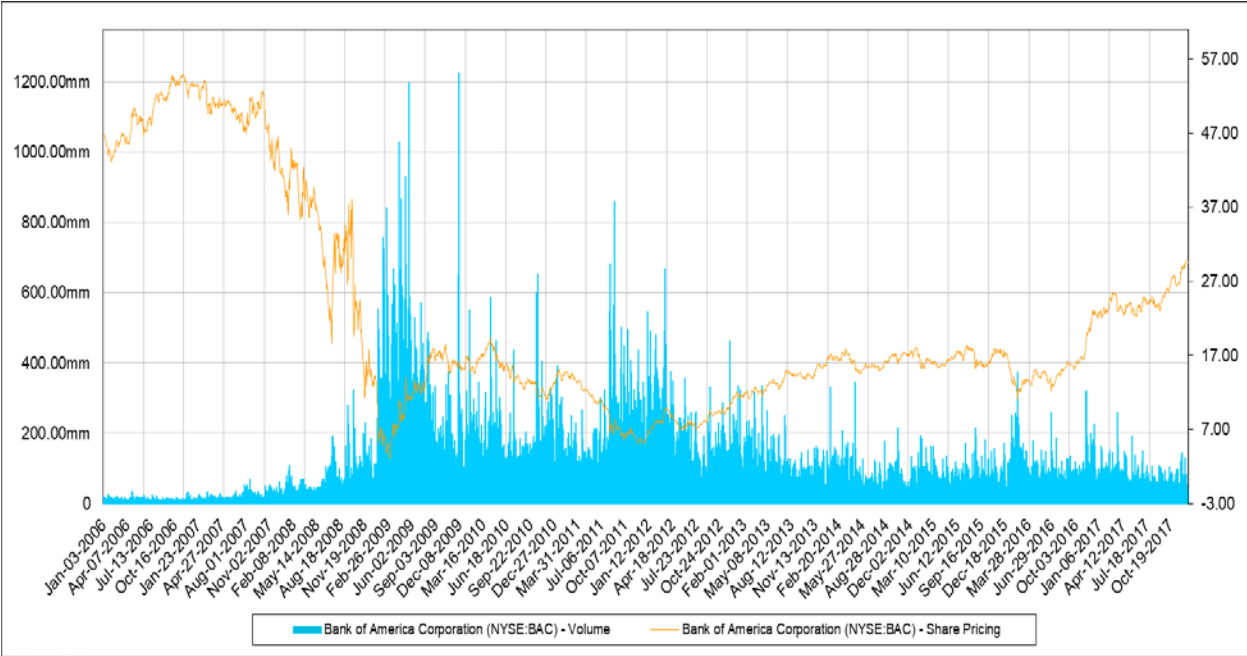


Figure 9. Stock Price and Volumes. This figure shows the stock price per share of Bank of America and its trading volumes from 2006 to 2017. *S&P Capital IQ (2018).*

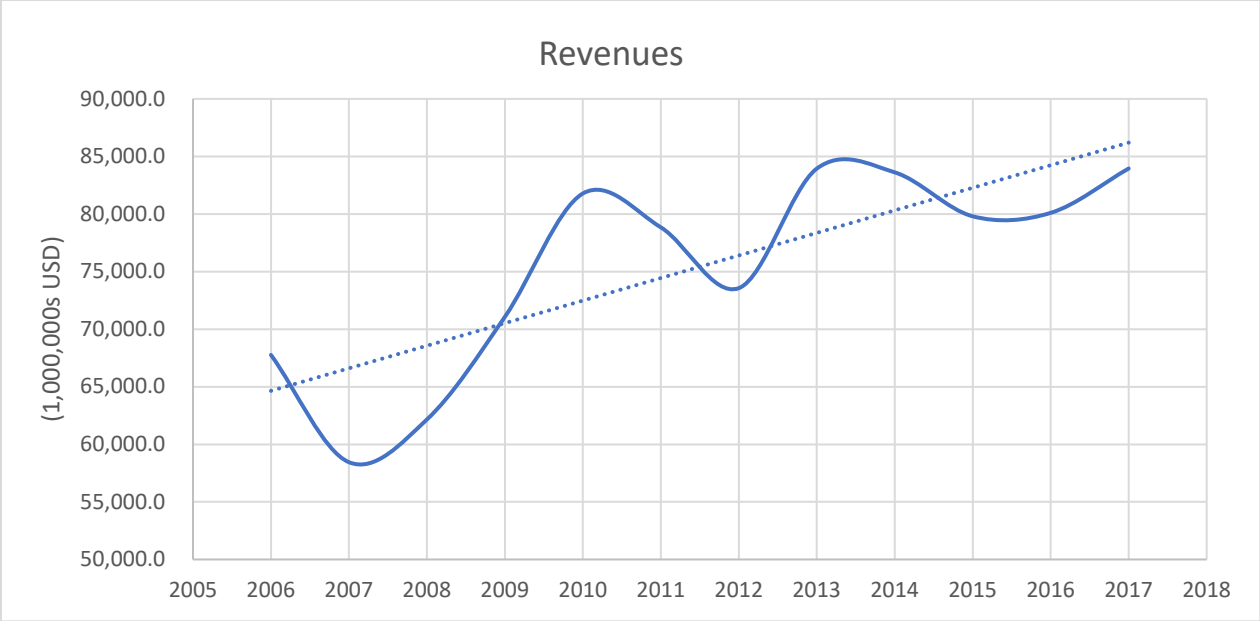


Figure 9. Revenues. This figure shows Bank of America’s revenues from 2006 to 2017.

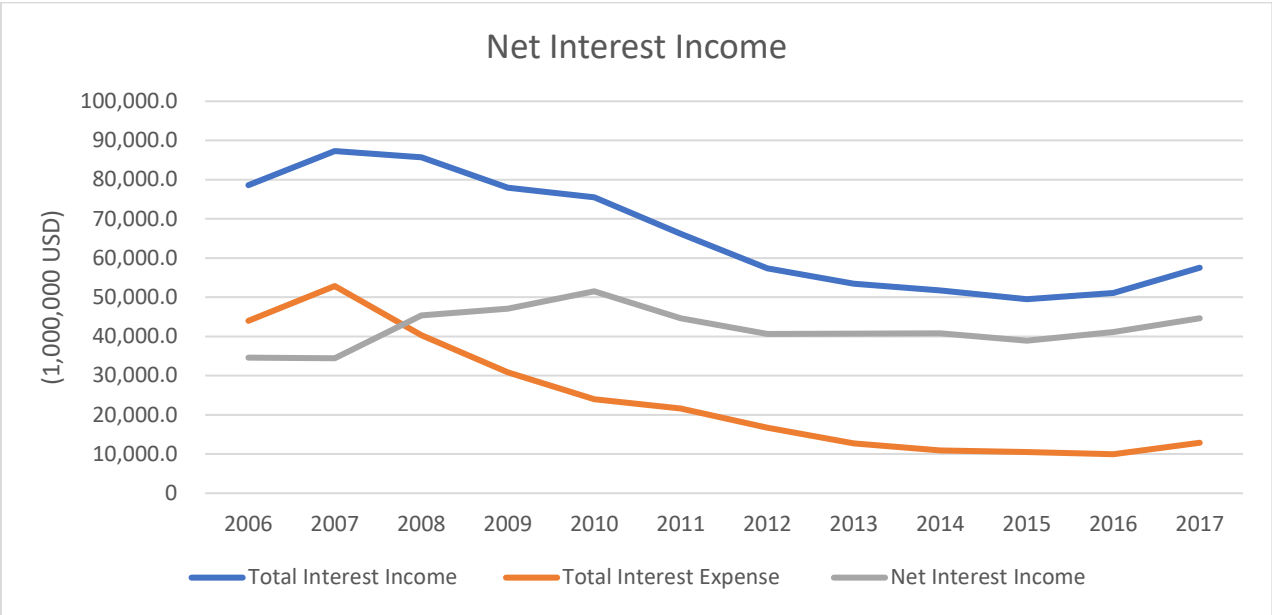


Figure 10. Net Interest Income. This figure shows shows a comparison of total interest income, total interest expense, and net interest income for Bank of America from 2006 to 2017.

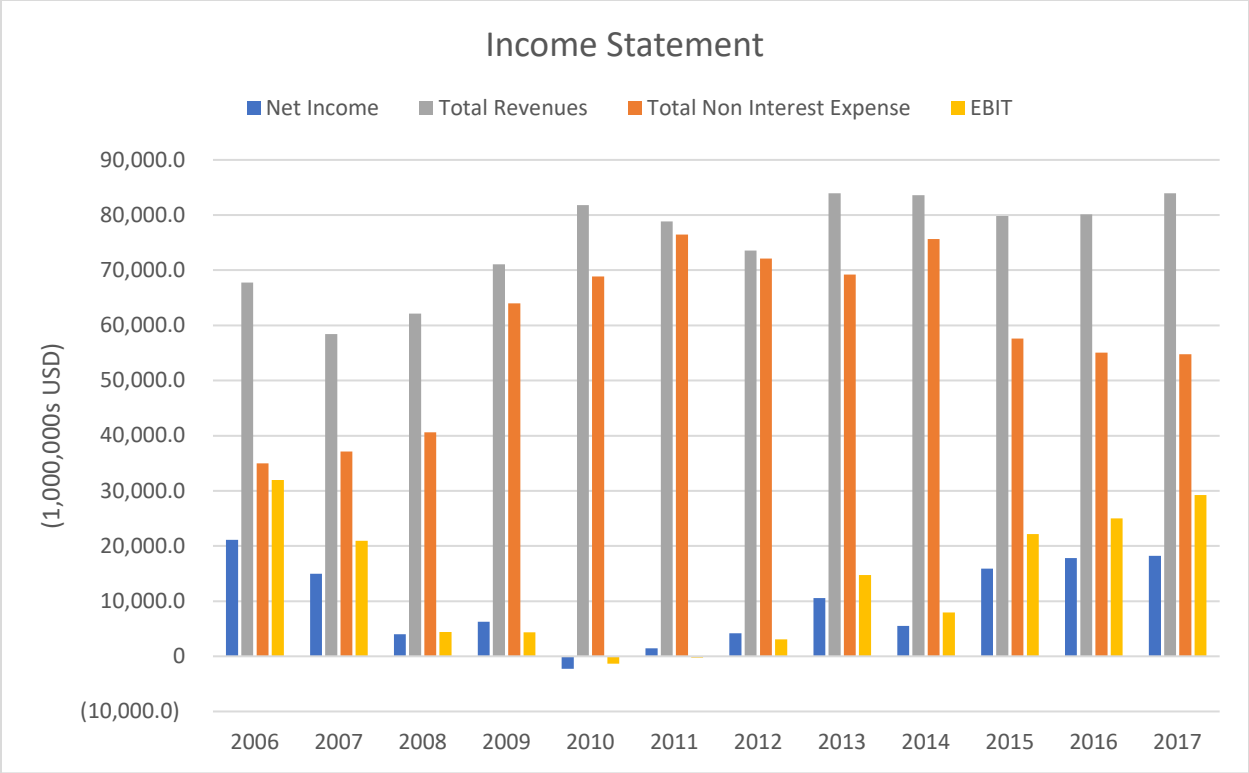


Figure 11. Income Statement. This figure shows a comparison of net income, total revenues, total non-interest expense, and earnings before taxes for Bank of America from 2006 to 2017.

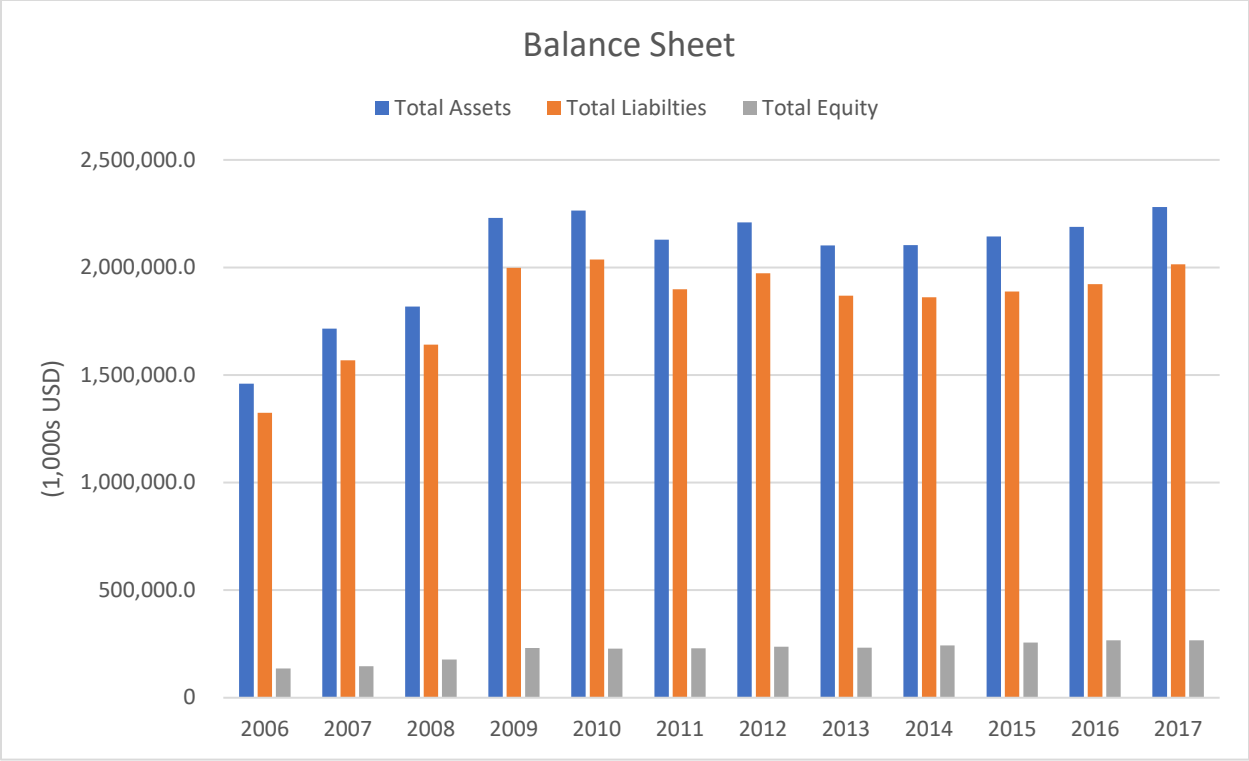


Figure 12. Balance Sheet. This figure shows a comparison of total assets, total liabilities, and total equity for Bank of America from 2006 to 2017.

Appendix 1. Revenues for 2006-2017.

Revenues

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Interest Income On Loans	48,274.0	55,681.0	56,017.0	48,703.0	50,996.0	44,966.0	38,880.0	36,470.0	34,145.0	31,918.0	33,228.0	36,221.0
Interest Income On Investments	30,311.0	31,623.0	29,667.0	29,213.0	24,501.0	21,270.0	18,520.0	17,004.0	17,569.0	17,589.0	17,829.0	21,358.0
Total Interest Income	78,585.0	87,304.0	85,684.0	77,916.0	75,497.0	66,236.0	57,400.0	53,474.0	51,714.0	49,507.0	51,057.0	57,579.0
Interest On Deposits	14,480.0	18,093.0	15,290.0	7,807.0	3,997.0	3,002.0	1,990.0	1,396.0	1,080.0	861.0	1,015.0	1,931.0
Total Interest On Borrowings	29,511.0	34,770.0	25,074.0	23,000.0	19,977.0	18,618.0	14,754.0	11,359.0	9,855.0	9,688.0	8,946.0	10,981.0
Total Interest Expense	43,991.0	52,863.0	40,324.0	30,807.0	23,974.0	21,620.0	16,744.0	12,755.0	10,935.0	10,549.0	9,961.0	12,912.0
Net Interest Income	34,594.0	34,441.0	45,360.0	47,109.0	51,523.0	44,616.0	40,656.0	40,719.0	40,779.0	38,958.0	41,096.0	44,667.0
Service Charges On Deposits	8,224.0	8,908.0	10,316.0	11,038.0	9,390.0	8,094.0	7,600.0	7,390.0	7,443.0	7,381.0	7,638.0	7,818.0
Trust Income	4,456.0	5,147.0	4,972.0	11,919.0	11,622.0	11,826.0	11,393.0	12,282.0	13,284.0	13,337.0	12,745.0	13,281.0
Credit Card Fee	14,290.0	14,077.0	13,314.0	8,353.0	8,108.0	7,184.0	6,121.0	5,826.0	5,944.0	5,959.0	5,851.0	5,902.0
Total Mortgage Banking Activities	541.0	902.0	4,087.0	8,791.0	2,734.0	(8,830.0)	4,750.0	3,874.0	1,563.0	2,364.0	1,853.0	224.0
Income From Trading Activities	3,358.0	(4,889.0)	(5,911.0)	12,235.0	10,054.0	6,697.0	5,870.0	7,056.0	6,309.0	6,473.0	6,902.0	7,277.0
Gain (Loss) On Sale Of Assets (Rev)	720.0	1,500.0	-	-	-	-	-	-	-	123.0	-	793.0
Gain on Sale of Invest. & Secur (Rev)	(443.0)	(218.0)	(2,337.0)	389.0	739.0	2,939.0	1,673.0	1,360.0	1,465.0	1,057.0	394.0	(538.0)
Income (Loss) On Equity Invest. (Rev)	3,189.0	4,064.0	539.0	10,014.0	5,260.0	7,360.0	2,070.0	2,901.0	-	-	-	-
Total Other Non-Interest Income	3,847.0	2,901.0	2,442.0	9,795.0	10,790.0	12,368.0	1,601.0	6,094.0	9,107.0	7,313.0	7,222.0	7,928.0
Non-Oper. Income (Exp.)	-	-	-	-	-	-	-	-	-	-	-	-
Total Non Interest Income	38,182.0	32,392.0	27,422.0	72,534.0	58,697.0	47,638.0	41,078.0	46,783.0	45,115.0	44,007.0	42,605.0	42,685.0
Revenue Before Loan Losses	72,776.0	66,833.0	72,782.0	119,643.0	110,220.0	92,254.0	81,734.0	87,502.0	85,894.0	82,965.0	83,701.0	87,352.0
Provision For Loan Losses	5,010.0	8,385.0	10,625.0	48,570.0	28,435.0	13,410.0	8,169.0	3,556.0	2,275.0	3,161.0	3,597.0	3,396.0
Total Revenue	67,766.0	58,448.0	62,157.0	71,073.0	81,785.0	78,844.0	73,565.0	83,946.0	83,619.0	79,804.0	80,104.0	83,956.0

Income Statement Common Size

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Interest Income On Loans	71%	71%	95%	90%	69%	62%	53%	43%	41%	41%	40%	41%
Interest Income On Investments	45%	45%	54%	48%	41%	30%	27%	20%	22%	22%	22%	25%
Total Interest Income	116%	116%	149%	138%	110%	92%	78%	64%	63%	63%	62%	64%
Interest On Deposits	21%	31%	31%	25%	11%	5%	4%	2%	1%	1%	1%	2%
Total Interest On Borrowings	44%	59%	59%	40%	32%	24%	20%	14%	12%	12%	12%	13%
Total Interest Expense	65%	90%	90%	65%	43%	29%	23%	15%	13%	13%	13%	15%
Net Interest Income	51%	59%	59%	73%	66%	63%	55%	49%	48%	49%	49%	53%
Service Charges On Deposits	12%	15%	15%	17%	16%	11%	10%	9%	9%	9%	9%	9%
Trust Income	7%	9%	9%	8%	17%	14%	15%	15%	16%	17%	17%	16%
Credit Card Fee	21%	24%	24%	21%	12%	10%	9%	7%	7%	7%	7%	7%
Total Mortgage Banking Activities	1%	1%	2%	7%	12%	3%	-11%	5%	2%	3%	3%	0%
Income From Trading Activities	5%	5%	-8%	-10%	17%	12%	8%	8%	8%	8%	8%	9%
Gain (Loss) On Sale Of Assets (Rev)	1%	1%	3%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Gain on Sale of Invest. & Secur (Rev)	-1%	0%	0%	-4%	1%	1%	4%	2%	2%	2%	1%	-1%
Income (Loss) On Equity Invest. (Rev)	5%	5%	7%	1%	14%	6%	9%	3%	0%	0%	0%	0%
Total Other Non-Interest Income	6%	6%	5%	4%	14%	13%	2%	7%	11%	9%	9%	9%
Non-Oper. Income (Exp.)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Non-Interest Income	56%	55%	44%	44%	72%	60%	56%	56%	54%	53%	55%	51%
Revenue Before Loan Losses	107%	114%	114%	117%	168%	135%	111%	104%	103%	104%	104%	104%
Provision For Loan Losses	7%	14%	14%	17%	68%	35%	11%	4%	3%	3%	4%	4%
Total Revenue	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Salaries and Other Empl. Benefits	25%	25%	30%	28%	41%	41%	44%	39%	38%	38%	41%	37%
Amort. of Goodwill & Intang. Assets	3%	3%	3%	3%	3%	2%	2%	1%	1%	1%	0%	0%
Selling General & Admin Exp., Total	17%	17%	21%	22%	25%	22%	25%	22%	21%	21%	18%	18%
Total Other Non-Interest Expense	7%	10%	10%	12%	21%	20%	27%	21%	22%	13%	13%	12%
Total Non-Interest Expense	52%	63%	63%	65%	90%	84%	95%	82%	80%	72%	69%	65%
EBT Excl. Unusual Items	48%	37%	37%	35%	10%	16%	2%	18%	10%	28%	31%	35%
Total Merger & Rel. Restruct. Charges	-1%	-1%	-1%	-2%	-4%	-2%	-1%	0%	0%	0%	0%	0%
Impairment of Goodwill	0%	0%	0%	0%	0%	-15%	-4%	0%	0%	0%	0%	0%
Asset Write-down	0%	0%	0%	-26%	0%	0%	0%	0%	0%	0%	0%	0%
Other Unusual Items	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%
EBT Incl. Unusual Items	47%	36%	36%	7%	6%	-2%	4%	-1%	10%	28%	31%	35%
Income Tax Expense	16%	10%	10%	1%	-3%	1%	-2%	0%	0%	0%	0%	0%
Earnings from Cont. Ops.	31%	26%	26%	6%	9%	-3%	6%	13%	7%	20%	22%	22%
Earnings of Discontinued Ops.	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extraord. Item & Account. Change	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Net Income to Company	31%	26%	26%	6%	9%	-3%	6%	13%	7%	20%	22%	22%
Minority Int. in Earnings	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Net Income	31%	26%	26%	6%	9%	-3%	6%	13%	7%	20%	22%	22%

Indexed Income Statement

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Interest Income On Loans	100%	115%	116%	116%	101%	106%	93%	81%	76%	71%	66%	69%
Interest Income On Investments	100%	104%	98%	98%	96%	81%	70%	61%	56%	58%	58%	75%
Total Interest Income	100%	111%	105%	105%	99%	84%	84%	73%	66%	63%	63%	73%
Interest On Deposits	100%	125%	105%	28%	21%	21%	7%	14%	10%	7%	6%	13%
Total Interest On Borrowings	100%	118%	85%	68%	78%	63%	36%	50%	36%	33%	30%	37%
Total Interest Expense	100%	120%	92%	92%	70%	49%	25%	38%	25%	24%	23%	29%
Net Interest Income	100%	100%	131%	149%	136%	129%	118%	118%	118%	113%	119%	129%
Service Charges On Deposits	100%	108%	125%	125%	134%	88%	92%	92%	90%	90%	90%	95%
Trust Income	100%	116%	112%	112%	267%	261%	265%	256%	276%	298%	286%	298%
Credit Card Fee	100%	99%	93%	93%	58%	57%	50%	43%	41%	42%	42%	41%
Total Mortgage Banking Activities	100%	167%	167%	167%	1625%	505%	878%	716%	289%	437%	343%	41%
Income From Trading Activities	100%	208%	-176%	299%	364%	199%	210%	175%	188%	193%	206%	217%
Gain (Loss) On Sale Of Assets (Rev)	100%	208%	0%	0%	0%	0%	0%	0%	0%	0%	17%	110%
Gain on Sale of Invest. & Secur (Rev)	100%	49%	528%	167%	-88%	-663%	-378%	-307%	-331%	-239%	-89%	121%
Income (Loss) On Equity Invest. (Rev)	100%	127%	17%	314%	314%	91%	91%	91%	0%	0%	0%	0%
Total Other Non-Interest Income	100%	75%	63%	280%	255%	321%	42%	0%	158%	190%	188%	206%
Non-Oper. Income (Exp.)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Non-Interest Income	100%	85%	72%	154%	190%	125%	108%	108%	118%	115%	112%	112%
Revenue Before Loan Losses	100%	92%	100%	151%	164%	127%	127%	120%	118%	114%	114%	120%
Provision For Loan Losses	100%	167%	212%	568%	969%	268%	163%	71%	45%	63%	72%	68%
Total Revenue	100%	86%	92%	121%	105%	116%	109%	124%	123%	118%	118%	124%
Salaries and Other Empl. Benefits	100%	102%	102%	102%	169%	193%	200%	188%	183%	191%	172%	171%
Amort. of Goodwill & Intang. Assets	100%	95%	105%	113%	113%	99%	86%	62%	53%	0%	0%	0%
Selling General & Admin Exp., Total	100%	108%	123%	158%	159%	173%	171%	163%	155%	125%	138%	137%
Total Other Non-Interest Expense	100%	120%	157%	314%	314%	442%	383%	362%	541%	224%	208%	208%
Total Non-Interest Expense	100%	106%	116%	197%	183%	219%	206%	195%	216%	165%	157%	156%
EBT Excl. Unusual Items	100%	65%	66%	39%	22%	7%	4%	4%	24%	68%	76%	89%
Total Merger & Rel. Restruct. Charges	100%	51%	116%	226%	338%	79%	0%	0%	0%	0%	0%	0%
Impairment of Goodwill	0%	0%	0%	0%	0%	26%	0%	0%	0%	0%	0%	0%
Asset Writedown	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other Unusual Items	0%	0%	0%	0%	0%	100%	133%	0%	0%	0%	0%	0%
EBT Incl. Unusual Items	100%	65%	14%	-4%	14%	-1%	10%	46%	25%	69%	78%	91%
Income Tax Expense	100%	55%	4%	8%	-18%	-15%	-10%	39%	23%	58%	66%	101%
Earnings from Cont. Ops.	100%	71%	19%	-11%	30%	7%	20%	50%	26%	75%	84%	86%
Earnings of Discontinued Ops.	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extraord. Item & Account. Change	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Net Income to Company	100%	71%	19%	-11%	30%	7%	20%	50%	26%	75%	84%	86%
Minority Int. in Earnings	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Net Income	100%	71%	19%	-11%	30%	7%	20%	50%	26%	75%	84%	86%

Balance Sheet Common Size

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
ASSETS												
Cash And Equivalents	12%	10%	6%	6%	14%	14%	16%	5%	6%	7%	7%	7%
Investment Securities	4%	5%	5%	5%	6%	6%	5%	15%	14%	17%	29%	20%
Trading Asset Securities	12%	11%	11%	11%	12%	12%	8%	7%	7%	6%	5%	6%
Mortgage Backed Securities	11%	10%	13%	10%	10%	11%	10%	10%	10%	12%	0%	10%
Total Investments	26%	26%	28%	29%	29%	23%	34%	34%	31%	34%	35%	35%
Gross Loans	48%	51%	51%	40%	42%	44%	44%	41%	44%	42%	41%	41%
Allowance For Loan Losses	-1%	-1%	-1%	-2%	-2%	-2%	-2%	-1%	-1%	-1%	-1%	-1%
Net Loans	48%	50%	50%	39%	40%	42%	40%	41%	43%	41%	41%	41%
Net Property, Plant & Equipment	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
Goodwill	4%	5%	5%	4%	3%	3%	3%	3%	3%	3%	3%	3%
Other Intangibles	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Loans Held For Sale	0%	2%	2%	2%	1%	1%	1%	1%	1%	0%	0%	1%
Other Receivables	0%	0%	0%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Other Current Assets	0%	0%	0%	0%	0%	4%	5%	5%	5%	5%	5%	5%
Deferred Tax Assets, LT	0%	0%	0%	0%	1%	2%	1%	1%	2%	1%	1%	1%
Other Real Estate Owned And Foreclosed	8%	6%	6%	8%	0%	0%	0%	0%	0%	0%	0%	0%
Other Long-Term Assets	0%	6%	6%	6%	6%	7%	5%	5%	4%	4%	5%	5%
Total Assets	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LIABILITIES												
Accrued Exp.	3%	3%	2%	2%	5%	5%	5%	6%	6%	5%	6%	5%
Interest Bearing Deposits	25%	24%	24%	25%	27%	29%	30%	32%	32%	34%	35%	36%
Institutional Deposits	9%	12%	12%	4%	4%	4%	3%	3%	2%	2%	2%	2%
Non-Interest Bearing Deposits	13%	11%	12%	12%	13%	16%	17%	18%	19%	20%	21%	19%
Total Deposits	48%	47%	49%	44%	45%	49%	50%	53%	53%	56%	58%	57%
Short-Term Borrowings	26%	25%	22%	17%	16%	15%	17%	13%	13%	11%	11%	11%
Curr. Port. of LT Debt	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Long-Term Debt	9%	10%	11%	16%	17%	16%	12%	11%	11%	10%	10%	8%
Federal Home Loan Bank Debt - LT	0%	1%	3%	2%	2%	1%	1%	0%	0%	0%	0%	0%
Trust Pref. Securities	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Other Current Liabilities	5%	5%	3%	3%	3%	3%	3%	4%	4%	4%	4%	5%
Unearned Revenue, Non-Current	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pension & Other Post-Retire. Benefits	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other Non-Current Liabilities	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Liabilities	91%	91%	90%	90%	90%	89%	89%	88%	88%	88%	88%	88%
Prof. Stock, Redeemable	0%	0%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%
Prof. Stock, Convertible	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Prof. Equity	0%	0%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%
Common Stock	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Additional Paid In Capital	4%	4%	4%	6%	7%	7%	7%	7%	7%	7%	7%	6%
Retained Earnings	5%	5%	4%	3%	3%	3%	4%	4%	4%	4%	5%	5%
Treasury Stock	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Comprehensive Inc. and Other	-1%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Common Equity	9%	8%	8%	9%	10%	10%	11%	10%	11%	11%	11%	11%
Total Equity	9%	9%	10%	10%	11%	11%	11%	11%	12%	12%	12%	12%
Total Liabilities And Equity	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Indexed Balance Sheet

ASSETS												
Cash And Equivalents	100%	100%	67%	181%	185%	193%	65%	76%	81%	93%	86%	92%
Investment Securities	100%	159%	160%	250%	254%	207%	617%	555%	692%	688%	1202%	848%
Trading Asset Securities	100%	111%	111%	153%	152%	92%	92%	77%	76%	67%	66%	80%
Mortgage Backed Securities	100%	104%	146%	149%	165%	132%	161%	136%	132%	162%	2%	139%
Total Investments	100%	115%	132%	165%	171%	124%	193%	167%	183%	188%	196%	210%
Gross Loans	100%	124%	132%	127%	133%	131%	128%	124%	124%	127%	128%	133%
Allowance For Loan Losses	100%	129%	266%	413%	465%	375%	268%	193%	160%	136%	125%	115%
Net Loans	100%	124%	130%	124%	129%	126%	127%	131%	124%	127%	126%	133%
Net Property, Plant & Equipment												
Goodwill	100%	118%	125%	112%	112%	107%	107%	113%	109%	102%	99%	100%
Other Intangibles	100%	109%	91%	131%	112%	107%	107%	106%	106%	106%	105%	105%
Loans Held For Sale	100%	43030%	39318%	54843%	43823%	17203%	24266%	14203%	16045%	9316%	11333%	14288%
Other Receivables	0%	0%	100%	218%	228%	178%	190%	158%	164%	155%	156%	164%
Other Current Assets	0%	0%	0%	0%	0%	100%	145%	140%	138%	135%	146%	133%
Deferred Tax Assets, LT	0%	0%	0%	0%	100%	118%	122%	120%	104%	91%	72%	47%
Other Real Estate Owned And Foreclosed	100%	468%	2553%	2420%	2117%	3375%	1102%	903%	1068%	778%	639%	488%
Other Long-Term Assets	100%	84%	91%	149%	118%	116%	117%	95%	82%	76%	87%	96%
Total Assets	100%	118%	129%	153%	159%	146%	151%	144%	144%	147%	150%	156%
LIABILITIES												
Accrued Exp.	100%	126%	92%	289%	324%	247%	300%	285%	282%	282%	304%	298%
Interest Bearing Deposits	100%	110%	119%	148%	166%	164%	176%	181%	181%	194%	205%	222%
Institutional Deposits	100%	149%	163%	122%	74%	47%	52%	47%	34%	31%	35%	30%
Non-Interest Bearing Deposits	100%	104%	118%	149%	158%	183%	206%	206%	217%	234%	244%	241%
Total Deposits	100%	116%	127%	143%	146%	149%	159%	161%	161%	173%	182%	189%
Short-Term Borrowings	100%	116%	105%	100%	96%	83%	99%	75%	74%	64%	62%	65%
Curr. Port. of LT Debt	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Long-Term Debt	100%	130%	153%	282%	300%	262%	203%	185%	175%	175%	166%	140%
Federal Home Loan Bank Debt - LT	100%	1061%	4853%	5093%	3883%	1780%	589%	421%	1012%	584%	15%	202%
Trust Pref. Securities	100%	118%	126%	137%	137%	106%	51%	46%	46%	35%	23%	23%
Other Current Liabilities	100%	114%	76%	97%	106%	89%	109%	123%	127%	119%	114%	154%
Unearned Revenue, Non-Current	0%	0%	0%	0%	0%	0%	100%	90%	86%	86%	81%	76%
Pension & Other Post-Retire. Benefits	0%	0%	100%	111%	116%	117%	118%	104%	110%	100%	100%	87%
Other Non-Current Liabilities	100%	297%	383%	1123%	1588%	4297%	5053%	3557%	3278%	3181%	825%	710%
Total Liabilities	100%	118%	124%	151%	154%	143%	149%	141%	141%	143%	145%	152%
Pref. Stock, Redeemable	0%	100%	855%	844%	376%	417%	426%	303%	438%	505%	572%	506%
Pref. Stock, Convertible	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Pref. Equity	100%	155%	1322%	1305%	581%	645%	658%	468%	677%	781%	885%	783%
Common Stock	100%	98%	125%	209%	245%	254%	257%	252%	249%	245%	239%	224%
Additional Paid In Capital	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Retained Earnings	100%	103%	93%	90%	77%	77%	80%	92%	95%	112%	128%	144%
Treasury Stock	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Comprehensive Inc. and Other	100%	-8%	137%	70%	1%	66%	34%	103%	49%	66%	89%	87%
Total Common Equity	100%	108%	105%	147%	160%	160%	165%	166%	169%	177%	182%	185%
Total Equity	100%	109%	131%	171%	169%	170%	175%	172%	180%	189%	197%	197%
Total Liabilities And Equity	100%	118%	125%	153%	155%	146%	151%	144%	144%	147%	150%	156%

Appendix 8. Historical Statement of Cash Flows from 2006-2017.

Cash Flow	12 months Dec-31-2006		12 months Dec-31-2007		12 months Dec-31-2008		12 months Dec-31-2009		Restated 12 months Dec-31-2010		Restated 12 months Dec-31-2011		Restated 12 months Dec-31-2012		Restated 12 months Dec-31-2013		Restated 12 months Dec-31-2014		Restated 12 months Dec-31-2015		Restated 12 months Dec-31-2016	
	USD		USD		USD		USD		USD		USD		USD		USD		USD		USD		USD	
	USD		USD		USD		USD		USD		USD		USD		USD		USD		USD		USD	
Net Income	21,133.0	14,982.0	4,008.0	6,276.0	4,188.0	4,188.0	10,539.0	10,539.0	5,200.0	15,910.0	15,910.0	17,822.0	18,232.0									
Depreciation & Amort.	1,114.0	1,485.0	2,336.0	2,181.0	1,774.0	1,597.0	1,597.0	1,597.0	1,597.0	1,597.0	1,511.0	1,511.0										
Amort. of Goodwill and Intangibles	1,755.0	1,834.0	1,678.0	1,978.0	1,678.0	1,731.0	1,866.0	1,866.0	1,866.0	1,834.0	1,730.0	621.0										
Depreciation & Amort., Total	2,869.0	3,319.0	3,319.0	4,314.0	3,319.0	3,465.0	2,869.0	2,869.0	2,869.0	2,869.0	2,869.0	2,241.0	2,103.0									
(Gain)/Loss On Sale Of Invest. Asset/Writeoff	443.0	(180.0)	(1,124.0)	(4,723.0)	(1,328.0)	1,743.0	1,743.0	219.0	219.0	1,475.0	2,644.0	1,996.0										
Provision for Credit Losses	5,010.0	8,385.0	26,825.0	48,570.0	8,189.0	3,556.0	3,556.0	2,275.0	2,275.0	3,161.0	3,597.0	3,396.0										
Stock-Bases Compensation	-	-	-	-	-	363.0	363.0	78.0	78.0	(89.0)	1,387.0	1,849.0										
Net (Increase)/Decrease in Loans Orig/Sold	(16,423.0)	(19,773.0)	(32,249.0)	71,774.0	40,057.0	23,694.0	(4,723.0)	12,019.0	(830.0)	(1,739.0)	(3,447.0)	(9,475.0)										
Change in Other Net Operating Assets	1,477.0	4,788.0	3,255.0	4,788.0	2,501.0	(8,985.0)	7,323.0	54,785.0	21,462.0	5,925.0	(14,703.0)	(29,125.0)										
Other Operating Activities	14,599.0	11,036.0	4,034.0	129,731.0	82,541.0	64,448.0	92,817.0	28,397.0	30,795.0	28,397.0	18,361.0	10,403.0										
Cash from Ops.	(748.0)	(2,143.0)	(2,098.0)	(2,240.0)	(987.0)	(1,307.0)	-	-	-	-	-	-										
Capital Expenditures	(2,388.0)	(19,816.0)	6,850.0	31,804.0	2,807.0	-	-	-	-	-	-	-										
Cash Acquisitions	31,912.0	21,831.0	(35,088.0)	56,997.0	(19,631.0)	57,316.0	(23,938.0)	34,609.0	(41,577.0)	(12,998.0)	(32,261.0)	(9,475.0)										
Disposals	(107,967.0)	(119,790.0)	(17,119.0)	28,849.0	5,496.0	(3,650.0)	(4,784.0)	(38,659.0)	37,316.0	(42,208.0)	(25,247.0)	(36,188.0)										
Net (Increase)/Decrease in Loans Orig/Sold	10,887.0	11,458.0	44,725.0	(48,032.0)	70.0	-	(6,262.0)	29,108.0	(3,999.0)	(665.0)	(5,635.0)	(6,343.0)										
Deferred Charges	(68,304.0)	(108,480.0)	(2,530.0)	157,925.0	(30,347.0)	52,429.0	(34,979.0)	25,058.0	(8,260.0)	(95,871.0)	(63,143.0)	(52,007.0)										
Total Other Investing Activities	23,709.0	32,840.0	43,782.0	67,744.0	52,215.0	26,001.0	16,009.0	16,009.0	3,171.0	43,670.0	35,537.0	15,562.0										
Short Term Debt Issued	49,494.0	67,570.0	43,782.0	67,570.0	22,209.0	45,658.0	45,658.0	51,573.0	51,573.0	43,670.0	35,537.0	53,495.0										
Long-Term Debt Issued	73,173.0	100,210.0	43,782.0	67,744.0	52,215.0	26,001.0	100,595.0	61,687.0	84,744.0	43,670.0	35,537.0	69,046.0										
Total Debt Issued	122,667.0	167,780.0	87,564.0	135,314.0	104,814.0	(54,759.0)	146,254.0	167,342.0	136,268.0	87,340.0	79,167.0	122,541.0										
Short Term Debt Repaid	(40,222.0)	(28,942.0)	(67,852.0)	(189,419.0)	(4,1524.0)	(54,759.0)	(5,017.0)	(6,153.0)	(14,527.0)	(30,060.0)	(30,144.0)	(48,553.0)										
Long-Term Debt Repaid	(40,222.0)	(28,942.0)	(67,852.0)	(189,419.0)	(4,1524.0)	(54,759.0)	(5,017.0)	(6,153.0)	(14,527.0)	(30,060.0)	(30,144.0)	(48,553.0)										
Total Debt Repaid	(80,444.0)	(57,884.0)	(135,704.0)	(378,838.0)	(8,306.0)	(109,518.0)	(124,389.0)	(124,389.0)	(29,054.0)	(64,627.0)	(60,284.0)	(97,107.0)										
Issuance of Common Stock	3,117.0	1,180.0	10,127.0	13,468.0	-	-	-	-	-	-	-	-										
Repurchase of Common Stock	(14,359.0)	(3,790.0)	-	49,244.0	34,742.0	2,900.0	2,900.0	(3,220.0)	(1,675.0)	(2,374.0)	(5,112.0)	(12,814.0)										
Issuance of Pref. Stock	2,850.0	1,556.0	-	49,244.0	34,742.0	2,900.0	2,900.0	1,008.0	5,957.0	2,964.0	2,947.0	-										
Repurchase of Preferred Stock	(270.0)	-	-	(45,000.0)	-	-	(6,461.0)	-	-	-	-	-										
Common Dividends Paid	(9,639.0)	(10,686.0)	(10,256.0)	(328.0)	(405.0)	(413.0)	(428.0)	(428.0)	(1,262.0)	(2,091.0)	-	-										
Pref. Dividends Paid	(22.0)	(82.0)	(1,272.0)	(4,537.0)	(1,357.0)	(1,325.0)	(1,472.0)	(1,249.0)	(1,044.0)	(1,463.0)	-	-										
Total Dividends Paid	(9,661.0)	(10,878.0)	(11,528.0)	(4,865.0)	(1,762.0)	(1,738.0)	(1,909.0)	(1,677.0)	(2,306.0)	(3,574.0)	(4,194.0)	(5,700.0)										
Net Incr. (Decr.) in Deposit Accounts	38,340.0	45,368.0	14,830.0	10,507.0	36,598.0	22,611.0	14,010.0	14,010.0	(335.0)	78,347.0	63,675.0	48,611.0										
Special Dividend Paid	165.0	216.0	(14.0)	(42.0)	58.0	2,145.0	(14.0)	(14.0)	(10.0)	(73.0)	(63.0)	(397.0)										
Other Financing Activities	53,133.0	103,412.0	(10,695.0)	(199,568.0)	(65,334.0)	(104,654.0)	42,416.0	(95,442.0)	(12,201.0)	48,535.0	32,927.0	49,195.0										
Cash from Financing	92.0	134.0	(65.0)	394.0	228.0	(546.0)	(731.0)	(1,863.0)	(3,067.0)	(697.0)	240.0	2,105.0										
Foreign Exchange Rate Adj.	(570.0)	6,102.0	(9,674.0)	88,482.0	(12,912.0)	11,675.0	(9,350.0)	20,570.0	7,267.0	(20,764.0)	(11,615.0)	9,696.0										
Net Change in Cash	(570.0)	6,102.0	(9,674.0)	88,482.0	(12,912.0)	11,675.0	(9,350.0)	20,570.0	7,267.0	(20,764.0)	(11,615.0)	9,696.0										

Appendix 9. Ratios from 2006-2017.

Ratios For the Fiscal Period Ending	12 months											
	Dec-31-2006	Dec-31-2007	Dec-31-2008	Dec-31-2009	Dec-31-2010	Dec-31-2011	Dec-31-2012	Dec-31-2013	Dec-31-2014	Dec-31-2015	Dec-31-2016	Dec-31-2017
Profitability												
Return on Assets %	1.5%	0.9%	0.2%	0.3%	(0.1%)	0.1%	0.2%	0.5%	0.3%	0.7%	0.8%	0.8%
Return on Equity %	17.8%	10.6%	2.5%	3.1%	(1.0%)	0.6%	1.8%	4.5%	2.3%	6.4%	6.8%	6.8%
Return on Common Equity %	18.1%	10.7%	1.8%	(1.3%)	(1.8%)	0.0%	1.3%	4.2%	2.0%	6.3%	6.8%	6.8%
Shareholders Value Added	9,370.1	425.4	(10,478.3)	(10,060.6)	(23,724.8)	(22,049.7)	(20,341.5)	(14,626.3)	(20,154.0)	(10,740.2)	(9,940.7)	(10,294.9)
Marginal Analysis												
SG&A Margin %	42.0%	50.8%	50.3%	66.2%	62.3%	68.3%	71.4%	60.5%	58.5%	56.8%	56.2%	53.4%
Net Interest Income / Total Revenue %	51.0%	58.9%	73.0%	66.3%	63.0%	56.6%	55.3%	48.5%	48.8%	48.8%	51.3%	53.2%
EBT Margin %	48.4%	36.5%	34.7%	10.0%	15.8%	3.0%	2.0%	17.6%	9.5%	27.8%	31.2%	34.8%
Earnings from Cont. Ops Margin %	31.2%	25.6%	6.4%	8.8%	(2.7%)	1.8%	5.7%	12.6%	6.6%	19.9%	22.2%	21.7%
Net Income Margin %	31.2%	25.6%	6.4%	8.8%	(2.7%)	1.8%	5.7%	12.6%	6.6%	19.9%	22.2%	21.7%
Net Income Avail. for Common Margin %	31.2%	25.1%	4.0%	(3.1%)	(4.4%)	0.1%	3.7%	10.9%	5.4%	18.1%	20.1%	19.8%
Normalized Net Income Margin %	30.2%	22.8%	21.7%	6.2%	9.9%	1.9%	1.3%	11.0%	6.0%	17.4%	19.5%	21.7%
Asset quality												
Nonperforming Loans / Total Loans %	0.3%	0.7%	2.2%	4.4%	3.5%	2.9%	2.6%	2.0%	1.4%	1.1%	0.9%	0.7%
Nonperforming Assets / Total Assets %	0.1%	0.3%	1.1%	1.8%	1.5%	1.3%	1.1%	0.9%	0.6%	0.5%	0.4%	0.3%
Nonperforming Assets / Loans and OREO %	0.1%	0.4%	1.2%	1.9%	1.6%	1.4%	1.1%	0.9%	0.6%	0.5%	0.4%	0.3%
Nonperforming Assets / Equity %	1.4%	0.7%	2.4%	4.7%	3.7%	3.2%	2.7%	2.1%	1.5%	1.2%	0.9%	0.8%
Allow. for Credit Losses / Net Charge-offs %	198.6%	178.6%	142.1%	110.4%	122.0%	125.8%	136.4%	170.3%	277.7%	237.7%	270.1%	245.3%
Allow. for Credit Losses / Nonper. Loans %	462.9%	200.3%	112.9%	92.9%	126.2%	123.6%	102.0%	94.1%	114.0%	123.2%	139.7%	151.4%
Allow. for Credit Losses / Total Loans %	1.3%	1.3%	2.5%	4.1%	4.5%	3.6%	2.7%	1.9%	1.6%	1.4%	1.2%	1.1%
Net Charge-offs / Total Avg. Loans %	0.7%	0.8%	1.8%	3.6%	3.6%	2.2%	2.0%	1.1%	0.6%	0.6%	0.5%	0.5%
Prov. for Loan Losses / Net Charge-offs %	110.4%	129.4%	65.5%	144.2%	82.8%	64.4%	46.1%	34.8%	43.8%	61.4%	86.4%	81.1%
Earning Assets / Interest Bearing Liabilities %	115.2%	113.9%	111.8%	105.3%	109.8%	118.1%	131.7%	131.9%	135.7%	140.7%	143.3%	139.9%
Interest Income / Average Assets %	5.4%	5.4%	4.6%	3.2%	3.1%	2.9%	2.6%	2.5%	2.4%	2.3%	2.3%	2.5%
Interest Expense / Average Assets %	3.0%	3.3%	2.2%	1.3%	1.0%	0.9%	0.8%	0.6%	0.5%	0.5%	0.5%	0.6%
Net Interest Income / Average Assets %	2.4%	2.1%	2.5%	1.9%	2.1%	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%	2.0%
Non Interest Income / Average Assets %	2.6%	2.0%	1.5%	3.0%	2.4%	2.1%	1.9%	2.2%	2.1%	2.0%	1.9%	1.9%
Non Interest Expense / Average Assets %	2.4%	2.3%	2.2%	2.6%	2.8%	3.3%	3.3%	3.2%	3.5%	2.7%	2.5%	2.4%
Capital And Funding												
Avg. Common Equity / Avg. Assets %	8.5%	8.7%	8.0%	8.2%	9.0%	9.6%	9.9%	10.1%	10.5%	10.8%	11.0%	10.9%
Total Equity / Avg. Assets %	8.6%	8.9%	9.2%	10.1%	10.2%	10.4%	10.8%	10.9%	11.3%	11.8%	12.1%	11.9%
Total Equity + Allowance for Loan Losses / Total Loans %	20.4%	18.1%	21.5%	29.8%	28.7%	28.5%	28.8%	28.9%	29.4%	29.9%	30.6%	29.6%
Gross Loans / Total Deposits %	101.9%	108.8%	105.5%	90.8%	93.1%	89.7%	82.1%	82.9%	78.3%	74.9%	71.5%	71.5%
Net Loans / Total Deposits %	100.6%	107.4%	102.9%	87.0%	86.9%	86.4%	79.9%	81.4%	77.0%	73.9%	71.0%	70.7%
Tier 1 Capital Ratio %	8.6%	6.9%	9.2%	10.4%	11.2%	12.4%	12.9%	12.2%	NA	11.3%	12.4%	13.2%
Total Capital Ratio %	11.9%	11.0%	13.0%	14.7%	15.8%	16.8%	16.3%	15.1%	NA	14.3%	14.3%	15.1%
Core Tier 1 Capital Ratio %	NA	NA	4.8%	7.8%	8.6%	9.9%	11.1%	10.9%	NA	10.2%	11.8%	11.8%
Tier 2 Capital Ratio %	NA	NA	NA	4.3%	4.5%	4.4%	3.4%	3.0%	NA	1.9%	1.9%	1.9%
Equity Tier 1 Capital Ratio %	NA	NA	2.9%	5.6%	6.0%	6.6%	6.7%	7.5%	7.5%	7.8%	8.0%	7.9%
Coverage Ratio %	1,257.5%	542.5%	311.6%	NA	116.4%	92.1%	61.9%	47.6%	48.8%	50.5%	58.5%	67.3%
Leverage Ratio %	6.4%	5.0%	6.4%	6.9%	7.2%	7.5%	7.4%	7.7%	8.2%	8.6%	8.9%	8.6%
Interbank Ratio	-	-	39.9%	74.4%	85.4%	98.3%	75.0%	96.1%	95.3%	110.4%	116.4%	120.3%