****

**POLYTECHNIC UNIVERSITY OF THE PHILIPPINES  
COLLEGE OF SOCIAL SCIENCES AND DEVELOPMENT  
DEPARTMENT OF ECONOMICS  
Sta. Mesa, Manila**

In Partial Fulfillment of the Requirements for the Subject Economics of Money and Banking

**THE EFFECTS OF REQUIRED RESERVE RATIO OF UNIVERSAL/COMMERCIAL BANKS ON TOTAL RESOURCES OF UNIVERSAL/COMMERCIAL BANKS**

By:

Salonga, Gerard V.

Poco, Magnolia Pamela C.

Galita, JemmieAleinn M.

Soriano, Ray-Anne A.

Marinay, Joel Jr. A.

Cabrera, Mark Angelo T.

**CHAPTER 1**

**INTRODUCTION**

***INTRODUCTION OF THE STUDY:***

The BangkoSentralngPilipinas or BSP is the central monetary authority of the Republic of the Philippines. The BSP’s primary objective is to maintain price stability conducive to a balanced and sustainable economic growth. The BSP controls the Supply of Money in the Philippines. In order to control the volume of money created by the credit operations of the banking system, all banks operating in the Philippines shall be required to maintain reserves against their deposit liabilities

According to the Chapter IV, Article VII – BANK RESERVES, Reserve Requirements are set by the BangkoSentral ng Pilipinas to all banks operating in the Philippines. The required reserves of each bank shall be proportional to the volume of its deposit liabilities and shall ordinarily take the form of a deposit in the BangkoSentral. Reserve requirements shall be applied to all banks of the same category uniformly and without discrimination.Regular Reserves can be seen as Demand, Savings and Time Deposits rate.Reserve Requirements influences the country’s borrowing and interest rates

Total Resource of the Philippine Financial System contains the total assets of Universal/Commercial Banks (U/KBs), Thrift Banks (TBs), Rural Banks (RBs) and Non-Banks Financial Intermediaries (NBFIs) gross of provision for probable losses, accumulated bond discount and accumulated market gains/losses. Total Resource of Philippine Financial System are classified according to bank types.

The reserve requirements is implemented by the BSP so that banks reserves that can be used as a tool in monetary policy, influencing the country's borrowing and interest rates by changing the amount of funds available for banks to make loans with. It affects banks' transactions since the more required reserves the BSP imposed the banks will somehow have less funds for their transactions. Less transactions of banks, less earnings which makes up the total resources of banks. The required reserves shall at least be 25 percent in the form of deposit balances with the Bangko Sentral ng Pilipinas and 75 percent in the form of cash vaults.

For this paper, we focused with the Universal/Commercial Banks which makes up 90% of total banks resources. There are 38 Universal/Commercial Banks here in the Philippines, example are well known banks like Banco De Oro Unibank INC., Bank of The Philippine Islands, PNB, Metrobank and Landbank of the Philippines. It represents the largest single group, resource-wise, of financial institutions in the country.

In February of 2006, the BangkoSentral’s Monetary Board decided to approve three operational adjustments in the BSP’s reserve requirement policy. One of them is unification of the existing statutory reserve requirement and liquidity reserve requirement into a single set of reserve requirement. The Monetary Board expects that the rationalization of the reserve requirement policy will increase the effectiveness of reserve requirement as a monetary policy tool, simplify its implementation, and improve the monitoring of banks’ compliance. However, the Board also anticipates that the operational reforms may have some impact on banks’ intermediation costs.

The Monetary Board stressed that the operational changes will achieve the two-pronged objectives of simplifying the BSP’s reserve requirement regime and ensuring adequate liquidity in support of economic growth, especially given the prevailing weak global economic conditions. The Board noted that with the reduction in the reserve requirement ratio, the operational changes should not affect banks’ lending and deposit rates or their service fees. The said adjustment took effect in the reserve week on 6 April, 2012

***BACKGROUND OF THE STUDY:***

Over the course of the past 30 years, most central banks have shifted to the use of policy interest rates as their main instrument for monetary policy given their clarity in signaling the stance of monetary policy. Their use as the main policy instrument coincided with the shift away from monetary aggregate targeting among central banks to other monetary policy frameworks involving control over short-term interest rates.

By the 1990s, advanced economy central banks have relegated RRs to the status of secondary policy instruments. With notable exceptions (e.g., China), Asian central banks have also pared down their use of RRs. The diminished role of RRs has been attributed to the recognition that they serve as a tax on depository institutions and to their reduced effectiveness due to financial innovation.

For the BSP, the transition coincided with the reorganization of the old central bank, and this was reinforced further by the adoption of the inflation targeting framework beginning in 2002.

The use of policy rates by central banks reflects reliance on indirect means of monetary control consistent with increased financial development. Indirect monetary policy instruments promote the role of market forces in mobilizing and allocating financial resources. Open-market type operations, with the policy rate as the price signal, make possible the redistribution of liquidity among participants/counterparties through the market mechanism, allowing the central bank to manage liquidity broadly as opposed to managing the liquidity positions of individual financial institutions. Given sound macroeconomic fundamentals and a well-functioning financial market, central bank policy interest rates serve as unambiguous price signals that guide the behavior of financial institutions with minimal direct government intervention.

Financial innovation has also reduced the effectiveness of RRs as a monetary policy tool. Direct monetary controls tend to become less effective in a reasonably developed financial system because market players eventually find ways around them, especially in an open economy. In particular, because RRs act as a tax on bank intermediation, they create incentives for banks to fashion products aimed at delivering transaction services without creating reservableliabilities. For example, in the United States (US), banks have developed sweep accounts where funds are transferred from deposit accounts to money market accounts that are not covered by RRs or interest remuneration. The use of sweep accounts by banks has had the effect of making monetary aggregates difficult to forecast and may have contributed to the breakdown of money demand functions. It is expected that similar incentives for banks exist in other jurisdictions. The practices of RR avoidance vary, although they are usually variants of off-balance sheet transactions or the accumulation of non-reservable deposits in other institutions.

In the Philippines, banks have made use in the past of informal or undocumented “repolike” transactions as a way to circumvent high RRs. Under these so-called undocumented “repo” transactions, banks sell government securities (GS) to the non-bank public, accompanied by an agreement to repurchase the same securities at an agreed future date. Such transactions essentially allowed banks to offer to the public deposit substitutes which, in principle, should be subject to RRs. However, these transactions were neither disclosed nor reported to supervisory authorities, allowing banks to increase their liquidity holdings without having to comply with RRs. Hence, these informal transactions have had the effect of making monetary aggregates (i.e., M3) difficult to measure.

Moreover, RRs were imposed on deposit substitute liabilities and on certain off-balance sheet transactions (e.g., common trust funds (CTFs), as well as other trust and other fiduciary accounts) based on the observation that these were previously being used as a means to avoid RRs on deposits.

***STATEMENT OF THE PROBLEM:***

The group aims to know the relationship between the Regular Reserves ratio, Liquidity Reserve ratio and Total Resources of Universal/Commercial Banks. It is important for our group to use factual data related to our study entitled “THE EFFECTS OF REQUIRED RESERVE RATIO OF UNIVERSAL/COMMERCIAL BANKS ON TOTAL RESOURCES OF UNIVERSAL/COMMERCIAL BANKS” Our study seeks to give answer to the following questions:

1. What is the trend of these following variables from 1993-2013?
   1. Regular Reserve Ratio
   2. Liquidity Reserve Ratio
   3. Total Resources of Universal/Commercial Banks
2. What is the effect of the following variables on the Total Resources of Universal/Commercial Banks from 1993-2013?
   1. Regular Reserve Ratio
   2. Liquidity Reserve Ratio
3. Is there any significant relationships of the following variables to Total Resources of Universal/Commercial Banks?
   1. Regular Reserve Ratio
   2. Liquidity Reserve Ratio

***SIGNIFICANCE OF THE STUDY***

This study, “The Effect of Required Reserve Ratio of Universal/Commercial Banks on Total Resources of Universal’,” aims to know the relationship between the Regular Reserve Ratio and Liquidity Reserve Ratio on Total Resources of Universal/Commercial Banks and its trends from 1993 to 2013.

This can be used to compare the Total Resource of Universal/Commercial Banks in the past and future and the data involved could be used as a study to know whether the Universal/Commercial Banks Resources can be affected by the Required Reserve Ratios imposed by the BSP.

***SCOPE AND LIMITATIONS***

The core of the study is to show the effect of the Required Reserve Ratios on the Total Resources of Universal/Commercial Banks. This study will also show relationship between different independent variables and the Total Resources of Universal/Commercial Banks. The other independent variables are Regular Reserve Ratio and Liquidity Reserve Ratio which are presented in percentage, to explain the dependent variable, Total Resources of Universal/Commercial Banks, which is expressed as the actual amount in billions of pesos.

The term paper is also limited in describing the behavior and relationship of the different variables over twenty year period from 1993 up to 2013. Also the researchers hereby limited the study on the available data in the monetary survey, mainly getting the data from the BangkoSentral ng Pilipinas (BSP).

***THEORETICAL FRAMEWORK***

### The Conventional View

The conventional view in economic theory is that a reserve requirement can act as a tool of monetary policy. The higher the reserve requirement is set, the theory supposes, the less the amount of funds banks will have to loan out, leading to lower money creation. Alternatively, the higher the reserve requirement the, lower the supply of loanable funds, the higher the interest rate and the slower the resulting economic growth.

Since loanable funds is a part of the total resource of the commercial/universal banks, the group included loanable funds theory:

**The Loanable Funds Theory**

The loanable funds theory describes the relationship between money available for borrowing and interest rates. Both the supply of money available for borrowing and demand for money to be borrowed depend upon interest rates.

The Loanable Funds Theory of Interest advocates that both savings and investments are responsible for the determination of the rates of interest in the long run. On the other hand, short-term interest rates are calculated on the basis of the financial conditions of a particular economy. The determination of the interest rates in case of the Loanable Funds Theory of the Rate of Interest, depends essentially on the availability of loan amounts. The availability of such loan amounts is based on certain factors like the net increase in currency deposits, the amount of savings made, willingness to enhance cash balances and opportunities for the formation of fresh capitals.

**CONCEPTUAL FRAMEWORK**



Regular Reserve Ratio

**INDEPENDENT VARIABLES**

Liquidity Reserve Ratio

Measure of Regression

**DEPENDENT  
VARIABLE**

Total Resources of Universal/Commercial Banks



**Where:**

TR = Total Resourcesof Universal/Commercial Banks

RRR = Regular Reserve Ratio

LRR = Liquidity Reserve Ratio

The variables above are considered significant in this study. Following are the explanations:

**Total Resource of Universal/Commercial Banks** is the total amount of available supply that can be drawn on when needed by the Universal/Commercial Banks. It is made up of deposits, profits, and retained earnings.

**Regular Reserve Ratio** is the required reserve ratio imposed by the Bangko Sentral ng Pilipinas on Demand, Savings, Time Deposits, Deposit Substitutes and Negotiable Order of Withdrawal (NOW) Accounts.

**Liquidity Reserve Ratio** refers to the portion which are allowed to be held in the form of market-yielding government securities purchased directly from the BSP.

**CHAPTER II**

**REVIEW ON RELATED LITERATURE**

This chapter presents the significant areas of the major components of the study. Organized by related literature and also related studies from local as well as foreign proponents and authors, and this chapter shows summarized views of literature and thesis abstracts, showing the effects of required reserve ratio of universal and commercial banks on total resources of universal and commercial banks, andthat are beneficial to the study being conducted. On this element of the study some related reviews of the proponents and author’s passage can lead to the justification of the problems that are encountered in the study.

**Local Literatures**

Philippines raises reserve ratio as rate increase seen nearing as seen on Karl Lester M. Yap and Max Estayo’s article on Mar 27, 2014. According to the article the BSP ordered lenders to set aside more money as reserves to curb liquidity, a move that analysts say could signal increases in the benchmark interest rate in the coming months. BangkoSentral ng Pilipinas raised the reserve requirement to 19 percent from 18 percent for universal and commercial banks effective April 4, it said in a statement in Manila today. It kept the rate it pays lenders for overnight deposits at a record-low 3.5 percent, as forecast by 13 of 16 economists surveyed by Bloomberg, with three expecting an increase of a quarter of a percentage point. The pressure for accommodative policy has waned and the Philippines needs measures to absorb liquidity and prevent stretched asset valuations, the International Monetary Fund said yesterday. Today’s decision to raise the reserve requirement is to guard against potential risks that could come from rapid credit expansion, Governor AmandoTetangco said. “The central bank guidance seems quite hawkish, even with the larger-than-expected move of raising the reserve ratio by a percentage point, which means tightening has begun,” said EubenParacuelles, a Singapore-based economist at Nomura Holdings Inc. “More policy action will come,” he said, adding that the benchmark may be raised by 1 percentage point in the second half of the year.The peso slipped 0.1 percent to 45.038 per dollar at the close before the decision. The BSP expects to mop up 60 billion pesos ($1.3 billion) with the reserve requirement increase, Deputy Governor DiwaGuinigundosaid at a briefing. Liquidity growth may stabilize by the second half of the year, with growth slowing to between 15 percent and 17 percent, he said. President Benigno Aquino, in a February interview, said there is no danger of the economy overheating, and played down the risk of asset bubbles forming as he increases spending to a record this year to boost expansion to as much as 7.5 percent. The central bank today lowered its 2014 inflation forecast to 4.2 percent from 4.3 percent and its estimate for next year to 3.2 percent from 3.3 percent. It held the rate on special deposit accounts at 2 percent. “As global interest rates normalize, the BSP will be keen to avoid excessive volatility in its financial markets,” said Krystal Tan, a Singapore-based economist at Capital Economics Ltd. “A key domestic concern is that continued low interest rates will further fuel credit growth and asset bubbles,” she said, adding that the first increase in the benchmark is likely to come within the next couple of months.

Philippine Star released an article that BSP raises reserves ratio anew to counter inflationary pressures by Lee C. Chipongianon, May 8, 2014. In the article The BangkoSentral ng Pilipinas (BSP) yesterday increased banks’ reserves ratio by another one percentage point to 20 percent to mop up the financial system’s excess liquidity.The BSP also adjusted higher the inflation forecast for 2014 that they now expect to average at 4.3 percent from a previous projection of 4.2 percent. For next year, inflation forecast is also raised higher to 3.4 percent from 3.2 percent previous estimate. The higher reserve requirements for the big banks and the smaller thrift banks will be implemented on May 30, said the BSP. This is the second time that the reserves ratios were hiked, the last was on March 27, also by one percentage point. “The Monetary Board’s decision is based on its assessment that current monetary policy settings continue to be appropriate given a manageable inflation environment,” the central bank said. Still, they maintain that inflation expectations remain “broadly aligned with the target ranges over the policy horizon.” BSP also assessed that the balance of risks to the inflation outlook “continues to lean toward the upside, with potential price pressures emanating from the possible uptick in food prices, as a result of expected drier weather conditions, as well as pending petitions for adjustments in transport fares and power rates.” “The adjustments in the reserve requirements are expected to help mitigate potential risks to financial stability that could arise from the strong growth in domestic liquidity,” the BSP stressed. “The Monetary Board believes that solid domestic economic activity provides room for the hike in the reserve requirements.” The central bank again reiterated that they are prepared to adjust policy stance “asneeded” to “prevent a potential build-up in inflation expectations and financial imbalances.” For the first four months, inflation averaged at 4.1 percent, at the high side of the official government target of three percent to five percent for this year. In April, due to higher food prices, electricity and fuel, inflation rose to 4.1 percent from March’s 3.9 percent.

Philippine Star released an article about Bank resources up 24% in March by Kathleen A. Martin on May 17, 2014. BSP showed that the combine’s resources of universal, commercial and rural banks rose 24% to P10.455 trillion as of March from P8.419 trillion a year ago. The sustained rise in the banking sector’s resources indicated that banks are equipped to cover their funding needs and service loans in response to a growing economy. This reflects the strength of local banks due in part to reforms previously implemented by the BSP. Universal and commercial banks contributed 90 percent of the banking system’s total resources as of March, while thrift banks made up eight percent. The remaining two percent belonged to the rural banks. Big banks increased their resources by 25 percent to P9.423 trillion as of March from P7.548 trillion a year ago, while thrift banks’ resources rose 22 percent to P830 billion. Rural banks, meanwhile, raised their resources by five percent to P202.3 billion. Banks made up 81 percent of the Philippine financial system’s total resources amounting to P12.829 trillion as of March. The expansion was driven by the climb in banks’ resources, as well as an accumulation in non-banks’ resources. Non-banks grew their resources by two percent to P2.374 billion as of March from P2.338 billion a year ago. Non-banks are made up of investment houses, finance companies, investment firms, securities dealers and brokers, pawnshops, lending investors, non-stock savings and loan associations, credit card companies, and insurance companies.

**Local Study**

A comprehensive study conducted by the Department of Economic Research of the BangkoSentral ng Pilipinas by the authors Carmen V. Hemedes and Dennis D. Lapid in 2004 shows that observers have long noted that the present system of high reserve requirements (RR) results in high intermediation costs for bank loans. Others in the financial sector have also made the claim that high reserve ratios tend to stifle the growth of the domestic capital market by preventing the development of various types of financial instruments. A study with a view to a possible reduction of the RR over the medium term. The review was part of the BSP’s efforts to make monetary instruments more flexible and market-oriented in line with the rapid development and deepening of a financial markets and the BSP’s shift to inflation targeting as the framework of monetary policy. The review focused on various issues relating to reserve requirements in the context of existing literature and current international practice. Features of the present reserve regime were also analyzed in the context of the BSP’s monetary policy strategy and regulatory framework in order to explore ways to make better use of reserve requirements to serve monetary policy objectives. Following the review, the Monetary Board agreed to an initial round of RR reduction, for implementation in mid-2005, as recommended by the study. However, in light of the expected breach in the inflation target for 2005 and 2006 and the recent evidence of excess liquidity in the financial system, such reduction was not deemed appropriate at present. Monetary authorities thought it prudent to refrain from any monetary action that could contribute further to price pressures.

One of the main findings of the study is that RR ratios remain useful as a handle for monetary control purposes. In recent years, there has been a shift away from the use of RR as a major policy tool in most developed countries. This linked to the growing need for more market-based monetary policy instruments, given the advent of financial liberalization and deregulation. However, as Enoch and Quintyn (1996) argue, the design and use of RR should be linked to their role in monetary management. If the central bank places great importance on its monetary control function, then the RR ratio remains useful.

RR ratios in the Philippines are relatively higher compared with prevailing levels in developed and Asian countries because the Philippine financial system remains relatively less developed. In the region, the Philippines has one of the lowest proportions of M3 to GDP, which is a measure of financial deepening and the relative size of the financial sector compared to the economy. As of end-2003, domestic liquidity (M3) was less than half (at 39.6 percent) of the country’s annual nominal GDP. This is significantly lower than the M3/GDP ratios for Thailand (95 percent), Malaysia (140.2 percent) and Singapore (125.7 percent). It was also observed that the Philippine financial system remains dominated by banks. Data as of end- 2003 show that Philippine banks accounted for more than 80 percent of the total resources of the financial system. Banks’ share of financial resources has, in fact, been increasing over the years from 76.0 percent of the total in 1980 to almost 82.0 percent in 2003. This structure suggests that RR continue to be a useful tool for influencing liquidity in the financial system. In sum, the data suggest that the Philippines’ high reserve ratios may be partly a result of its state of financial development. Because the financial systemhas less developed capital markets and continues to be dominated by banks, RR remain a useful policyhandle to attain monetary policy objectives. This is contrary to the argument that RR should be reduced to help develop and deepen the capital market.

**Foreign Literature**

According to the Chinese, forget changing interest rates. The country’s main weapon of choice to influence liquidity is changing its reserve requirement ratios. This tool dictates the percentage of commercial bank deposits that must be kept in the central bank. Between July 2006 and June 2011, China’s reserve requirement ratio was changed 35 times, which averages to one change every two months, according to the Bank for International Settlements. During this period, it rose from 7.5 percent to 21.5 percent (for large banks), which is among the highest in the world.Currently, China’s benchmark lending rate is only 6.56 percent, which is low compared to many countries, leading some to assume that China has a moderate monetary policy. Neighboring Pakistan’s interest rate, for example, is at a whopping 12 percent.However, judging by the metric of total required bank reserves, which is almost 30 percent of GDP, China has the tightest monetary policies in the world. A key reason China resorts to the tool of reserve requirement ratio is its foreign exchange interventions.

While China no longer maintains a hard peg to the U.S. dollar, it still keeps its currency artificially undervalued against other major currencies by buying those currencies with newly printed yuan. The side effect of this exercise, however, is that the newly printed yuan stokes inflation. (This is why many experts note that China, on some level, adopts the monetary policy of countries like the U.S.)To counter this yuan printing, China chooses to raise reserve requirement ratios. Many government use open markets operations – borrowing and lending directly in the financial system – to control liquidity.China, however, chooses to use reserve requirement ratios because it is a more permanent and cheaper (i.e. it pays less interest rates) way to limit liquidity from foreign exchange interventions. Unless China plans to forever keep its reserve ratio at 21.5 percent, it needs to release a part of this massive cash hoard back to the financial system. When it does, it will likely spark a surge in lending, which could lead to an acceleration in inflation. This scenario played out in Malaysia in the mid-1990s, according to John Greenwood of the Cato Institute. Greenwood also pointed out a theoretical ceiling to raising the reserve requirement ratio: the size of China’s commercial bank deposits. That is, at some point, the reserve ratio would become so high that the central bank would drain the majority of China’s bank deposit. When this point approaches, China will likely have only two choices: allow the yuan to appreciate or allow newly printed yuan to circulate in the banking system and stoke inflation. Both scenarios will likely lead to increased imports from abroad, the first scenario favoring foreign consumer goods and the latter scenario favoring commodities. It will likely take a while before this or any tipping point occurs.

In the meantime, what matters for the global markets and economy is how China’s deals with an increase in liquidity. When liquidity increases in countries like the U.S., it tends to only boost financial asset prices because U.S. financial institutions are unwilling to step up their lending. Instead, they are buying financial assets or parking the money in the Federal Reserve in the form of excess reserves. When liquidity increase in China, it is crucial to see how it responds. If it does nothing, lending will surge, the economy bill boom, global commodities prices will soar, and countries like Australia will prosper. If it raises its reserve requirement ratio, it will counter these trends. If it lowers its reserve requirement ratio, it will amply these trends. China is a booming economy and a major source of incremental economic growth for the world. It also holds enormous financial “firepower” in the form of its massive central bank balance sheet – on both the assets and liabilities side. What it decides to do with its reserve requirement ratio and other monetary policy tools will have a big impact on the global economy and financial markets. (Hao Li, 2011)

**Foreign Study**

Most central banks oblige depository institutions to hold minimum reserves against their liabilities, predominantly in the form of balances at the central bank. The role of these reserve requirements has evolved significantly over time. The overlay of changing purposes and practices has the result that it is not always fully clear what the current purpose of reserve requirements is, and this necessarily complicates thinking about how a reserve regime should be structured. This paper describes three main purposes for reserve requirements – prudential, monetary control and liquidity management – and suggests best practice for the structure of a reserves regime. Finally, the paper illustrates current practices using a 2010 IMF survey of 121 central banks.

Most central banks over 90 percent oblige depository institutions (commercial banks) to hold minimum reserves against their liabilities, predominantly in the form of balances at the central bank. The role of these reserve requirements (RR) has evolved significantly over time. The overlay of changing purposes and practices has the result that it is not always fully clear what the current purpose of reserve requirements is, and this necessarily complicates thinking about how a reserve regime should be structured.

This paper suggests three main reasons for the imposition of RR. The first is prudential, in some cases stemming back to the gold standard, when commercial banks’ ability to take deposits and issue their own banknotes was constrained by a requirement to hold proportionate reserve balances either directly, or at another bank(eventually the central bank), which in turn held gold reserves. These reserves provided some protection against both liquidity and solvency risks. Second is monetary control, this takes two forms: First, if reserve money cannot easily be increased, 1 RR may restrict commercial bank balance sheet growth. Second, the central bank could vary the level of (unremunerated) RR in a way intended to influence the spread between deposit and lending rates, in order to impact the growth of monetary aggregates and thus inflation. Third is liquidity management, this may be active or passive. Using RR actively, a central bank can immobilize surplus reserves by administrative fiat, so that the impact of a surplus on bank behavior (low interest rates, demand for foreign exchange) does not in turn lead to inflation or depreciation (both of which involve a loss of value for the currency). Similarly, if demand for reserves exceeds supply, the central bank could lower RR in response. A passive approach can be adopted, if RR can be met on average over a period: short–term liquidity management by the commercial banks is facilitated, with a consequent reduction in short–term interest rate volatility.

These RR (also known as legal or statutory reserves) are invariably calculated by reference to a commercial bank’s liabilities. RR must be held in the form of a reliable asset: historically, in gold, but now typically in central bank money. Central bank (or “reserve” or “base”) money refers to domestic–currency central bank money used in an economy, and is defined as currency in issue plus commercial bank balances held at the central bank.

There will be some voluntary holding of reserve money in any economy, regardless of the central bank’s policy on RR. In virtually all countries there is a certain level of demand for the ability to settle large–value transactions in central bank money, and this effectively means the banking sector will voluntarily hold reserve (or settlement) account balances at the central bank. The volume of reserves voluntarily held is clearly likely to be higher if such balances are remunerated. It is also likely to vary over time, reflecting short termfactors (e.g. seasonally high transactions volumes) or longer-term developments (e.g. infrastructure improvements). Some central banks aim to set RR above the voluntarily–held level because this can create a predictable demand for reserves balances. Provided the level is not too high, and RR are remunerated, the distortionary impact may not be significant.Demandedreserves will be the higher of voluntarily–held required and levels. In a number ofcountries, the actual level of reserves exceeds the demanded level, sometimes substantially. (Simon Gray, 2011)

**CHAPTER III**

**METHODOLOGY**

**Data Gathering**

The group visited the BangkoSentral ng Pilipinas (BSP) Library in Malate, Manila to gather different statistical data about the Regular Reserve Ratio, Liquidity Reserve Ratio and the Total Resources of Universal/Commercial Banks from 1993 up to 2013 that they will used as the factors to explain how the Required Reserve Ratios of Universal/Commercial Banks affect the Total Resources of Universal/Commercial Banks.

**Data Treatment**

The group used tabular and graphical forms to present the different data. Furthermore, E views to come up in more accurate computations.

**Statistical Test**

The group conduct different statistical test to know the significant influence of each independent variables (explanatory variables) to the dependent variable (response variable).

**Measure of Regression**

To establish the relationship between the Regular Reserve Ratios, Liquidity Reserve Ratios and the Total Resources of Universal/Commercial Banks, the multiple linear regressions was used. It is used to evaluate the effects of the selected variables in Total Resources of Universal/Commercial Banks from 1993 up to 2013.



**Where:**

**TR** = Total Resources of Universal/Commercial Banks

**RRR**= Regular Reserve Ratio

**LRR**= Liquidity Reserve Ratio

**β\_0**= Constant

**β\_i**= Regression coefficient, i= 1, 2

The group used different statistical test to make sure that the results that will be achieved will be interpreted and analyzed to prove answer to the problems in this paper. The different statistical tests are as follows:

1. **Test of the Individual Significance of the Parameter Estimates (t-Statistics)**

To check the individual effect of independent variables to the dependent variable, T-test was used at 0.05, level of significance.

t **=**

1. **Test of Overall Significance of the Regression (F-Statistic)**

To check whether the null hypothesis would be rejected or not, the researchers used F-test for the collective significance of the independent variables to the dependent variable with 0.05, level of significance

F **=**

1. **Adjusted R-squared: Test for Goodness-of-Fit**

The goodness-of-fit test is defined as the proportional of the total variation or change in Y explained by the multiple regression of Y on the explanatory variables. According to Gujarati (2003), the formula used for computing is:

Where:

RSS = Residual Sum of Squares

TSS = Total Sum of Squares

To take into consideration the reduction in degrees of freedom as additional independent variables are added, adjusted is computed as:

**CHAPTER IV**

**PRESENTATION AND ANALYSIS**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Total**  **Resources of Universal/**  **Commercial**  **Banks** | **Regular**  **Reserve Ratio** | **Liquidity**  **Reserve Ratio** |
| 1993 | 864.35 | 20% | 2% |
| 1994 | 1,058.82 | 20% | 2% |
| 1995 | 1,347.36 | 15% | 2% |
| 1996 | 1,876.22 | 15% | 2% |
| 1997 | 2,512.98 | 13% | 4% |
| 1998 | 2,512.22 | 10% | 7% |
| 1999 | 2,722.29 | 9% | 3% |
| 2000 | 3,013.56 | 9% | 7% |
| 2001 | 3,070.47 | 9% | 9% |
| 2002 | 3,250.19 | 9% | 7% |
| 2003 | 3,425.59 | 9% | 8% |
| 2004 | 3,760.60 | 9% | 10% |
| 2005 | 3,985.98 | 10% | 11% |
| 2006 | 4,392.59 | 10% | 11% |
| 2007 | 4,578.33 | 10% | 11% |
| 2008 | 5,282.58 | 8% | 11% |
| 2009 | 5,779.06 | 8% | 11% |
| 2010 | 6,423.67 | 8% | 11% |
| 2011 | 6,833.02 | 10% | 10% |
| 2012 | 7,486.7 | 18% | 18% |
| 2013 | 9,300.4 | 18% | 18% |

For TR, Levels in Billions of Pesos. RR, Levels in Percentage

**(Source: BangkoSentral ng Pilipinas)**

Levels in Billions of Pesos

For 20 years, the resources of Universal/Commercial Banks has been growing from 1993’s Php 864 billion to 2013’s Php 9 Trillion with a slight deviation in 1998. The researchers noticed that in 1998 the total resources slightly decreased by Php 760 Million. This phenomena could be explained by the Asian Financial Crisis which happened in 1997. The Asian Financial Crisis (AFC) resulted the capital flight because of panicked lenders which led to a large withdrawal of credit from the crisis countries which includes the Philippines. The chart shows that the biggest increase happened in 2013, which grew by 25.83% compared to the same period in 2012.

Levels in Percentage

The BSP sets reserve requirements the volume of tocontrol money created by the credit operations of the banking system and to curve inflation. If the Monetary Board wants to lower the demand for money, they could increase the amount of money that the banks will put in idle in their vaults.In April 6, 2012, the Monetary Board of the BangkoSentral ng Pilipinas approved the changes to the reserve requirement policy unifying the statutory and liquidity reserves and terminating the interest payment on bank reserves placed with the BSP. According to Moody’s Investors Service, the revised guidelines on reserve requirement is a negative development for banks. Moody’s analyst Simon Chen said that the new policy will give investors and depositors lower interest yields.

**Regression result**

TR = 2303.55096119 –1213.178\*RRR + 43069.82393600458\*LRR

SE= (1165.3818) (4311.4585)

t= (-1.0410) (9.9896)

p= (0.1776) (0.0010)

R-squared = 0.8476 F= 50.0645

|  |  |
| --- | --- |
|  |  |

The regression result will tell us about the different statistical test that the group used, especially the measure of regression. The = -1213.178will tell us that in a 1 unit increase in the regular reserve ratio will trigger the total resources of Universal/Commercial Banks to decrease in 1,213.178 unit that also says that there is a negative relationship between the two. The = 43069.823 will tell us that in a 1 unit increase in the liquidity reserve ratio will leads to increase in total resources of Universal/Commercial Banks by 43,069.823 unitthat show a positive relationship between the two variables.

The t-critical value with degrees of freedom of 18 and a level of significance of 0.05 is equal 1.734. In the conducted t-test the group comes up with the individual significant of the independent variables to the dependent variables. The regular reserve ratio has a t-computed value of -1.041which is lesser than the t-critical value therefore it is insignificant. The liquidity reserve ratio has a t-computed value of 9.989 which is greater than the t-critical value therefore it is also significant.

The f test is conducted to know whether the two independent variables; regular reserve ratio and liquidity reserve ratio are collectively significant to the dependent variable which is the total resources of Universal/Commercial Banks. The f-critical value with a 2 numerator degrees of freedom and 18 denominator degrees of freedom is 3.554. The f-computed value is 50.0645 is greater than the f-critical value and the null hypothesis will be rejected.

The R squared or the goodness-of-fit test will show if the independent variables explained the changes in the dependent variable. We come up with 0.84that will tell us that 84 percent of the time, the independent variables will explained the changes in the dependent variable.

**CHAPTER V**

**CONCLUSION AND RECOMMENDATION**

**CONCLUSION**

At the end of the study, the group came up into different conclusions:

1. There is a significant relationship between the dependent variable total resource of Universal/Commercial Banksand the independent variables regular reserve ratio and liquidity reserve ratio
2. When the independent variables are taken individually it affect the dependent variable positively and negatively;theregular reserve ratio, individually, affects the total resource of Universal/Commercial Banksnegatively, as the regular reserve ratio increases, the total resource of Universal/Commercial Banksdecreases.Theliquidity reserve ratio, individually, affects the total resource of Universal/Commercial Bankspositively, as liquidity reserve ratio increases, the total resource of Universal/Commercial Banksincreases as well.
3. The two independent variables; regular reserve ratio and liquidity reserve ratio are collectively significant to the dependent variable which is the total resource of Universal/Commercial Banks.
4. The R squared tells that 82 percent of the time, the independent variables will explain the changes in the dependent variable.

**RECOMMENDATION**

Since this study is limited only to the use of the total resources in the Universal/Commercial Banks only from 1993-2013 and was mainly based on the data of 20 years of Required Reserve Ratio and Total Resources of Universal and Commercial Banks, the researchers recommended:

To do a study in other types of banks like thrift, rural and non-banks with quasi-banking functions; To expand the range of the years of the study to test the relationship of the variables; To use of other theories in determining its relationship among the given variables; And to determine other factors that are related to required reserve ratios