DETERMINANTS OF NON-PERFORMING LOANS IN BHUTANESE FINANCIAL SECTOR

By

Ugyen Tshering

THESIS

Submitted to

KDI School of Public Policy and Management

in partial fulfillment of the requirements

for the degree of

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ABSTRACT

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This paper attempts to study the internal (bank specific) and external (macroeconomic) determinants of non-performing loans (NPLs) in Bhutanese financial sector using a panel data and random effect model. This study uses the data from a panel of 4 financial institutions (3 banks and 1 insurance company) engaged in lending activities and macroeconomic data covering for period from 2005 to 2014. Of the macroeconomic variables used (GDP, Unemployment rate, Inflation rate), the empirical result indicates that only GDP significantly affect the NPLs and is negatively related with the NPLs. However, contrary to most of the previous studies, the empirical analysis do not support the view that higher unemployment in the economy will lead to higher NPLs. Inflation rate is also not statistically significant and does not affect NPLs in Bhutanese financial sector. Regarding the bank specific variables, the results indicate that all variables are statistically significant in explaining the variation of NPLs. The bank specific variables used for this study are ROA, ROE, CAR, Bank Size and Loans to Asset ratio. The result indicates a negative relationship of NPLs to ROE and CAR while indicating positive relationship to ROA, Bank Size and Loans to Asset ratio.

ACKNOWLEDGEMENT

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ABBREVIATIONS

NPLs: Non-Performing Loans

RMA: Royal Monetary Authority

GDP: Gross Domestic Product

ROE: Return on Equity

CAR: Capital Adequacy Ratio

ROA: Return on Assets

CD: Credit to Deposit

MENA: Morocco, Egypt, Tunisia, Algeria and United Arab Emirates

RICBL: Royal Insurance Corporation of Bhutan Limited

1. Introduction

Financial system is the most important parameter for the growth of any economy. Since then, it has become imperative to ensure a stable financial system in the economy. Stable financial system has always supported the growth of economy (Rajaraman and Visistha 2002). One of the main players in the financial sector is the banking sector, thus ensuring sound banking system and practices is very crucial for country's economic development. In the past, the causes of failure of most of the banks are attributed to Non-Performing Loans (NPLs) in the banking sector, thereby indicating a strong association between NPLs and financial crises. Banking crisis in the economy is mainly due to the NPLs of banks (Brownbridge 1998;Hou 2007), and thus adversely affecting the growth in the economy as a result of reduced bank lending (Chijoriga 1997; Brownbridge1998).The NPLs are the most common risk that the banks are exposed to, affecting their profitability and solvency (Michael, Vasanthi and Selvaraju 2006).   Therefore, taking all these into consideration, the eradication of NPLs has become important in order to prevent financial instability and boost the economic status (Hou 2007).

Since NPLs are used to measure the quality of loans in the banking sector, all banks have the system of classifying and defining NPLs as a part of their credit risk management (Guy 2011).NPLs are commonly described as loans which remain unpaid for 90 days or more (Guy 2011;Joseph et al. 2012). The NPLs are also those loans which do not generate any income (Greuning and Bratanovic 2003). The definition given by the Basel Committee (2001) is that NPLs are defined as loans which are not paid and their overdue time period is 90 days after maturity date. The definition given by the Basel Committee is being adopted by most of the financial regulators in defining NPLs in their respective jurisdiction.

In the last few years, increased lending activity by the banking system in Bhutan has helped in promoting the growth of Bhutanese economy. However, during the course of time, there was also a considerable increase in the NPLs, which might lead to a financial turmoil if timely actions are not taken. Moreover, instituting a system of addressing NPLs in the banking system has always remained a challenge. In this regard, this paper will focus on studying the determinants of NPLs in Bhutanese financial sector. Despite the fact that there has been no study conducted on similar issue in case of Bhutanese financial sector, this paper on the determinants of NPLs in Bhutanese financial sector is timely to suggests any kind of policy reforms of addressing the issue of NPLs in Bhutanese financial sector.

Studies in the past have shown that both macroeconomic (external) and bank-specific (internal) factors affect NPLs. Therefore, for the determinants of NPLs in Bhutanese financial sector, both factors will be taken into consideration. The rest of the study is designed as follows. Section 2provides a summary on the Bhutanese financial sector. Section 3 provides a literature review of both macroeconomic and bank-specific factors affecting NPLs. Section 4 describes the data and methodology used for this study, section 5will talk about the findings of results, and section 6 provides the discussion and analysis. Finally Section 7 gives the conclusion and policy recommendations if any.

2. Bhutanese Financial Sector

Financial system of Bhutan is still at its initial stage with lots of structural deficiencies. The development of Bhutanese financial system until 2009 was limited to only two banks, one agricultural development bank, one insurance company accompanied by a small stock exchange and a Pension Fund Bureau. Beginning 2009, Major changes have occurred in the financial system. In 2009, two new banks and one insurance company were licensed to begin operation in

2010. Further, the agricultural development bank was granted a specialized deposit-taking bank license in 2010 to expand its business to the urban areas. The Royal Monetary Authority (RMA) is the central bank of Bhutan and is also responsible for supervision of financial institutions in Bhutan. There are eight financial institutions that are currently authorized by the RMA to perform lending operations. These include five banks, two insurance companies, and a pension fund. Of the banks, two are government owned, Bank of Bhutan Limited and Bhutan Development Bank Limited and three are private, Bhutan National Bank Limited, T-Bank Limited and Druk Punjab National Bank Limited. The two insurance companies are Royal Insurance Corporation of Bhutan Limited (RICBL) and Bhutan Insurance Limited. These two insurance companies compete with banks in terms of rendering their services of lending to the people. The National Pension and Provident Fund (NPPF) Bureau responsible for managing the retirement plans of civil servants, employees of government owned corporations, joint sector companies, and armed forces is also allowed to perform limited lending to their members. In 2013, RMA granted license to first reinsurance company, GIC-Bhutan Re to undertake reinsurance business in Bhutan.

Given that the RMA made its transition to a full-fledged central bank (new central bank act was endorsed in 2010), it is currently undergoing major institutional changes in line with its mandate to meet the requirements of a growing financial sector and economy. 2012 was a difficult year for Bhutan as it faced its first major economic hurdle as external imbalances threatened the precarious level of the nation's limited reserves. The central bank was compelled to sell huge chunk of US dollars from its reserves to meet immediate payments, following which the financial sector faced huge liquidity constraints and were not able to provide credit in an economy. This was further aggravated by the increase of NPLs in the financial sector. As a result,

there was a slowdown in economic growth of the country, bringing down the real GDP as low as 2.1 percent in 2013. Since then RMA took several unconventional measures to address the pressure from growing external imbalances, particularly the issue of severe shortages of Indian currency Rupees. One of those measures taken by the RMA was the temporary restrictions placed on Construction and Vehicle loans during the period 2012 to 2014, which was driving out, most of the country's foreign reserve (Indian Rupees in particular).Therefore, given the fact that financial sector is at heart of Bhutanese economic development, it is very important to promote sound financial system.

Despite the fact that Bhutanese financial sector is still at its initial stage, it is however, experiencing a steady growth as financial institutions develop to provide financial services to more people, thereby, registering an increase in asset size, expressed as a proportion of GDP. Financial sector's assets as a proportion of GDP have increased from 69.1 percent at the end of 2005 to 82.7 percent in 2013. In terms of the total assets, the financial sector's total assets stood at Bhutanese currency Ngultrum (Nu) 109.72 billion (approximately 1.82 billion US dollars)as of December 2014.Out of these assets, more than 70 percent are comprised of loans and advances. Banking sector still continues to dominate the financial sector, though its share of assets has been falling over the years. In terms of loan growth within the financial sector, it grew at CAGR (compounded annual growth rate) of 24 percent from 2005 to 2014, indicating that financial sector in Bhutan is playing important role in providing the necessary stimulus to the country's economic growth. However, there is some degree of sectoral credit concentration present indicating that banks are overexposed to certain sectors.

Although there has been a rapid expansion of loans in an economy, NPLs have also increased over the past few years, registering a CAGR of 16 percent from 2005 to 2014, with the greatest increase seen following the 2012 tight liquidity and changing credit conditions.

Chart 1 : NPLs and NPL ratio
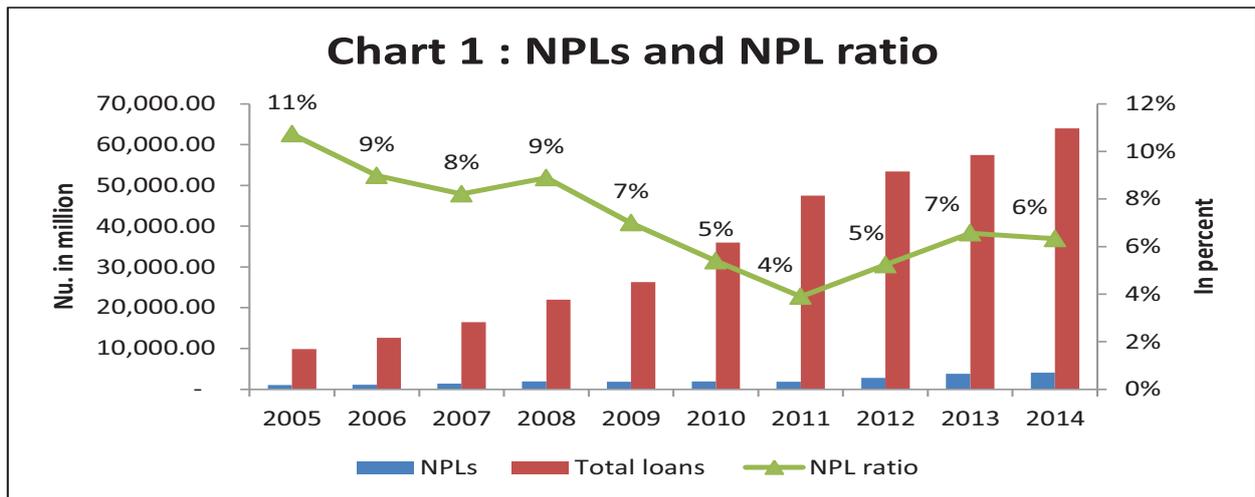
Source: Author's calculation

We can see from chart 1 above, that although NPL ratio (NPLs to total loans) has fallen during the period 2005 to 2014, but in terms of absolute figure, NPLs (gross) has actually more than doubled, from Nu. 1.06 billion in 2005 to Nu. 4.05 billion in 2014. The increase in NPLs is seen in Trade and Commerce sector (23.14 percent of total NPLs), Housing sector (18.97 percent of total NPLs), Personal sector (17.11 percent of total NPLs) and Manufacturing and Industry sector (13.55 percent of total NPLs). The NPLs in these four sectors also accounts for 70 percent of the total NPLs for the period ended 2014. The following chart 2 shows the NPLs by sectors for the period ended 2014.

Chart 2 : Sectorwise NPL December 2014
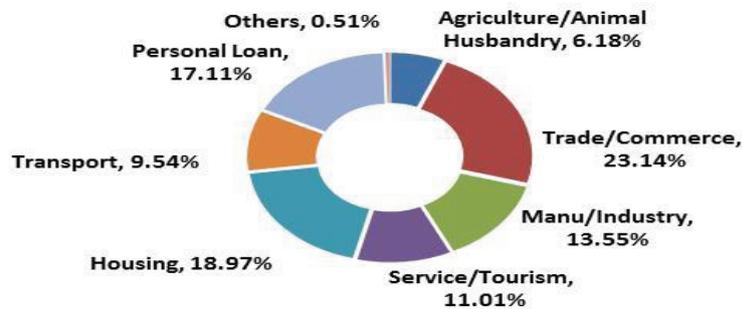
Source: Author's calculation

NPLs in Bhutanese financial sector are classified into three categories: Substandard, Doubtful and Loss categories. Substandard Category is the first stage of NPLs categorization and loans are classified under this category if principal or interest payments have been overdue by91 to 180 days. NPLs are classified under Doubtful Category when principal and interest payments remains overdue by 181 to 365 days, and when the principal and interest payments remains overdue for more than 365 days or when the term of loans have expired, it is classified under the Loss Category. Therefore, by looking at the composition of NPLs in table 1, it can be noticed that most of the NPLs have already reached its later stage and are classified under the Doubtful and Loss categories. In 2014, 77.4% of total NPLs were either doubtful or loss assets.

Table 1: Composition of NPLs

Particulars	2014	2013	2012	2011	2010	2009
Total Non-performing loans	4,050.41	3,772.96	2,794.01	1,851.95	1,941.78	1,837.43
Substandard	915.81	780.09	781.81	444.99	987.69	853.98
Doubtful	935.40	920.63	764.99	255.32	347.83	334.14
Loss	2,199.20	2,072.24	1,247.21	1,151.64	606.27	649.32

*The amount of NPLs is expressed in millions of Bhutanese currency Ngultrum (Nu.)
Source: Author's calculation

In this regard, identifying the determinants of NPLs and monitoring them has become important in Bhutanese financial sector to maintain financial stability and enable financial sector to continuously support the economy and government's vision.

3. Literature Review

Many studies have been undertaken in the past in different jurisdiction to study the causes of NPLs. The findings from the past studies have helped in formulating appropriate policies for averting financial crisis. NPLs besides affecting a single country would lead to a serious trouble across the global economy (Adebola, Yousaff and Dahalan 2011). NPLs are main cause of trouble, thereby affecting all the credit institutions to function properly (Pesola 2007). Therefore, it is very imperative to understand the phenomena of NPLs in the banking literature.

Based on the past studies carried out for determining the causes of NPLs, there are two main causes of NPLs within the banking sector. The first factor pertains to macroeconomic conditions of a country which could affect borrowers' capacity in repaying back their loans. The second factor which affects NPLs is with regard to the bank-specific factors such as Loan Growth, Return on Equity (ROE) etc. However, the findings of past studies supports for both factors (Salas and Saurina 2002; Joseph and et al. 2012;Louzis, Vouldis, and Metaxas 2010). The following section reviews the existing literature on the determinants of NPLs which will create a basis to design a model to study the variables affecting NPLs in Bhutanese financial sector.

3.1 Macroeconomic factors

Some of the macroeconomic variables used in the past studies are Gross Domestic Product (GDP), inflation, unemployment, exchange rate etc. The study carried out by Pasha and Khamraj (2009) found out that for Guyanese banking sector, (i) GDP has a negative relationship

with NPLs indicating that deterioration of GDP would lead to increase in NPLs and vice-versa (ii) the change in the exchange rate caused by the declining share in the international market leads to increase in NPLs and (iii) banks that charge high interest rates also leads to increase in the NPLs. However, this study revealed that inflation rate does not have any relationship with the NPLs in case of Guyanese banking sector. Panel data model was used for this study. Saba, Kouser and Azeem (2012) using regression analysis finds a negative relationship between GDP and NPLs in case of US banking sector. For banks in Sub-Saharan African countries, macroeconomic factors such as GDP, real effective exchange rate and real interest rate are also important determinants of NPLs (Fofack 2005). This study finds that GDP has a negative relationship with NPLs indicating that economic recession and downturns coupled with falling of GDP per capita is likely to increase the NPLs. Any appreciation in real exchange rate could weaken the export of the economy and thus exacerbate the banking crisis (increase in NPLs). Interest rate has positive relationship with NPLs. A causality and pseudo-panel model was used for this study.

In case of Greek banking sector, macroeconomic factors specifically real GDP, unemployment, and lending rates affects NPLs (Louzis, Vouldis, and Metaxas 2010). This study employs panel data method for three different types of loans namely Consumer Loans, Business Loans and Mortgages Loans. This study found out that GDP has negative association with NPLs conforming that slowdown in economic growth will lead to higher NPLs while unemployment has positive association to NPLs, indicating that rise in unemployment affects the repayment capacity of borrowers. High lending rate also led to higher NPLs for Greek banking sector. Makri, Tsagkanos and Bellas (2013) studied the causes of NPLs in Euro zone banking system from of 2000 to 2008 using dynamic regression, just before the recession and finds that macroeconomic factors such as public debt and unemployment positively affects the NPLs,

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indicating that fiscal problems and lack of employment opportunities in Euro zone may lead to higher NPLs, while GDP negatively affects NPLs indicating that during boom period, NPLs are improved and vice-versa. However, this study reveals that inflation and budget deficit or surplus does not affect NPLs.

Klein (2013) also studied NPLs for CESEE (Central, Eastern and South Eastern Europe) using dynamic panel regression for the period 1998 to 2011. This study finds that besides GDP negatively affecting NPLs and unemployment positively affecting NPLs, it also tends to increase with a rise in inflation rate and with depreciation of exchange rate. The NPL ratio in Gulf Cooperation Council region increases with low economic growth and high interest rates and risk aversion (Espinoza and Prasad 2010). In both Spain and Italy, unemployment has a direct relationship with NPLs while wage has an inverse relationship with NPLs (Bonilla 2012).However; this study revealed that GDP is affecting NPLs in an inverse direction in Spain while it is affecting NPLs directly in Italy. Although there was no proper explanation for positive relationship between NPLs and GDP in Italy, findings revealed that it may be due to the recession which took place in Italy during the period under review. On the other hand, this study also revealed that inflation rate is not explanatory variable of NPLs both in Spain and Italy

The study on banking sector in Pakistan revealed that GDP is inversely affecting the NPLs while the inflation, exchange rate, interest rate and unemployment all directly affects the NPLs (Farhan and et al. 2012). The correlation and regression analysis was used for this study. However, the same study by Ahmad and Bashir (2013) using time series data, finds that unemployment rate, real effective exchange rate and foreign direct investment are insignificant to explain NPLs in Pakistani banking sector. As per this study, GDP, interest rate and inflation are negatively related to NPLs while consumer price index is positively related with NPLs of

banks in Pakistan. The macroeconomic determinants of NPLs for Indian banks are savings growth, GDP, interest rate and inflation (Prasanna 2014). Using panel data method, this study finds that high GDP growth rate and high savings rate is associated with lower NPLs while the high inflation and interest rates leads to higher NPLs.

GDP and unemployment rate have an inverse relationship with the NPLs of personal loans of the banks in Kenya (Jerotich, Irene and Renny 2014). The main reason for negative relationship between NPLs of personal loans and unemployment rate is that most of the personal loans are only given to employed people and is collateralized against the pay slip resulting in lesser chance of default. However, this study also revealed that inflation rate and interest rate does not have any relationship with the NPLs. The regression analysis was used for this study.

3.2 Bank-specific factors

Besides the macroeconomic factors affecting the NPLs, past studies have also revealed that bank-specific factors affects the NPLs in the banking sector. In case of public sector banks in India, variables such as size of the bank, loan maturity and terms of credit like interest rate significantly affect NPLs (Rajan and Dhal 2003). This study employs a panel regression for empirical analysis and finds that interest rate have positive impact on NPLs while bank size and loan maturity has negative impact on NPLs. However, Misra and Dhal (2010) in their study found out that bank size is positively associated with NPLs for public sector banks in India. This was mainly due to the balance sheet constraints. Small banks were able to manage it more efficiently than large banks in terms of loan monitoring and recovery processes. The bank-specific variables such as credit growth, capital ratio and bank size are affecting the NPLs in Spanish banking sector (Salas and Saurina2002). This study uses panel data method covering for

a period of 4 years. Size of the bank is negatively related to NPLs in case of banks in Taiwan (Hu and et al. 2004).

For banks in Ethiopia, Gezu (2014) carried out a study using the panel data from 2002 to 2013 and found out that Capital Adequacy Ratio (CAR) and Return on Equity (ROE) are negatively related with NPLs, while Return on Assets (ROA) and lending rate is positively affecting NPLs. However, this paper revealed that Credit to Deposit (CD) ratio and inflation does not have any relationship with the NPLs of banks in Ethiopia. The quality of performance indicators has impact on NPLs in Greek banking sector (Louzis, Vouldis, and Metaxas 2010). This study found that ROA and ROE is significant and has negative relationship with NPLs for mortgages and consumer loans in Greek banking sector. In addition, it was found that size of banks is positively associated with NPLs indicating that smaller banks have low NPLs.

The study on NPLs of banking sector in Italy, Greece and Spain was carried out after the subprime crisis in 2008 (Messai and Jouini 2013). This study used the panel data method and revealed that return on assets (ROA) has a negative relationship with NPLs while interest rate and unemployment has a positive relationship with NPLs. Godlewski (2004) studied credit risk in emerging market economies (Central and Eastern Europe, Asia and South America) and finds that ROA (profitability) and size has negative relationship with NPLs of banks in emerging market economies. The author argues that high profitability seems to be refraining banks from lending to more risky business. Cotugno, Stefanelli and Torluccio (2010) using panel data model studied Italian banks and found out that default rates for Italian banks has a positive relationship with the size of the banks (total assets) and negative relationship with ROA. However, this study reveals that loan to asset ratio do not affect the NPLs. Study of NPLs in Euro zone banking system by Makri, Tsagkanos and Bellas (2013) found out that Capital Adequacy Ratio (CAR)

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and Return on Equity (ROE) are negatively related to NPLs, indicating that deterioration in profitability ratio lead to higher NPLs, while the rate of NPLs of the previous year is positively related to NPLs. However, this study revealed that ROA and Loan to Deposit ratio do not affect the NPLs. For Southeastern European banks, size of the bank and ROA has negative relationship with NPLs while solvency has positive relationship with NPLs (Curak, Pepur and Poposki 2013). The finding of this study is indicating that big banks as compared to small banks are better in handling the NPLs. In other words, large banks have in place robust credit appraisal and monitoring (risk management) system. On the other hand, banks with high profits makes the bank managers less involved in risky credit activities, thus less exposure to credit risk (low NPLs).

In case of Albanian Banking System, NPLs are affected by bank-specific factors such as (a) loan to asset ratio (b) loan level (c) net interest margin and (d) return on equity (Shingjergji 2013). This study revealed that Loan to Asset ratio is inversely related to NPLs, indicating that majority of bank's assets in the form of loans will lead to low NPL ratio. While, the loan level and NPL ratio are positively related to each other, indicating that excessive lending or higher level of loans will increase the NPL ratio. The net interest margin also affects NPL ratio positively. However, Return on Equity (ROE) has a negative relationship with NPLs, indicating that high profit will result in lower NPL ratio. Panel data regression model was used for this study covering a period from 2002 to 2012. Pasha and Khamraj (2009) found that loan to asset ratio is positively affecting NPLs in Guyanese banking sector. However, size of the bank was found to be insignificant in explaining the variation of NPLs in Guyanese banking sector indicating that big banks does not necessarily mean more effective in loan screening process as compared to the small banks.

For banks in MENA (Morocco, Egypt, Tunisia, Algeria and United Arab Emirates) region, high credit growth and provision for NPLs reduces NPLs (Boudriga, Taktak and Jellouli 2009).This study also reveals that ROA is negatively associated with NPLs indicating that greater and efficient performance of banks reduces NPLs. However, the size (total assets) is not a statistically significant in explaining NPLs in MENA region. Panel data regression method was used for this study.

Although past studies indicated that both macroeconomic and bank-specific variables affect NPLs, no literature is available for Bhutanese banks. Therefore, this paper intends to use both factors to study the determinants of NPLs in Bhutanese financial sector.

4. Data and Methodology

4.1 Sample and Data

Sample data consists of three banks and one insurance company which has been involved in lending activities since the time of its establishment and has been functioning like any other banks in Bhutan. The three banks are (i) Bhutan National Bank Limited, (ii) Bank of Bhutan Limited (iii) Bhutan Development Bank Limited and insurance company is the Royal Insurance Corporation of Bhutan Limited (RICBL). This insurance company has been considered for this study since it has a significant market share of total loans and competes with the banks in terms of lending activities (loans). Majority of assets of this insurance company is also comprised of loans (approximately 60 percent). Moreover, the Prudential Regulation (2002) of banks is also applicable to insurance companies in Bhutan. Therefore, for the purpose of this study, hereafter this insurance company (RICBL) shall be referred as banks in general. The period covered for this study is ten years, from 2005 until 2014. The choice of the above mentioned four financial institutions was not random since these four financial institutions are the oldest financial

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institutions (for lending operation) in Bhutan with significant NPLs during the period under review.

There are two sources of data used for this research. With regard to the bank-specific factors, data was collected from Royal Monetary Authority of Bhutan (central bank) from 2005 till 2014. For macroeconomic factors, data was collected from National Statistical Bureau of Bhutan's data base covering a period of 2005 until 2014.The study uses both descriptive and econometric analysis based on panel data approach to identify the causes of NPLs of financial sector in Bhutan. This model is a balanced panel data and the software used is STATA version.

4.2 Study Variables

For the purpose of this study, dependent variable is NPLs. Macroeconomic independent variables are GDP, unemployment rate and inflation rate. The bank-specific independent variables in determining NPLs are ROA, ROE, CAR, Size (total assets) and Loan to Asset ratio. These are explained below.

4.2.1 NPLs

NPLs for the purpose of this study shall be computed as follows;

NPL (ratio) = NPLs / Gross loans

As per the Prudential Regulation of Bhutan (2002), NPLs are defined as loans and advances which remains unpaid for more than 90 days from the very first day of default.

4.2.2 Gross Domestic Product (GDP)

As revealed in most of the previous literature, GDP is expected to be inversely related to NPLs (Pasha and Khamraj 2009; Saba, Kouser and Azeem 2012; Fofack 2005; Bonilla 2012), indicating that a positive growth in a country will improve the standard of living of people with better income that would also improve their debt repayment capacity. As a result, NPLs in the

banking sector would reduce to certain extent. For the purpose of this study, GDP is calculated as the LN (natural log) of yearly nominal GDP.

4.2.3 Unemployment Rate

Unemployment is generally expected to have a direct relationship with the NPLs (Louzis, Vouldis, and Metaxas 2010; Makri, Tsagkanos and Bellas 2013; Klein 2013; Bonilla 2012). Higher unemployment affects the repayment abilities of the borrowers thereby increasing the NPLs. On the other hand, if the economy is doing well with good rate of employment (low unemployment), it is expected that NPLs of banks will decrease, as there will be increase in individuals earning income, which will further increase their ability to repay back the loans to the banks. For the purpose of this empirical study, yearly unemployment rate will be used.

4.2.4 Inflation Rate

Inflation is expected to have positive relationship with NPLs. In situation where inflation rate exceeds the interest rate, individuals would be unlikely to save, investors would be unlikely to invest or lenders to lend. This lack of credit in an economy could hamper economic activities that would translate into increasing NPLs and financial instability. When there is an increase in inflation, the borrowing cost becomes expensive which results in the increase of NPLs (Klein 2013; Curak, Pepur and Poposki 2013; Farhan and et al. 2012). However, some studies have also found negative relationship between inflation and NPLs (Ahmad and Bashir 2013). Annual inflation rate will be used for this study.

4.2.6 Profitability

Profitability may reflect the level of risk that banks are undertaking. Most of the previous literature argues that banks with already high profits are usually less risk taker. Since their profits are already high, banks are reluctant to lend to more risky businesses to generate further earnings.

As a result, those banks are exposed to less credit risk resulting in lower NPLs. On the other hand, those banks struggling to make profits are tempted to lend to more risky and uncertain businesses. This usually occurs when bank management is inefficient. Thus, higher bank inefficiency leads to lower profitability and since they engage in more risky businesses, NPLs are usually expected to rise. For the purpose of this paper, the following profitability ratios will be used;

(a) Return on Asset (ROA)

ROA measures the efficiency of the bank management while using the bank assets to make profits. Higher ROA indicates that assets of banks are being used efficiently for generating earnings. Efficient banks will have robust risk management framework such as good credit policy, proper evaluation and monitoring process, and efficient NPLs management framework which will enable bank to generate more and stable earnings. Therefore, efficient bank will have high profitability (ROA) with lower credit risk, thus with low NPLs(Messai and Jouini 2013;Godlewski2004;Curak, Pepur and Poposki 2013). However, Gezu (2011) found a positive relationship between the ROA and the NPLs. ROA is computed as follows;

ROA= Profit after Tax / Average Total Assets

(b) Return on Equity (ROE)

ROE measures how much profit a bank is making with the money shareholders' have invested. It measures how efficient a bank can use the shareholders money to make profits and grow the bank. High ROE is indicating that bank is using the shareholders' money efficiently as a result of robust risk management framework, which will result in low credit risk and hence low NPLs. It is generally expected that there will be negative relationship between ROE and NPLs (Makri, Tsagkanos and Bellas 2013;Gezu 2011;Shingjergji 2013). ROE is calculated as follows;

ROE= Profit after Tax/Average Capital Fund

4.2.7 Capital Adequacy Ratio (CAR)

CAR reflects the capital strength of banks and acts as a buffer to meet any unexpected losses in the banking sector. In other words, banks must set apart capital according to their risk profile. This ensures that the absolute measure of capital kept by banks is sufficient under all conditions. The implication of CAR on NPLs is ambiguous. Some studies has shown a CAR having an inverse relationship with the NPLs (Gezu 2011; Makri, Tsagkanos and Bellas 2013), while some studies revealed a positive relationship with the NPLs (Djiogap and Ngomsi 2012). In some jurisdiction, CAR is also not a significant variable in determining the NPLs (Shingjergji 2013). CAR is calculated as follows;

CAR= Capital Fund/Total Risk-Weighted Assets

4.2.8 Size (Total Assets)

The effect of the size of the bank on NPLs is also ambiguous. Some studies has shown that there exist a negative relationship with NPLs (Rajan and Dhal 2003; Hu and et al. 2004;Godlewski2004;Curak, Pepur and Poposki 2013) indicating that large banks will have the ability to deal with NPLs in terms of its risk management practices as compared to the small banks. However, some past studies has also shown that bank size is positively associated with NPLs (Misra and Dhal 2010; Louzis, Vouldis, and Metaxas 2010; Cotugno, Stefanelli and Torluccio2010) indicating that large banks are inefficient in managing NPLs than small banks. Therefore, large banks will have more NPLs and vice-versa. For the purpose of this study, the assets of a bank (balance sheet) shall be considered as the size of the banks.

4.2.9 Loan to Asset Ratio

Loan to Asset ratio is the composition of total loans from total assets. It is generally expected that if most of the assets are comprised of loans, NPLs will rise. In other words, NPLs and loan to asset ratio are positively associated to each other (Pasha and Khamraj 2009). However, some studies have shown Loan to Asset ratio having a negative relationship with NPLs (Shingjergji 2013), while some studies revealed that Loan to Asset ratio is not statistically significant (Cotugno, Stefanelli and Torluccio2010). For the purpose of this study, Loan to Asset ratio is computed as follows;

Loan to Asset ratio= Total Loans/Total Assets

The table 2 below shows the summary of expected sign for the following macroeconomic and bank-specific factors of NPLs.

Table 2: Summary of expected signs for macroeconomic and bank-specific factors

Variables	Expected sign
Nominal GDP	(-)
Unemployment rate	(+)
Inflation rate	(+) / (-)
Return on Asset Ratio	(-)
Return on Equity Ratio	(-)
Capital Adequacy Ratio	(+) / (-)
Size	(+) / (-)
Loan to Asset Ratio	(+)

4.3 Model Specification

Panel data regression model will be applied to study the determinants of NPLs in Bhutanese financial sector (Pasha and Khamraj 2009; Louzis, Vouldis, and Metaxas 2010; Klein

2013; Curak, Pepur and Poposki 2013; Prasanna 2014; Gezu 2011; Messai and Jouini 2013; Cotugno, Stefanelli and Torluccio 2010; Shingjergji 2013). Model estimated for this study is as follows:

$NPL_t = \beta_0 + \beta_1 GDP_t + \beta_2 UNEMP_t + \beta_3 INFLN_t + \beta_4 ROA_t + \beta_5 ROE_t + \beta_6 CAR_t + \beta_7 SIZE_t + \beta_8 LOANTOAST_t + \mu$

NPL_t denotes NPL ratio in time period "t". β_0 is an intercept. $\beta_1 GDP_t$ is nominal GDP in time "t" and its coefficient, $\beta_2 UNEMP_t$ is the unemployment rate in time "t" and its coefficient, $\beta_3 INFLN_t$ is inflation rate in time "t" and its coefficient, $\beta_4 ROA_t$ is return on assets ratio in time "t" and its coefficient, $\beta_5 ROE_t$ is return on equity ratio in time "t" and its coefficient, $\beta_6 CAR_t$ is the capital adequacy ratio in time "t" and its coefficient, $\beta_7 SIZE_t$ is bank size (total assets) in time "t" and its coefficient and $\beta_8 LOANTOAST_t$ stands for loan to asset ratio in time "t" and its coefficient. μ is the error term.

4.4 Research Hypothesis

The following hypotheses are formulated for the purpose of this study;

H_1: GDP has a negative relationship with NPLs

H_2: Unemployment rate has a positive relationship with NPLs

H_3: Inflation rate has a positive relationship with NPLs

H_4: ROA has a negative relationship with NPLs

H_5: ROE has a negative relationship with NPLs

H_6: CAR has a negative relationship with NPLs

H_7: Bank size a has positive relationship with NPLs

H_8: Loan to Asset ratio has a positive relationship with NPLs

5. Data Analysis and Findings

5.1 Descriptive data

Table 3: Descriptive data

Variable	Observation	Mean	Std. Dev.	Min	Max
NPL	40	8.79	5.74	2.50	25.49
GDP	40	11.11	0.39	10.49	11.68
UNEMP	40	3.01	0.58	2.10	4.00
INFLN	40	7.02	1.96	4.40	9.50
ROA	40	3.23	1.59	0.88	6.59
ROE	40	18.05	5.73	8.00	28.14
CAR	40	22.00	9.04	10.71	48.98
SIZE	40	14,017.74	10,796.05	1,233.72	39,793.61
LOANTOAST	40	68.20	22.25	21.07	107.45

Table 3 above shows the descriptive statistics of the variables used for this study. Accordingly, this table shows the mean, standard deviation, minimum and maximum of each variable used in this study. The table shows that there are 40 observations for each variable indicating that the panel is strongly balanced. NPL ratio ranges from a minimum of 2.5% to a maximum of 25.49%. It has a mean of 8.79% indicating that on an average 8.79% of total loans remained as non-performing loans.GDP ranges from 10.49% to 11.68% indicating that the economy on an average was consistent. It has a mean of 11.11 and standard deviation of 0.39. UNEMP ranges from a minimum of 2.10% to a maximum of 4% and has a mean of 3.01, with a standard deviation of 0.58. INFLN ranges from a minimum of 4.40% to a maximum of 9.50%, with a mean of 7.02 and standard deviation of 1.96. In terms of profitability ratio, ROA it ranges from a minimum of 0.88% to a maximum of 6.59% indicating that performance for some banks was not good during the period under consideration. It has a mean of 3.23 and standard deviation of 1.59. For ROE, it ranges from a minimum of 8% to a maximum of 28.14%. It has a mean of 18.05 and standard deviation of 5.73. CAR ranges from a minimum value of 10.71% to a

maximum of 48.98% with a mean of 22 and standard deviation of 9.04. SIZE ranges from a minimum of 1233.72 to a maximum of 39793.61. It has a mean of 14017.74 and standard deviation of 10796.05. With regard to LOANSTOAST, it ranges from a minimum value of 21.07% to 107.45% with its mean of 68.2 and standard deviation of 22.25.

5.2 Multicollinearity Test

The issue of multicollinearity arises when more than two independent variables are highly correlated to each other (Ahmad and Bashir 2013), which then makes the correlated variables insignificant. However, this issue can be solved by taking out the highly correlated variables from the analysis. Taking into consideration the importance of multicollinearity test, the pairwise correlation matrix is applied to test the correlation between the independent variables.

Table 4: Pairwise correlation test

	GDP	UNEMP	INFLN	ROA	ROE	CAR	SIZE	LOANTOAST
GDP	1							
UNEMP	-0.2986	1						
INFLN	0.6736	-0.3585	1					
ROA	-0.1583	0.0532	-0.1198	1				
ROE	-0.0656	0.1518	-0.0309	0.2835	1			
CAR	-0.3181	0.0533	-0.2386	0.5732	-0.4849	1		
SIZE	0.4956	-0.1497	0.2876	-0.7481	-0.1321	-0.4917	1	
LOANTOAST	-0.0177	0.0034	0.03	0.8487	0.0059	0.5968	-0.687	1

Accordingly, coefficient correlation (pairwise correlation) between independent variables from the test result in table 4 above is low except for the correlation between ROA and Loans to Asset ratio, with a correlation of 0.8487. However, for the initial experiment, both variables (ROA and Loan to Asset ratio) will be considered for this study, upon which one will be dropped if the results of variables are insignificant.

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5.3 Model Selection

Fixed effect and random effect method under the panel data model will both be applied for this study to test the significance of variables identified at 5 percent significance level. To decide which model is appropriate, a Hausman Specification Test will be applied.

5.3.1 Fixed Effect Model

Table 5: Result of fixed effect

NPL	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
GDP	-14.0076	2.6291	-5.33	0.000*	-19.39309	-8.622154
UNEMP	-0.17395	0.7025259	-0.25	0.806	-1.613013	1.265105
INFLN	-0.19028	0.2781956	-0.68	0.500	-0.760143	0.379573
ROA	1.669308	1.171975	1.42	0.165	-0.731374	4.06999
ROE	-0.47463	0.1737916	-2.73	0.011*	-0.830624	-0.118632
CAR	-0.2015	0.1479189	-1.36	0.184	-0.504496	0.1015007
SIZE	0.000477	0.0001406	3.39	0.002*	0.000189	0.0007648
LOANTOAST	0.186149	0.0483317	3.85	0.001*	0.087147	0.2851524
_CONS	154.5052	28.21572	5.48	0.000	96.70791	212.3025
R-sq: overall	0.6486					
Prob> F	0					
Rho	0.656401					

*Note:*significant at 5% confidence level*

Fixed effect model can be applied if its P-value is less than 0.05 significant level. Since the p-value (0.00) is less than 0.05in the above table, fixed effect model can be applied for the empirical analysis.

5.3.2 Random Effect Model

Table 6: Result of random effect

NPL	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
GDP	-11.01437	1.955034	-5.63	0.000*	-14.84617	-7.182572
UNEMP	-0.108018	0.74471	-0.15	0.885	-1.567623	1.351587
INFLN	-0.2359975	0.2858321	-0.83	0.409	-0.796218	0.324223
ROA	2.823492	0.9243962	3.05	0.002*	1.011708	4.635275
ROE	-0.5891315	0.1683553	-3.50	0.000*	-0.919102	-0.2591611
CAR	-0.2605519	0.1224095	-2.13	0.033*	-0.50047	-0.0206337

SIZE	0.0002828	0.0000781	3.62	0.000*	0.0001297	0.000436
LOANTOAST	0.1625882	0.0411766	3.95	0.000*	0.0818835	0.2432929
_CONS	125.3269	21.51689	5.82	0.000	83.15456	167.4992
R-sq: overall	0.8562					
Prob> F	0					
Rho	0					

Note: significant at 5% confidence level*

Random effect model can be applied if its p-value is less than 0.05 significant level. Since the result of P-value shown by the random effect model in table 6 above is also less than 0.05, random effect model can also be applied for this empirical analysis.

5.3.3 Hausman Specification Test

Since both fixed effect and random effect models are appropriate for this study, Hausman specification test has to be applied. The Hausman specification test tells us the appropriateness of the model to be applied. To test the null hypothesis of Hausman test, we have to compare the estimates of both random effect and fixed effect model. If the test result indicates the same coefficients of both models, then random effect model has to be applied. However, if the test results of both models are different, then fixed effect model is appropriate model. This test can be done by looking at the P-value. If P-value of Hausman test is larger than 0.05, random effect model has to be applied, and for P-value less than 0.05, fixed effect model has to be applied. Below is the result of the Hausman specification test.

Table 7: Hausman Specification test

	Coefficients			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed	Random	Difference	S.E.
GDP	-14.00762	-11.0144	-2.993252	1.757842
UNEMP	-0.1739538	-0.10802	-0.0659357	.
INFLN	-0.1902849	-0.236	0.0457126	.
ROA	1.669308	2.823492	-1.154183	0.7204288
ROE	-0.4746279	-0.58913	0.1145036	0.0431276
CAR	-0.2014975	-0.26055	0.0590544	0.0830417

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SIZE	0.0004767	0.000283	0.0001939	0.0001169
LOANTOAST	0.1861494	0.162588	0.0235612	0.0253069
Prob>chi2 = 0.1043				

Result of Hausman specification test in table 7 above has a P-value of more than 0.05 and is indicating that it is appropriate to use random effect model. Therefore, based on this test, the results of random effect model in table 6 will be applied and analyzed for empirical analysis of this study.

5.3.4 Cross-Sectional Dependence Test

In order to check for cross-sectional dependence (serial correlation), Pasaran CD (cross-sectional dependence) test is applied to see the correlation of residuals. If the P-value from the test is greater than 0.05, then the residuals are not correlated. The following is result of the Pesaran test;

Pesaran's test of cross sectional independence = -1.000, Pr = 0.3173

Average absolute value of the off-diagonal elements = 0.21

Since P-value is greater than 0.05 (0.3173), there is no cross-sectional independence.

5.4 Findings

The random effect model is applied to study the cause and effect relationship between NPLs and independent variables. Based on our model, the following random effect regression model is estimated to examine the causes of NPLs in financial sector in Bhutan;

NPL_t= 125.33 − 11.01GDP − 0.108UE$_t$ − 0.235INFLN+2.82ROA− 0.59ROE− 0.26CAR$_t$+0.0002SIZE + 0.16LOANTOASST

According to the results of random effect model in table 6, independent variables that are used can describe about 85.62 (R-square) percent variations of NPLs in Bhutanese financial sector. P-value tells us the significance of variables in explaining the variation of NPLs in

Bhutanese financial sector. Each variable is significant if the P-value indicated by random effect model in table 6 is less than 0.05 significant levels. A random effect model result indicates that except for unemployment and inflation rate, all remaining variables are significant at 0.05 significant level and it affects NPLs of Bhutanese financial sector. For unemployment and inflation rate, their P-value is more than 0.05 significant level and cannot explain the variation of NPLs in Bhutanese financial sector. From the eight independent variables that were used GDP, unemployment rate, inflation rate, ROE and CAR has negative coefficients indicating negative relationship with NPLs although inflation and unemployment rate are insignificant. Variables such as ROA, size and loan to asset ratio has positive coefficients indicating a positive relationship with NPLs.

6. Discussion and Analysis

Most observation in this paper agrees with past studies carried out on the causes of NPLs. The relationship of NPLs to independent variables with regard to the research hypothesis is as follows;

H_1: GDP with a P-value of 0.00 (0.05 significant level) as indicated by random effect model in table 6 is significant and has a negative coefficient of 11.01. Thus, the hypothesis of GDP having a negative relationship with NPLs is accepted. The negative coefficient of 11.01 shows strong effect of GDP on NPLs, indicating that for 1 unit change in GDP other things remaining same will result in 11.01 unit changes in NPLs in the opposite direction. It is indicating that during the booming period with high GDP, everyone (individuals as well as firms) in an economy will be better off with increase in income that will also help in repaying their debt. As a result, NPLs of banks will decrease with increase in GDP. However, the decline in GDP during recession will affect the income of every individual and firms, thus distorting their debt

repayment capacity. This results in increase in NPLs of banks. This research hypothesis is in consistent with the findings of past literature on determinants of NPLs such as Pasha and Khamraj (2009), Saba, Kouser and Azeem (2012), Fofack (2005) and Bonilla (2012).

H_2: Macroeconomic variable, unemployment rate is insignificant (P-value of 0.88) and does not affect NPLs of Bhutanese financial sector. This result is in contradiction with most of the previous studies since different countries have its own variable which affects the NPLs. Therefore, this research paper fails to accept the hypothesis of NPLs having positive relationship with unemployment rate. This is because; (i) Banks in Bhutan do not give loans to the people who are unemployed and (ii) most of the current loans in Bhutan are well collateralized, therefore, the loans can be easily recovered from the collateral in case of the borrowers becoming unemployed.

H_3: Inflation rate which is also macroeconomic variable is insignificant with a P-value of 0.41and does not affect the NPLs in Bhutanese financial sector. Therefore, hypothesis of having positive relationship between NPLs and inflation rate cannot be accepted. However, the studies of Pasha and Khamraj (2009), Makri, Tsagkanos and Bellas (2013) and Jerotich, Irene and Renny (2014) also revealed that the inflation is insignificant in explaining NPLs.

H_4: Although ROA is significant with its P-value of 0.002, it contradicted with the hypothesis of NPLs having a negative relationship with ROA. The result of random effect model in table 6 shows a positive relationship between ROA and NPLs with a coefficient of 2.82. It is indicating that for every 1 unit change in ROA, NPLs will also change in a same direction (positively related) by 2.82 units. In general, it is expected that when ROA (profitability) of banks is high, they are usually less pressurized in generating earnings by engaging in more risky businesses as a result of which NPLs will decrease and vice-versa. However, the situation is

different in case of Bhutanese financial sector. The bank profitability measured in terms of ROA may result from high lending rates, fees, commission and charges that will lead bank grow in terms of its size and profitability. This growth in profitability (ROA) may encourage banks to engage in all sorts of credit activities including credit to risky businesses as a result of which NPLs is also expected to increase. In this regard, the result indicated that ROA is directly related to NPLs, and is in consistent with the study conducted by Gezu (2011) for Ethiopian banking sector.

H_5: ROE has a P-value of 0.00 and a negative coefficient of 0.58. It is therefore, significant as indicated by table 6, thus accepting the hypothesis of NPLs having a negative relationship with ROE. It is indicating that 1 unit change in ROE with other things remaining constant will result in change in NPLs by 0.58 units in opposite direction. In other words, if there is 1 unit positive increase in ROE, NPLs will decrease by 0.58 units. It implies that when profitability is measured in terms of ROE, deterioration of ROE leads to higher NPLs and improvement of ROE leads to lower NPLs. This result is indicating about the bank behavior. Bad management of banks will engage shareholders money into risky businesses as a result of which there will be an increase in NPLs. This result of negative relationship between ROE and NPLs is in consistent with Makri, Tsagkanos and Bellas (2013), Gezu (2011), Shingjergji (2013) and Louzis, Vouldis and Metaxas (2010).

H_6: The random effect result of CAR in table 6 with its P-value of 0.033 is significant in explaining NPLs in Bhutanese financial sector. It has a negative coefficient of 0.26 which is in consistent with the hypothesis of NPLs having a negative relationship with CAR. It is indicating for every 1 unit change in CAR, NPLs will also change by 0.26 units but in an opposite direction. Generally, the CAR of banks changes when there is a change in capital fund or in total risk-

weighted assets of banks. In other words, CAR increases when either capital fund of banks increases (through injecting new capital or through increasing retained earnings) or when total risk-weighted assets of banks decreases. In case of Bhutanese financial sector, risk-weight is assigned to each category of assets based on their level of riskiness. For loans, the risk-weight is assigned based on the riskiness by sector. Therefore, this result of negative relationship is indicating that banks that diversify their risks or banks which have robust risk management framework will result in lower NPLs. This result is in consistent with Gezu (2011),Makri, Tsagkanos and Bellas(2013).

H_7: The random effect result of variable Size in table 6 is significant with its P-value of 0.00 and a positive coefficient of 0.00028. This result of positive coefficient is corroborating with the hypothesis of NPLs having a positive relationship with Size. It is indicating that for 1 unit change in Size, NPLs will also change in a same direction by 0.00028 units. This implies that when banks grows in terms of its size, they tend to engage (provide loans) in more risky and sophisticated businesses which becomes very difficult for banks to monitor loans both in terms of addressing and preventing NPLs. It becomes difficult for large banks to transfer their customers' information (financial statements, business progress, skills and management capabilities) to its lending mechanism and risk management framework as a result of which NPLs increases. Therefore, there is more probability for large banks to have more NPLs. This hypothesis is in consistent with the studies conducted by Misra and Dhal (2010), Louzis, Vouldis, and Metaxas (2010), Cotugno, Stefanelli and Torluccio (2010).

H_8: The variable Loan to Asset ratio as indicated by random effect model in table 6 has a P-value of 0.00 and is therefore significant in explaining the variation of NPLs in Bhutanese financial sector. Its positive coefficient of 0.162 is in consistent with the hypothesis of NPLs

having a positive relationship with Loan to Asset Ratio. It is indicating that when majority of bank's assets are comprised of loans, NPLs tends to rise. As of December 2014, approximately 75 percent of total assets within the Bhutanese financial sector are comprised of loans, as a result of which the Loan to Asset ratio remains high and probability of increase in the NPLs is also high. Accordingly, when there is 1 unit change in Loan to Asset Ratio, NPLs also change by 0.16 units in a same direction. Therefore, hypothesis of NPLs having a positive relationship to Loan to Asset Ratio is in consistent with the study conducted by Pasha and Khamraj (2009).

7. Conclusion and Recommendation

7.1 Conclusion

This paper intended to study the causes of NPLs of financial sector in Bhutan for the period of 10 years from 2005 to 2014 by using a panel dataset and random effect model. Although research findings indicated that NPLs in Bhutanese financial sector are caused both by external (macroeconomic variables) and internal (bank-specific variables) factors, most of the NPLs is attributed to internal factors. With regard to the macroeconomic variables, the finding of this study indicated that only GDP affects the NPLs of Bhutanese financial sector. The result has shown a negative relationship between GDP and NPLs. An economic recession can lead to financial instability by reducing the borrowers' income and impairing the ability to repay the loans. In other words, strong positive growth in the economy results in lower NPLs. The other two variables namely Unemployment rate and Inflation rate have revealed insignificant effect and thus cannot be considered for studying the causes of NPLs of financial sector in Bhutan.

With regard to the bank-specific variables, ROA, ROE, CAR, Size and Loan to Asset Ratio all affects NPLs of Bhutanese financial sector. Profitability ratios measured in terms of ROA and ROE yielded different results. The random effect model revealed that profit when

measured in terms of ROA has a positive relationship with NPLs indicating that banks in Bhutan are less incentive to increase their earnings through effective utilization of assets. This indicates the inefficiency measures of banks in terms of asset utilization, thereby emphasizing on robust risk management systems and procedures for effective utilization of its assets to generate stable earnings without any risk or losses. However, profitability when measured in terms of ROE revealed an inverse relationship with NPLs, indicating that banks in Bhutan are at least effectively managing the funds of shareholders. The study also found out that CAR is negatively associated with NPLs in Bhutanese financial sector indicating that well capitalized banks will have a capacity to absorb potential loan losses through effective utilization of its capital thereby reducing NPLs. The RMA requires all banks (including insurance companies) in Bhutan to maintain a minimum CAR of 10 percent at all times.

Impact of Size on NPLs of Bhutanese financial sector has been analyzed. The random effect model revealed that Size of banks is positively associated with NPLs indicating that larger banks in Bhutan appear to be more inefficient in terms of monitoring and recovery processes of NPLs. This situation can be attributed to a greater organizational complexity of large banks as compared to small banks and as a result it leads to higher NPLs. With regard to Loans to Asset ratio, the random effect model indicated that NPLs has a positive relationship to Loans to Asset ratio. The high proportion of total assets in the form of loans is mainly due to lack of investment avenues for banks and financial institutions in Bhutan except for the investment in loans. At present, the financial markets including debt and equity markets have limited scope in Bhutan. As a result, excessive lending by banks especially to risky (sub-prime) borrowers can lead to higher NPLs, deleveraging and market illiquidity, and thus a credit crunch.

The results indicate that banks in Bhutan should take into consideration many factors while approving the loans in order to control the level of NPLs. The banks should take into account the performance of an economy while sanctioning loans since the flow of credit is related to business cycles. During economic boom, credit tends to grow very rapidly while it decelerates during economic slowdown. In particular, periods of economic boom witness excessive credit growth, generally associated with irrational exuberance and dilution of lending standards. The realistic risk position becomes evident with deterioration of asset quality during economic slowdown. To this end, banks are required to maintain high CAR to cushion against any unexpected losses. This requirement may lead the banks to decrease their lending (assets) instead of increasing the magnitude of capital. This decrease in lending and the resultant stagnation in economic activities exacerbate the economic crisis, in turn worsening the financial crisis.

7.2 Recommendation

With steady growth of the financial system and innovations in the financial sector, the dynamics of financial risks and vulnerabilities also changes. Banking sector in Bhutan is continually devising new forms of activity that create new risk. Central bank is therefore challenged to develop robust and effective means to address these challenges. Since central bank still practices Basel I accord for Bhutanese bank supervision that sets out minimum capital requirement to minimize credit risk, it has become apparent that this approach of banking supervision is becoming inadequate both in context and focus. Therefore, it is recommended to the central bank to revisit its current supervision approach and put in effort towards the development of risk-based supervision/management framework under the Basel II and III Accords. Basel Accords issued by the Basel Committee on Banking Supervision sets out the

international standards on capital requirements to safeguard the banks from financial risks. Targeting key risks in a bank under the Basel II Accord and thus customizing the supervisory stance to the nature of the bank also means that we are not only better placed to manage individual bank but also to tackle systemic issues that could threaten financial stability in a more effective manner. Financial institutions that fail to assess risk and do not install risk management system in their products would increase the NPLs and can put many financial institutions into problems. Credit concentration can also cause problems to most of the banks affecting their capital fund (CAR) and assets. Although, banks are aware of their credit concentrations, however, due to robust competition, such caution may reduce. Therefore, proper risk management supervision framework is essential for the survival of banking sector in Bhutan.

Risk management framework is a structured approach to manage uncertainty regarding business operations so as to minimize losses, through a sequence of logical steps including: risk identification, assessment of risk, monitoring and strategies to manage risk using various techniques with the help of managerial and technology resources. Therefore, robust risk management framework in place will enable banks to measure, monitor and control the total risk on their balance sheet to minimize losses as well as to enable bank to use effectively the recourses/capital. The adoption of risk-based supervision framework would strengthen financial stability of banking industry as well as support a modern economy that will boost public confidence and financial sector resilience.

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