

# CHAPTER ONE

## Introduction

### 1.1 Introduction

It is acknowledged that financial institutions in any developed or transition economy ease the credit flow in the economy (Richard 2011). Financial sectors play an important role for economic growth in any country (Rajaraman and Vasishtha 2002). Effective performance of financial institutions reflects the prosperity and growth of the nation whereas weak performances hamper the economic growth of a country (Khan and Senhadji 2001). This is evidenced by many banking failures all over the world. The consequence of these banking failures in the economy is to reduce the credit flow in the country which ultimately affects the efficiency and productivity of the business units (Chijoriga 1997). According to Brownbridge (1998), many empirical researchers have shown that most of the time banking failures or banking crises are caused by Non-performing Loan (NPL) and lower bank performance. NPL booked as expenses by the bank directly affects the bank's performance. All these bank failures, high incidence of loan default, bank insolvency, bank's lower performance have lighted the importance of investigation of determinants of NPL and bank performance.

At present, minimizing and investigating the degree of systemic risk in banking is a major concern of policymakers (Demirgüç-Kunt and Detragiache 1998). Among the various risks in banks, credit risk is the primary cause of bank failure (Bhattacharya and Roy 2008). It has found that effective credit risk management is essential for banking in order to minimize credit losses (Santomero 1997). Besides this, the corporate governance also plays a critical role in the long term financial survival of any firm (Stanwick and Stanwick 2010). However, when putting an effective risk management in place, some loans turn to be in distress in the due course of time for various reasons. It, therefore, understands the drivers of NPL and impact of corporate governance on bank performance which is a major issue for financial stability.

In Nepal, the commercial bank has the dominant position in the financial system and a total 31 commercial banks are providing various facilities to the Nepalese people. Considering the various risks faced by banks, the Nepal Rastra Bank (NRB) i.e. the central bank is issuing

various guidelines and directives such as the Capital Adequacy Framework 2007, Risk Management Guidelines 2010, Corporate Governance directives and also modifying them from time to time for risk management purposes (NRB 2010 'a'). Despite the substantial progress made in terms of improving the efficiency and competitiveness related with the financial system in the Nepal, some of the commercial banks such as Nepal Bank Limited, Rastriya Banijya Bank, Nepal Bangladesh Bank Limited are facing the NPL problem (Dahal 2009). Various studies (Demetriades and Luintel 1996; Acharya 2003; Shrestha 2005; Pokhrel 2006; Ferrari, Jaffrin et al. 2007) related to financial and banking sector services, policies, liberalization and development have been done in context of Nepal. To the best of my knowledge, no in-depth studies have been conducted to investigate the determinants of NPL and the role of corporate governance mechanism on bank performance in Nepalese bank. This research intends to fill a gap in research as the first in-depth study in to the determinants of NPL and the role of corporate governance on bank performance in Nepal.

## **1.2 Background of the Studies and Statement of the Problem**

Banks do transactions with other people's money as a way of balancing the relationship between saver and borrower. Banks have an obligation to provide liquidity demand of depositors through checking accounts and to extend credit to their borrowers through lines of credit (Kashyap, Rajan et al. 2002; Cebenoyan and Strahan 2004). Modern economies are often known as “credit-based” economies, where money plays an important role as a means of exchange. Extension of credit is one of the tasks of financial intermediaries and support for the development and performance of financial intermediaries (Stals 1998). Credit corresponds to the size of the bank’s assets portfolio (Kitua 1996; Richard, Chijoriga et al. 2008). Banks face several risks which include credit risk, interest rate risk, liquidity risk, market risk, foreign risk and political risk. Banking, therefore, is a business that always has to face risk and deal with it (Campbell 2007). A bank’s asset portfolio adds up to a large proportion of the credit risk which is often measured as NPL to total loans as it accounts for 10-15 times the equity of a bank (Kitua 1996; Richard, Chijoriga et al. 2008). Internal variables as potential determinants of risk measured as the unsystematic risk (Hassan 1993; Brewer 1996; Gallo, Apilado et al. 1996; Angbazo 1997; Berger and DeYoung 1997; Ahmad and Ariff 2007) and change in external variables in the financial markets, regulation and economic conditions as affecting the systematic bank risk (Hassan, Karels et al. 1994; Corsetti, Pesenti et al. 1998; Ahmad and Ariff 2007). Both variables provide evidence of

significant relationships between the internal variables, external factors and bank risk (Ahmad and Ariff 2007).

Considering all this, regulators make sure that depositors do not lose money and borrowers return money and that the economy does not suffer in any way. Unlike non-financial institutions, banks are subject to dual monitoring: one by the regulatory bodies and the other by the bank's governance. The monitoring and oversight of the regulators and the compliance of banks with regulatory requirements provides an alternative governance mechanism which is absent in the non-financial industry (Adams and Mehran 2003). It follows that effective supervision of the banking industry by the regulators can work as a complementary force for good governance. Apart from monitoring, regulators such as the central bank of a country intervene in the management of banks in terms of makeup of the board of directors and their responsibilities relating to supervision of banking activities. The broad framework and detailed guidance for credit risk assessment and management is provided by the Basel New Capital Accord which is now widely followed internationally (Campbell 2007). Most countries are implementing the 'better wait' and gradual approaches, in the face of huge challenges posed by Basel II. A significant number of countries have it in mind to suspend the execution of Basel II or decide on simple approaches for determining credit risk (Gottschalk 2007).

The development of the financial sector in Nepal has been influenced by overall low economic standards. However, in the last two decades, the financial sector background changed significantly in terms of the depth of financial services offered as well as in terms of the range and number of financial intermediaries which forced the financial sector into becoming one of the most dynamic sectors in the Nepalese economy (Joras 2008).

The country's financial system is highly dominated by the banking sector (Pokhrel 2006).

The country's banking system is composed of commercial banks, development banks, finance companies and micro-credit banks which come into the financial institute category.

There are some co-operative and Non-government Organizations (NGO) licensed to undertake limited banking activities as non-classified financial institutions (NRB 2010 'a').

The commercial banking sector is the largest component of the financial system (Pokhrel 2006). The commercial bank has been classified in both the public and private sector, where private banks can be further re-grouped into local private banks and foreign joint venture private banks. As of July 2009, there were 26 private sector commercial banks i.e. 16 local

private banks, 7 foreign joint venture private banks, and 3 public banks. They were represented by a total 752 branches, out of which 309 branches belonged to public banks and the rest belonged to private sector commercial banks. Private bank access to the countryside or rural area is limited whereas the public sector bank is still the largest bank in all aspects for both deposit and credit mobilization (NRB 2010 'a').

There has been a paradigm shift in the Nepalese financial system in recent times. Before liberalization i.e. 1984, various norms set down as part of the central bank rules and regulations such as regulated interest rate, cash reserve ratio and statutory liquidity ratio interfered with the portfolio choice of the bank directed by central bank were obstacles for the development of the financial sector. Only two banks were the main players in the banking sector and the credit information system was too weak. As a result, defaulters could get a loan from other banks (Shrestha 2005). In late 2007, a global financial challenge appeared in the world context. At the same time, global concerns were raised about the stability of the financial sector which became a central challenge to bank regulators and supervisors (NRB 2010 'a'). Financial liberalization may be of assistance for the development of the domestic financial system in terms of size and efficiency (Khanal 2007), which paved the way for the establishment of new banks and non-bank financial institutions in the country (NRB 2009). Removal of entry barriers, interest deregulation, freedom in setting of deposit and loan rates, issuance of prudential norms for capital adequacy requirements, loan classification, loan loss provision, interest rate recognition, single borrower limits and account disclosure were the main outcomes of financial liberalization in the country (Shrestha 2005).

It is a belief of some macro-economists that only real macro-economic matters are behind the causes of the banking crises (De-Juan 1996). Macro-economic instability, lending booms and asset price bubbles, and inadequate preparation of financial liberalization are the factors usually behind banking crises (Goldstein and Turner 1996). Many bankers support this view as they never considered themselves to be blamed for poor management (De-Juan 1996). Systemic banking sector problems are not solely related to a weak macro-economic environment. Although all banks in a country face the same macro-economic conditions, generally not all of them fail. Sometimes the structural characteristics of the banking sector and of the economic environment also play a role (Demirguc-Kunt and Huizinga 1998). Problems with failed banks are almost never simply the result of depressed economic conditions. It is the international experience that, even in the midst of an economic

depression, good banks can manage satisfactorily. On the other hand, in even prosperous economies, there are banks that go under (De-Juan 1996). For example, bad lending practices fuelled by poor supervision and regulation leading to rapid lending growth and extreme risk taking behavior are the main problems faced by the Asian banking system (Mishkin 1999). In Spain, some well managed banks adjusted their policies during an economic slump, and simultaneously a deep and widespread banking crisis occurred in the late 1970s and early 1980s and they became stronger than before, actually very strong. However, in the same country, in a satisfactory economic context during the late 1980s and early 1990s, a large bank, Banesto, failed due to poor management practices rather than systemic problems. A 1968 survey on bank failure, based on an analysis of the behavior of banks which failed between 1979 and 1987, concluded that poor asset quality and bank management practices, not economic factors, were the major causes of the decline for problem banks (De-Juan 1996).

In Nepal, the Nepal Rastra Bank (NRB) is performing a crucial role providing technical assistance and support from international experts in improving the overall control and supervision of the financial system (Ramamurthy 2004). Credit problems have been identified as the major drivers behind banking difficulties which are created by a weakness in credit risk management (Richard, Chijoriga et al. 2008). A board of directors and senior management of each bank have the responsibility to approve the credit risk strategy and any policies relating to credit risks and their management (Basel 2006). Banks should have a clearly established process for management of credit risk when approving new credit as well as extending existing credit (Basel 1999). For this process, the Nepal Rastra Bank (NRB) is taking a serious look at improving credit risk management practices (NRB 2010 'a'). Various directives on capital adequacy, prudential norms, provisioning requirements, corporate governance guidelines and the credit risk management methods have been issued by the NRB. However, banks within the country continue to suffer from NPL and poor corporate governance (Ramamurthy 2004).

A bank very frequently suffers from poor lending practices (Koford and Tschoegl 1999). Monitoring and other appropriate steps are necessary to control or mitigate the risk of connected lending when it goes to companies or individuals (Basel 1999). Therefore, the NRB has issued guidelines with attention to general principles that are prepared for governing the implementation of more detailed lending procedures and practices within the

bank. The NRB has issued some criteria, such as the credit assessment of borrowers (macro-economic factors and firm specific analysis), the purpose of credit, track records, repayment capacity, liquidity status of collateral for new credit, as well as the renewal and expansion of existing credit. The bank has exclusive access to a continuous stream of borrower data that helps it to monitor the borrower, namely the firm's transactions in the bank (Mester, Nakamura et al. 1998).

The Credit Information Bureau, under the auspices of the NRB, is the provider of information on the borrowings in the financial system. It is mandatory for the bank and financial institutions to seek information about the borrower before sanctioning/ enhancing/ reviewing any credit facilities beyond NPR.1 million, per party (Ramamurthy 2004). It is mandatory for a bank to prepare Credit Policy Guidelines for making investments and lending decisions and which reflect a bank tolerance for credit risk. Prior to consent to a credit facility, the bank should make an assessment of the risk profile of its customers such as of their business, and which can be done through the credit procedure (NRB 2010).

Information asymmetry is the main problem faced by bankers at the first stage in a process of assessment of a lending application (Binks and Ennew 1996; Binks and Ennew 1997). Many business decisions rely significantly on accounting information and also include the very important area of bank lending (Danos, Holt et al. 1989). Financial statement information plays a major role in the credit evaluation phase of the commercial loan decision (Libby 1979). The bank requires a balance sheet, and most prefer an audited financial report for the estimation of credit risk (Koford and Tschoegl 1999). Summarized financial data helps the lenders to gain a high level of confidence in their credit granting decision very early in the evaluation process (Danos, Holt et al. 1989). Similarly, the most important step in commencing any new business enterprise, or expanding an existing one, is the construction of a business plan. The business plan is the feasibility report of a business giving the entrepreneur his first and often only probability of impressing potential sources of finance with the quality of a proposal (Barrow, Barrow et al. 2005).

As a part of credit evaluation, almost all banks require prospective borrowers to submit a business plan and a credit officer then critically assesses the plan. One problem with any business plan is that the client they may not have any idea of how to prepare such a plan, and the officers themselves end up teaching the borrower (Koford and Tschoegl 1999). A second

issue is that firms appear to be genuinely either too optimistic about the possibilities of their business or mostly arbitrary (Koford and Miller 1995).

Nepalese banks are facing problems surrounding sound accounting and reporting standards, which are necessary primary prerequisites for commercial activities (ADB 2010). It is helpful to lenders to assess the need for the loan, its purpose and the quality of the borrower's organization through the provision of sound accounting data (Danos, Holt et al. 1989).

Financial statements, either unaudited or audited, do not necessarily reflect a "true and fair" transaction of the business entity due to imaginative accounting in the country and also do not reveal details relating to a company's accounting policies and status of income tax assessments (Ramamurthy 2004). Information available to lenders is often incomplete or expensive to establish because it is believed that many companies in Nepal submit the required financial information with a few years delay, while continuing their businesses without much penalty due to insufficient supervision. As a result, credit is granted on the basis of collateral and personal guarantees instead of on a credit analysis which relies on financial statements and business plans (ADB 2010). It is believed that accounting professionals are not doing their duty as per their ethics. The Governor of the Central Bank of Nepal has criticized the practice of preparing two types of financial reports for companies by their accountants (Kantipur 2010), which reflects the belief that business plans or accounting statements submitted by entrepreneurs are not always reliable. Besides that, it is generally felt that Nepal's tax policies, particularly for income tax, have many deficiencies which allow tax officers to perform optional powers, resulting in arbitrary tax assessment. Many companies maintain different books and accounts for different purposes, such as one for tax assessment and a separate one for credit applications (ADB 2010). Due to the lack of exchange of information about credit facilities availing from entities, the financial system is not served efficiently. This reflects a high degree of credit risk within the country (Ramamurthy 2004).

The problem of defaulters and NPL is massive as are the related issues of loan recovery problems (Singh 2004; Joras 2008). The NPL comprised NPR.13954.96 million (<sup>1</sup>USD 194.73 million) in 2010 January down from NPR.32095 million (USD 447.88 million) in

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<sup>1</sup> USD 1 is equivalent to Nepalese Currency (NPR) 71.66 as per exchange rates of date 07/03/2011

2003 (NRB 2010'b'). The volume of NPL thus needed to be broken down to better understand the reasons for the existing levels of NPL (NRB 2010 'a'). It seems that the industry is putting much effort into the recovery of the bad loans (Panta 2007). The NPL were 28.68 percent in 2003 which was reduced to 3.01 percent in 2009 (NRB 2010'b'). In reality, the reduction is mainly due to ever greening of loans and huge write-offs by commercial banks. If this problem is unmanaged the overall health of the country's financial system will suffer (Panta 2007). For management of this problem, a few banks have in place good credit risk management systems and procedures, while the rest of them are in the process of doing so. Advanced forms of loan grading and credit portfolio management models are not used by the Nepalese commercial bank (Khanal 2007).

Nepal is an emerging economy in South Asia, where the institutional, regulatory and legal environment is different than those in force in developed economies. In order to promote good governance in the banking sector, regulatory response was provided by the NRB and other regulatory organizations. The Company Act is the law which mainly governs incorporated entities in Nepal. The Act provides for certain supervisory functions and rights to the shareholders to attend meetings, appoint and remove directors, and to obtain financial information as well as to approve the balance sheet annually. The other prominent legal and regulatory frameworks were provided by the Bank and Financial Institution Act (BAFIA), Securities Exchange (SE) Act. These legal and regulatory frameworks were found to be inadequate and inefficient for promoting good governance in the Nepalese banking sector. NRB promulgated a code of corporate governance for banks in 2006. It distilled rules and regulations relating to responsibilities and authorities of the chairman, Chief Executive Officer (CEO), and board of directors. Other prominent features of this bank governance is related to instituting committees such as audit committees and guidelines for appointment of bank directors. However, the performance of Nepalese commercial bank is still weak due to practice of poor corporate governance.

Considering the NPL problem faced by the bank, the NRB issues various norms and directives from time to time for the commercial bank. In spite of the substantial progress made in terms of improving the efficiency and competitiveness of the financial system, a concern of policymakers remains in terms of the high NPL and poor corporate governance.

### **1.3 Objectives of the Study**

The main objective of this thesis is to identify the determinants of NPL and influence of corporate governance on NPL and performance in Nepalese commercial banks

Under the main objectives, this thesis is trying to explore the following sub objectives:

- a. What are the macro-economic determinants of NPL in Nepalese commercial banks?
- b. What are the bank specific determinants of NPL in Nepalese commercial banks?
- c. What are the combined macro-economic and bank specific determinants of NPL in Nepalese commercial banks?
- d. What are the impact of governance on NPL and performance in Nepalese commercial banks?

### **1.4 Significance of the Study**

Financial development is an outstandingly robust determinant of income growth (Levine and Zervos 1993; Benhabib and Spiegel 2000) and believed by many economists to be of leading importance for output growth (Levine 1997). Financial intermediaries are successful elements of the financial system and play a key role in improving the performance of any economy (Morawski 2007). Assets of the financial intermediary sector and domestic credit are positively correlated with economic growth (King and Levine 1993; Aghion, Howitt et al. 2005). Similarly, at the business level, it has been shown that firms in countries with more financial development efficiently obtain more external funding and, thereby, grow faster (Demirgüç-Kunt, Detragiache et al. 2006; Das and Ghosh 2007). It can also be shown that financial backwardness may hold back the ability of agents to invest (Benhabib and Spiegel 2000). In particular, government restrictions on the banking system, such as interest rate regulation, high reserve requirements and direct lending programs may provide obstacles to financial development and reduce output growth (McKinnon 1973; Christopoulos and Tsionas 2004). However, banks can provide important triggers for economic growth and remain also the most important source of finance for a majority of the real sectors while playing a dominant role in their financial system (Godlewski 2006). In this context, commercial banks are financial institutions which assist services such as the provision of credit to borrowers in emergent economies where the people have no access to the capital market (Van Greuning and Bratanovic 2000). Efficient commercial banks boost economic growth whereas inefficient commercial banks hinder economic progress and exacerbate poverty (Barth and Caprio 2004).

In Nepal, commercial banks alone held more than 80.08 percent of the total assets of the financial system in 2010 January (NRB 2010'b'). With a broad network of branches, the state-owned commercial banks have an important role to play in the provision of financial infrastructure but other players, including the private commercial banks, also have essential contributions to make (Joras 2008). The deposit and credit ratio to Gross Domestic Product (GDP) reflects the importance of a banking system in the economy of country, and a greater ratio indicates the expansion of the role of credit as a source of funding for economic activities in the country (Acharya 2003). However, performance of the state owned banks is a major challenge for the country's financial sector (Joras 2008). State owned banks still hold more than 30 percent of total banking sector assets and also have the largest branch network, even though there is rapid entry of new private banks (Peiris 2008). The commercial banks hold the dominant share of the major balance sheet components of the financial system. Of the total deposits in 2010 January, the commercial banks owned 81.9 percent of their share (NRB 2010'b'). Total assets of the commercial banks stood at 88 percent of GDP in January 2010, increasing from 62 percent of GDP 2001 (NRB 2010'b'). Credit growth accelerated from below 20 percent in 2007 to over 30 percent in 2010 (Pitt, Ariyapruchya et al. 2010). The rapid increase in credit and asset prices over the past few years may have adversely affected the loan quality down the line which itself has led to a buildup of systemic risks (Pitt, Ariyapruchya et al. 2010). One bank's loan may wind up as another bank's deposit (Tobin 1964). Therefore, policymakers are often urged to strengthen macro-economic discipline and to improve the soundness of the financial system as a series of preventive measures (Pandey 2004).

Measures were introduced in 2009 for the strengthening of the financial sector and risk mitigation in the financial system (Pitt, Ariyapruchya et al. 2010). Various steps were established for risk mitigation such as the establishment of a Debt Recovery Tribunal (DRT) for debt collection from wilful defaulters, while self-assessment of Basel Core Principles was completed in January 2007. Similarly, the central bank issued a revised licensing policy that also addresses some of the deficiencies noted in their self-assessment, and expanded the role of external auditors by requiring them to include in their 'long-form' reports an assessment of compliance with the central bank's directives (Peiris 2008). However, political involvement, lack of sound accounting and reporting standards, insufficient supervision, and poor corporate governance are still the major issues in the Nepalese banking industry (ADB 2010).

It is common belief of bankers and economist in Nepal that both the macro-economic conditions and political disturbances are behind the cause of higher NPL and the poor performance of banks (NRB, 2010'a'). Sometimes, they fail to consider the poor management of bank's internal mechanisms and corporate governance. This is because systemic banking sector problems are linked with more than simply the weak macro-economic conditions. Specifically, the central bank of Nepal reported severe lapses in corporate governance in every bank. Despite issuing directives to strengthen corporate governance in 2005, the results were not improved and banks performance is still under the satisfactory level (NRB, 2010). So, a concern of bankers, economists and policy makers remains in understanding the drivers of NPL and performance of Nepalese banks.

Besides the above-mentioned problems and issues, this study is also significant in Nepal for the following reasons. Firstly, investigation of drivers of NPL in financial institutions is a vital requirement for providing a more efficient system of asset allocation. In Nepal, the efficiency in credit flow is more important for management of NPL and, as a result, the efficiency of a bank may increase which becomes the supportive infrastructure for economic development. Secondly, there is lack of transparency and a complexity inherent to the banking system and studies on the topic of corporate governance in the Nepalese banking system are less developed in comparison to the international studies. The research in hand will add additional insight to the existing body of knowledge of corporate governance from the perspective of developing economies, and Nepal in particular. Thirdly, this study addresses a contemporary policy issue in relation to market structure, and is essential in providing evidence for policy changes related to market competition. Fourthly, the findings and recommendations of this study will be useful to researchers and policy makers to help achieve the targeted goal of financial reforms and good corporate governance in the context of Nepal. Thus, the significance of the study as proposed is both applicable to the literature as these are no in-depth studies in this area in the literature, and it has an applied application that will impact on the banks in Nepal and benefit the economy as a whole.

### **1.5 Scope and Limitation of the Study**

The scope of the study is confined to a research framework which assesses exposure of bank non-performing loans in Nepal and the identification of the factors affecting NPL and performance in the Nepalese banking sector. This thesis examines how macro-economic, bank specific and governance variables affect the NPL and performance in Nepalese banking.

In the investigation process, this thesis examines the relationship of macro-economic and bank specific variables on NPL from 2001-2011. In the case of governance variables, this thesis examines the relationship of governance variables on bank NPL and performance from 2005 to 2011.

This study is limited to secondary data sources which are mainly from audited bank annual reports. Moreover, the study was limited to banks rather than to all financial institutions. On the other hand, this study takes only domestic and foreign banks as samples and excludes government banks due to unavailability of data.

## **1.6 Summary of Research Methodology**

This study uses secondary data in establishing the relationship of macro-economic, bank specific and corporate governance on bank NPL and performance of 29 commercial banks listed in the Nepal Stock Exchange. The secondary data is obtained basically from published annual reports of these banks and some data is obtained from the World Bank data base. Books and other related materials especially of the Central Bank of Nepal and the Nepal Stock Exchange were also reviewed. The sample of banks used in this study is listed on the Nepal Stock Exchange observed over eleven years from 2001-2011 to examine the determinants of NPL. Next, this thesis observed seven years data from 2005-2011 to examine the corporate governance determinants of NPL and bank performance. Accordingly, this thesis employs a panel data regression model. Under this, the thesis has used Ordinary Least Squares (OLS), Fixed Effect (FE), Random Effect (RE) and General Momentum Method (GMM). The outcome from the analysis provides evidence on the relationship of macro-economic, bank specific and governance on bank NPL and performance.

## **1.7 Structure of the Study**

The remainder of this thesis is organized as follows. Chapter 2 describes about the Nepalese economy and financial system. Chapter 3 presents the corporate governance in the Nepalese banking sector. Chapter 4 reviews previous evidence on NPL, performance determinants of NPL and the relationship of governance mechanism on performance. Chapter 5 presents the conceptual framework of this thesis and hypothesis development. Chapter 6 presents the methodology which explains the sample used in this thesis and measurement of variables. Chapter 7 presents the main findings and discussion of macro-economic, bank specific and corporate governance determinants of NPL. The findings and discussion of the influence of

corporate governance on bank performance are presented in Chapter 8. Finally, Chapter 9 presents the conclusion, the implications and limitations of the study followed by suggestions for future research.

## **1.8 Summary**

The chapter provides an overview of the role of financial intermediation in the economic growth in Nepal and the impact of failure of financial intermediaries in the nation. The chapter described various problems that Nepalese banks are facing in the present context and various efforts of the Central bank of Nepal for management of such problems. This chapter detailed the importance of the investigation of determinants of NPL and the role of corporate governance in the Nepalese banking industry.

## CHAPTER TWO

### Overview of the Nepalese Economy and Financial System

#### 2.1 Introduction

This chapter provides a general overview about the Nepalese economy and financial system, specifically the Nepalese banking sector. This overview aims to provide an understanding of the banking system, its characteristics and the risks involved in the Nepalese setting. Section 2.2 highlights a brief history of the Nepalese economy and macro-economic activities over the 2001 to 2011 study period. Section 2.3 describes the financial system. The development of the financial sector, supervision frame-work for the banking sector, development of the capital market, legal framework for investor protection and resolution of problem loans and performance of commercial bank has been described with a focus on the banking sector in Nepal. Lastly, Section 2.4 summarizes this chapter.

#### 2.2 The Nepalese Economy

##### 2.2.1 A Brief History of the Nepalese Economy

The Federal Democratic Republic of Nepal, common known as Nepal, is a sovereign, independent, relatively small and landlocked republic country in South Asia with its northern border to China and east, west and south border to India. Nepal has a total geographical area of 147,000 square kilometers. The total population of the country was 30 million in 2011 (CIA 2011). The per capita income is recorded US\$642 per annum which places the country as one of the least developed countries in the world (CBS 2011).

Before 1768 AD, Nepal was separated into different small territories which were accomplished into the unification kingdom by King *Prithivi Narayan Shah* through conquering these territories. Until that time, the country was limited to only Kathamandu valley, which had three different territories in it. Since the union, the kingdom escaped from the British occupation as well as colonization of other countries and known as a sovereign country.

After the freedom and political changes from *Rana* hegemony in 1951, the general public elected *Matrika Prasad Koirala* as the first prime minster. The country started various

reforms, institution building and development works from 1952 to 1959 under three prime ministers. The country has, however, made improvement towards sustainable growth since the 1950s and is dedicated to a program of economic liberalization. The country had started a series of five-year plans in an attempt to make progress in economic development in 1956. A number of geo-political and structural limitations such as land-lockedness, rugged landscape, inadequate means, low income, low savings and higher rate of population growth, limited transportation facilities, limited infrastructure and unstable political system were the main obstacles for the economic development of the country and to uplift the economic condition of the people to a desired level. A multiparty political system was followed by the country from 1959 but that political system had a short life of about two years. A one party political system existed in the kingdom from 1961 to 1991. The country again implemented a multiparty political system after the popular movement of 1991 (Kraemer 1999). The country was facing the low economic growth and unequal income distribution which was the main feature of the Nepalese economy. As a result of short outcomes in performance of the multiparty system, failure of the government to improve the economic status of general public, serious political crisis was faced by the country. In this environment, Maoist rebels started a guerilla war against the government and the monarchy in 1996.

The Prince *Gyanendra*, brother of King *Birendra*, became the new king in June 2001 after the royal palace massacre. The new prince suspended the elected House of Representative and designated a cabinet to operate the country's administration in October 2002. With the objectives of control of the Maoist movement, the king fired the entire government and assumed full executive powers on 1 February 2005 (BBC 2013). However, the action was unsuccessful because the Maoists had already expanded their force in large extent to the country side which could make it difficult to remove the military from numerous towns and the largest cities. In September 2005, the Maoist rebels declared a unilateral cease-fire which ended in January 2006.

The Guerilla's ten year insurgency ended in November 2006 when Maoist rebels and seven political parties signed the peace agreement. Then, the Maoists supported the movement organized by seven political parties. In response to this movement, the King agreed to give up sovereign power to the people but it was rejected as their demand was the restoration of parliament and a referendum to redraft the constitution. On 28 December 2007, a bill was passed in parliament to amend for replacing of "Provision regarding the King" by "Provision

of the Head of the State” declared Nepal a federal republic, and thereby abolishing the monarchy. The new parliament, quickly diminished the king’s powers, selected *Girija Prasad Koirala* as prime minister (BBC 2013).

In 2008, the general public turned out to elect a government with the hope that the new government will write a new constitution. The Maoists won 50 percent of seats in the election (BBC 2013). At that time, it was announced that Nepal had become a secular and inclusive democratic republic. After that, the situation forced the king to vacate the *Naraynhiti* royal palace which was re-opening as a public museum. King *Gyanendra* vacated *Naraynhiti* palace in June and began life as a commoner. So far, Nepal is facing the political disturbance and consequent power-sharing battles. The country initiated a liberalization policy in 1992 and then Nepal became a member of World Trade Organization in April 2004. Since then, economic performance has not resulted in the strong development Nepal needs. Various main factors such as political disturbance from 1996 to 2006 were obstacles for GDP growth. Considering the importance of trade in sustainable economic growth and improving the living standards of the people and reducing the poverty, the country started further programs to create a more open business environment and support for its exports to become more competitive (WTO 2011).

### **2.2.2 Macro-economic Activities**

The Nepalese economy is suffering through a downgrading situation which is creating poverty and stagnation due to various constraints such as the land locked situation which places obstacles for access to sea for international trade, increasing lending rates, high tax burdens and high business costs. As a result of high inequality in income and inflation, trade deficit, lower domestic saving and high dependency on agricultural income, the country is facing the problem with its economic growth. Good remittance inflow and target of Millennium Development Goals by 2015 helped to minimize the poverty rates even in the country which was facing some problems such as political insurgency, weak governance and poor investment climate. A low level of outstanding public debt is supporting the country for utilization of more resources at present (NPC 2012). The country started to implement the ten year plan for reduction of poverty. However, this effort was not helpful and the country still stands as a least developed country with a rank of 157<sup>th</sup> position out of 187 countries with human development index of 0.463 in 2012 (UNDP 2012). The country has total share of trade of 67 percent with India showing the higher dependency upon India. Macro-economic

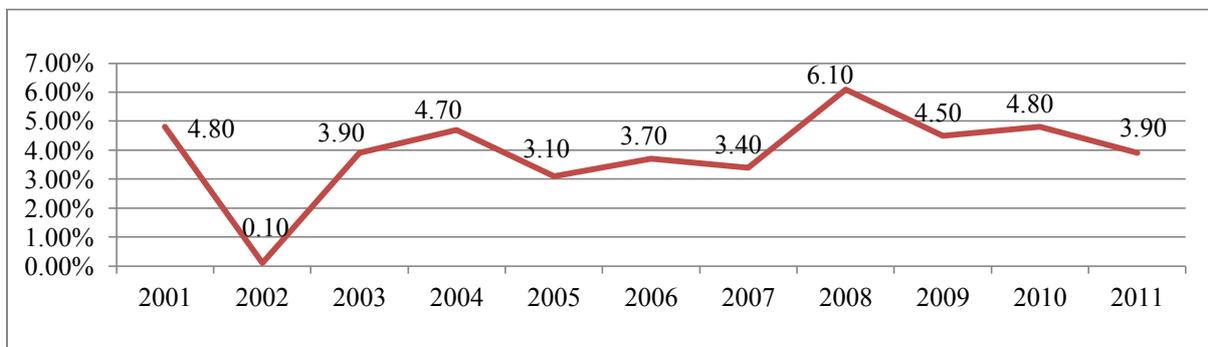
indicators show that merchandise trade exports with India and other overseas countries have declined rapidly which resulted in a higher trade deficit. The economy shows a negative balance of payment situation. Besides this, the degree of gross international reserves is in decline, and imports of merchandise goods and services is only about 7.3 percent (NRB 2012'a').

The country's economy is mainly dependent upon agriculture which accounts for 33.43 percent of GDP and this sector is limited to survival level farming. The growth rate 3.9 percent in 2011 proves a very low growth rate in the country if compared with its neighboring countries. It is recorded that China has been achieving a double-digit growth rate since 2005 whereas India is about to reach double-digit growth. Nepal could not recognize the spillover effects of the high growth in its neighbors India and China.

### 2.2.2.1 Gross Domestic Product

The growth of GDP fluctuated over the past ten years which has remained below 5 percent from 2001 to 2007. It was recorded at 4.8 percent in 2001, which recorded the lowest growth in 2002 at 0.1 percent. The monetary authority had targeted to achieve GDP growth of 4.5 percent in 2011. However the country achieved the growth at 3.90 percent which was a satisfactory level. The highest GDP growth rate reached 6.1 percent in 2008. The various factors such as labor problems, irregularity in electricity supply, constraints in bank credit, slow remittance flow hampered the non-agriculture sectors and as a result the GDP growth was not achieved by the country as per the target.

**Figure 2.1: Trend of GDP Growth**



Source: World Bank (2011)

### 2.2.2.2 Structure of GDP

There have been regular fluctuations in the Nepalese economic structure. The contribution of the agriculture and industrial sectors is in declining trend whereas contribution of the service sector is in opposite direction. The trend shows that the contribution of the agriculture sector is in declining trend from 2006 to 2010 which was slightly increasing in 2011 as a result of some improvement in the agriculture sector. It can be observed that the contribution of the agriculture sector to GDP was recorded 35.25 percent in 2001 which declined by 1.8 percentage points in 2011 and recorded to 33.43 percent.

It can be seen that the trend of the contribution of industry sector to GDP is also fluctuating from 2001 to 2011. The industry sector is comprised of the industries, electricity, gas, water supply and construction. The contribution of this sector of GDP is recorded 16.66 percent in fiscal year 2001 which was decreased by 2.05 percentage points in 2011 and recorded 14.61 percent. The major reason for the reduction in contribution of this sector is as result of the declining contribution of the manufacturing sub sector by 6.1 percent in year 2011 (NRB 2012).

The contribution of the service sector is higher than compared to the agriculture and industry sector. This sector comprises trade, transport, communication and warehousing, financial intermediation, real estate business, public administration and defense, education, health and other community, social and personal services, and other sectors. The contribution of this sector is reported as 47.27 percent in 2011 which is increased by 3.72 percentage points in GDP compared to fiscal year 2001. The contribution from this sector marginally decreased in 2011 compared to previous years. The improvement in the sub-sector of service sectors such as transport, public administration, education and other community service sectors among these sub-sectors contributed in the improvement in this sector (NRB 2012).

**Table 2.1: Sectorial Contribution to GDP**

Sector	Mid July										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Agriculture (%)	35.25	36.29	36.08	36.12	36.13	35.57	34.73	34.64	34.14	33.23	33.43
Industry (%)	16.66	16.78	16.65	16.13	16.06	16.23	16.31	15.64	14.88	14.76	14.61
Services (%)	43.55	43.61	43.50	44.39	44.32	45.29	45.77	46.31	46.96	47.41	47.27

*Source: Ministry of Finance (2011)*

### **2.2.2.3 Inflation**

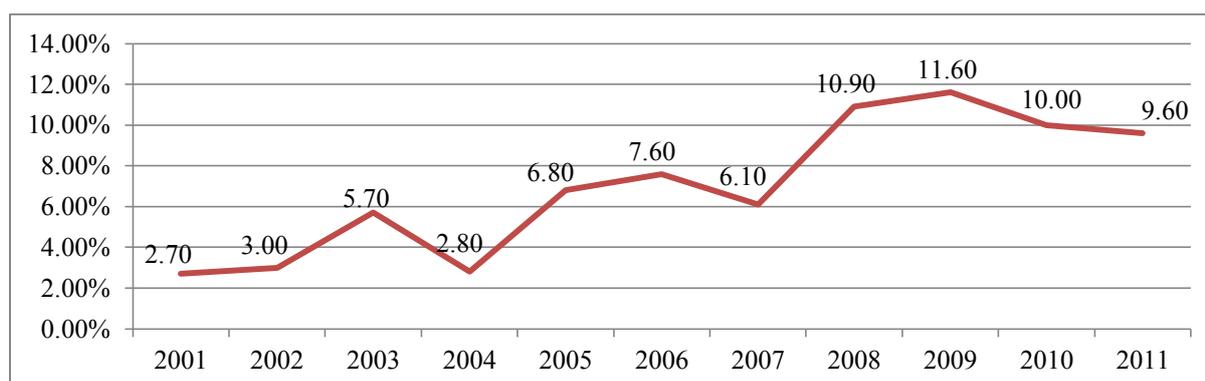
The rate that had earlier shown a rising trend since the fiscal year 2006 and attained its highest point 11.6 percent in fiscal year 2009 has come down in the last two fiscal years. Although, the inflation rate stood below 6 percent for about half a decade prior to the fiscal year 2006, both the internal and external causes have influenced the rise in inflation rate in the past few years.

Frequent closures, strikes, load-shedding and political instability that have an adverse impact on productive activities and the supply situation have been the dominant internal factors, while the price increase in petroleum products and impact of Indian inflation are the major external factors. Additional causes of the apparent impact of the Indian border between these two countries, Nepal's foreign exchange rate is pegged with Indian the currency, and has almost about two-thirds of the trade with India. Nepal has been facing high (double digit) inflation from fiscal year 2008 to 2010. On the other hand, the inflation was recorded low throughout fiscal year 2001 to 2007. The reason behind lower inflation rate was good macro-economic performance and fiscal and monetary measures to control inflationary pressure.

A disaggregated analysis of the inflation rate in Nepal reveals that during fiscal year 2001 to fiscal year 2011, inflation rate saw an increasing trend. The point-to-point inflation rate increased significantly from 2.7 percent in fiscal year 2001 to 9.6 percent in fiscal year 2011. The point-to-point inflation showed a steady rise since 2001 and reached its highest at 11.6 percent in fiscal year 2009. By the end of fiscal year 2011, this rate declined to 9.6 percent.

An extensively considered possible reason of high inflation in Nepal is the adverse effect of global price increases. This global price increase has a direct impact on imports of food and petroleum products which are the country's main import items. The global price of fuel and food was in increasing trend since the beginning of current decade up to 2008 which directly transferred into the country's domestic economy. As a result of the global meltdown and the resultant price fall of major commodities in the global market, there has been some break from high inflationary pressure towards the end of 2008 and 2009. With the turn-around of the global economy from the recession towards the end of 2009 and beginning of 2010, inflation started to increase rapidly. This trend was also observed in Nepal.

**Figure 2.2: Trend of Inflation Rate**

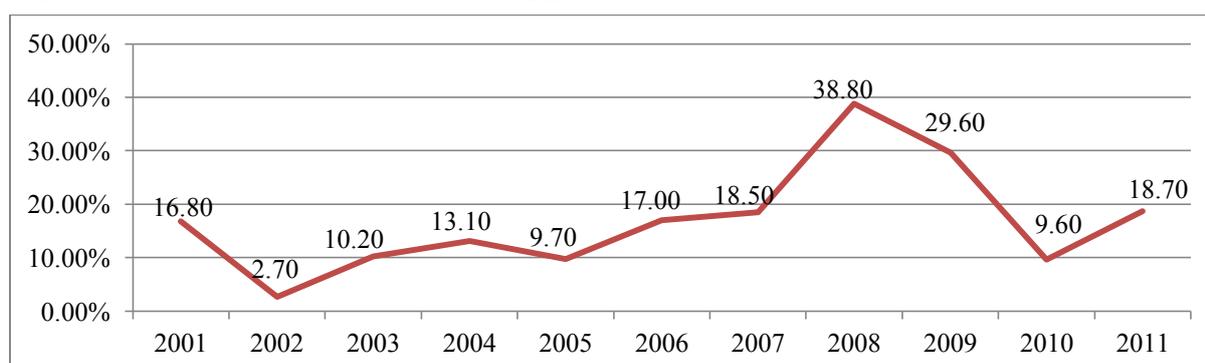


Source: World Bank (2011)

#### 2.2.2.4 Money Supply

The monetary supply expanded at a lower rate in 2011. The deceleration in growth of monetary supply in the review period is attributed to the deficit in the balance of payments in most of the months and lack of expected increase in government capital expenditure (NRB 2012). Broad money supply reported a fluctuating trend over the last ten years. The growth of broad money was 16.80 percent in 2001 that decelerated to 2.70 percent in the consequent year, but accelerated rapidly to 10.20 percent and 13.10 percent in fiscal years 2003 and 2004 respectively. Again, money supply decelerated and reached to 9.70 percent in 2005 and after 2005 it gradually increased and reached to 38.80 in 2008. After the fiscal year 2008, broad money supply decelerated and reached to 9.60 percent in 2010. Negative growth of net foreign assets was the main cause of deceleration of money growth in Nepal. However, the country was able to attain satisfactory money growth in fiscal year 2011 as a result of higher increases in time deposits during this period attributed to the revival of economic activities and continued increases in foreign remittance.

**Figure 2.3: Trend of Broad Money Supply Growth**



Source: World Bank (2011)

### **2.2.2.5 Trade**

Since the country adopted liberal economic policies from the beginning of the 1990s, the government of Nepal has promoted private investment and encouraged foreign direct investment with several institutional and economic reforms (Thapa 2012). Nepal officially obtained the World Trade Organization membership in 2004 as 147<sup>th</sup> member. It was highly anticipated that Nepal's membership in such a rules-based trading regime would integrate the national economy to the global mainstream and expand trade and market access opportunities, thereby expanding its trade opportunities, facilitating competition and absorbing knowledge (Kafle 2011). Nepal is facing trade deficit from 2001 to 2011. The trade sector has a great role to improve the economic growth and reduce poverty. The increasing trend of the trade deficit may create severe challenges to the various economic structures of the nation. Insufficient setup as well as the lack of raw materials and innovation in technology is a main cause of accelerating the trade deficit in the country. Nepal's imports have increased sharply relative to its export volumes since 2001. The rapid growth in imports is mainly due to Nepal's increasing imports from India.

Nepal's external sector has historically been weak. The imported commodities range from basic goods to luxurious goods as well labor intensive goods to capital intensive goods. Being an agriculture country, Nepal imports large amounts of agriculture goods from India and China.

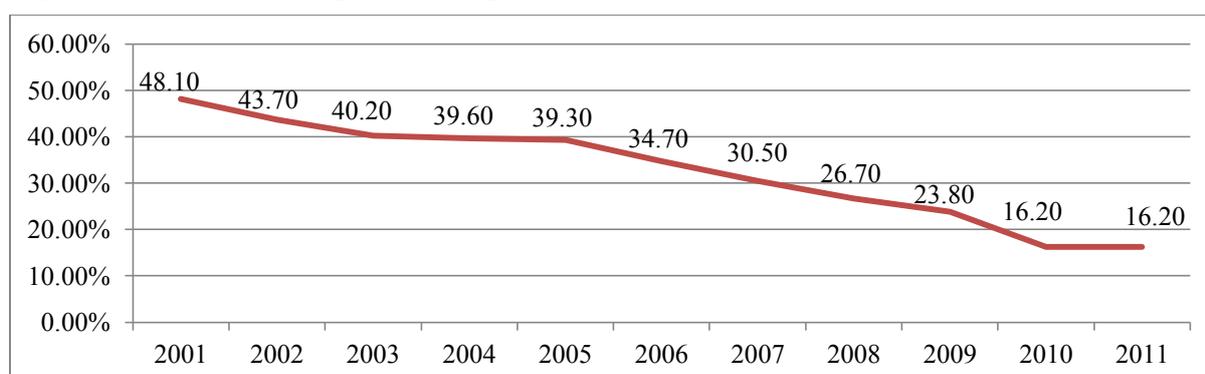
The details picture of Nepal's international trade for the last eleven years from fiscal year 2001 to 2011 has been presented in Table 2.2 where the trade balance over the period was always in deficit and in increasing trend. Average annual growth rate in exports during the period was 0.75 percent and that of imports is 11.86 percent. The ratio of total exports to imports was reported 48.10 percent in fiscal year 2001 which has decelerated to 16.34 percent in fiscal year 2011.

**Table 2.2: Trade and Their Contribution on GDP**

Indicators	Mid July										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Export (NPR in billions)	55.56	46.94	49.33	53.91	58.71	60.23	59.02	59.26	61.4	55.07	58.14
Import (NPR in billions)	115.69	107.39	124.35	136.28	149.47	173.78	192.71	221.94	253.59	339.08	358.4
Trade balance (NPR in billions)	-60.03	-60.44	-74.42	-82.37	-90.77	-113.6	-130.9	-162.7	-192.2	-248.01	-300.27
Export to GDP (%)	13.5	11.1	10.9	10.09	11	9.2	8.1	7.27	6.21	4.61	4.24
Import to GDP (%)	28.1	25.4	27.20	27.4	28	26.57	26.48	27.21	25.67	28.41	26.17
Trade balance to GDP (%)	-14.6	-14.3	-16.30	-16.6	-17	-17.36	-17.98	-19.94	-19.45	-23.79	-21.93

*Source: Ministry of Finance (2011)*

Compared to the GDP, the trend of export contributions to GDP has been decreasing in the last eleven years, except in 2005 (see Figure 2.4). The ratio of exports to GDP was reported as 13.5 percent in fiscal year 2001, which decelerated to 4.25 percent in fiscal year 2011 - a decrease of 68.55 percent. The trend of imports to GDP ratio fluctuated over the period which was reported at 28.1 percent in fiscal year 2001 and decelerated to 26.17 percent in fiscal year 2011.

**Figure 2.4: Trend of Exports to Imports**

*Source: Ministry of Finance (2011)*

### 2.2.2.6 Exchange Rates and System

Until the beginning of the 1990s, the Nepalese foreign exchange system was strictly controlled like other developing countries in the world. There has been considerable change in the exchange rate system of Nepal after the introduction of partial and full convertibility in March 1992 and February 1993 respectively. Currently, Nepal is using a dual exchange rates procedure because the Nepalese currency is pegged with the Indian currency where as it floats with other major convertible currencies such as US dollar, UK pound and Japanese yen etc. Market demand and supply started to play as main drivers to fix the exchange rates of convertible currencies in the country. For the management of the external sector, the

Nepalese exchange rates policy is considered to maintaining the peg with the Indian currency. The pegged exchange rate system is taken as a secure way to maintain price stability and controlling inflationary expectations in the country. Nepal is gaining from the pegged exchange rate system with Indian currencies because of its close economic ties with India. Thus, the central bank is acting as rate taker rather than rate maker in foreign currency. The central bank publishes the exchange rates only for its own use, which is only indicative. Commercial banks are free to decide their own buying and selling rate for convertible currencies. In this connection, the central bank has instructed commercial banks to manage one percent spread between the buying and selling rate of convertible currencies which means if the commercial bank fixes the buying rate lower that leads the selling rate lower too. Freedom in fixing of exchange rates by commercial banks varies the exchange rates from bank to bank. In such a situation, the question may arise about the purpose of exchange rates being published by the central bank. Normally, the commercial banks in Nepal use similar exchange rates. To avoid unhealthy competition in foreign exchange transactions, the commercial bank has established the Foreign Exchange Dealers Association (FEDAN) where they share knowledge. Membership consists of all the banks of the country. The main task of FEDAN is to coordinate between its member and the central bank in regards to foreign exchange.

If we look at the exchange rates of Nepalese currency with American dollars over the last eleven years, it is devalued significantly which is presented in table below.

**Table 2.3: Depreciation and Appreciation of Nepalese Currency**

Currency	Mid July											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
US Dollor	1	1	1	1	1	1	1	1	1	1	1	1
NPR	70.4	74.65	78	74.75	74.14	70.35	74.1	64.85	68.5	78.05	74.44	70.95
D (-) or A (+) of NPR		-6.04	-4.49	4.17	0.82	5.11	-5.33	12.48	-5.63	-13.94	4.63	4.69

*Source: Nepal Rastra Bank (2011)*

## 2.3 Nepalese Financial System

### 2.3.1 Financial Sector Development

The development of the financial sector in Nepal has been influenced by overall low economic standards. However, in the last two decades, the financial sector background changed significantly in terms of the depth of financial services offered as well as in terms of

the range and number of financial intermediaries which forced the financial sector into becoming one of the most dynamic sectors in the Nepalese economy (Joras 2008). The Nepalese financial system has undergone rapid structural change in the last two and half decades (NRB 2010'b'). The development of the Nepalese financial system does not have a very long history, starting just from the early twentieth century. The history of Nepalese banking, from initiation to the present, can be divided into three distinct phases. The paradigm swing in these phases is determined by different indicators: the first indicator is the establishment of the NRB in 1956- this determines the shift from the first to the second phase; similarly, the second indicator is the promulgation of the current NRB Act 2002- this determines the shift from the second phase to the ongoing third phase.

### **2.3.1.1 The First Phase**

This phase relates to the commencement of a formal domestic banking system in Nepal until the establishment of NRB in 1956. Nepal's formal financial system had a late start and began less than one and a half centuries ago. Similar to other countries, goldsmith, merchant and money-lenders were the ancient bankers of Nepal (Dahal 2009). The establishment of *Tejarath Adda* in 1880 AD was a first step and can be viewed as the institutional development of banking for the credit mobilization in Nepal. Although, this institution is formally established, the institution was not allowed to provide banking facilities such as collect the deposits from and extend credit to the general public. The government used to provide funds to this institution, which was only for credit to government employees and landlords. However, as it had been only a credit institution, it did not play the essential role of financial intermediation (Pant 2010) which fulfills the needs of all people. Modern banking started with the inception of Nepal Bank Limited on 15 November 1937 under Nepal Bank Act 1937 which started to provide financial services to the general public. So, the establishment of Nepal Bank Limited is signified as the commencement of a formal banking system in Nepal.

### **2.3.1.2 The Second Phase**

The government's realization of requirement for developing a banking service to every part of the country, ending dual currency system and stabilizing highly unstable exchange rates gave birth to NRB in this phase (Dahal 2009). The NRB was established on 26 April 1956 as central bank under the NRB Act 1955. Since then, NRB has made it easier for the establishment of bank and financial institutions across the country. However, this phase can

be advanced into two sub-periods: The first sub-period “A” was the period where the Nepalese payment system was considered as “predominantly a cash-economy”, but the establishment of Nepal Arab Bank Limited as the first joint venture bank in 1984 under the financial liberalization policy turned this phase in a different direction. This sub-period saw a more lead role of NRB in terms of credit control through a directed lending program and control of different categories under the full ownership of the Government of Nepal. As the necessities of these programs, Nepal Industrial Development Corporation in 1959, Rastriya Banijya Bank in 1966 and Agriculture Development Bank, Nepal in 1968 were established.

The second sub-period (or second phase B) received greater financial liberalization that practically started from 1984 until the enactment of the new NRB Act in 2002. This sub-period resembles the complete economic liberalization policy of the Government of Nepal after the country experienced continued balance of payments crisis in the early 1980s. The later sub-period saw major changes in the policy measures such as: removal of entry barriers, deregulation of interest rates, introduction of various prudential norms such as capital adequacy requirement, loan classification, loan loss provisioning, interest income recognition, single borrower limits etc. Nepal Indosuez Bank (later named as Nepal Investment Bank) and Nepal Grindlays Bank (currently Standard Chartered Bank Nepal) were established in 1986 and 1987 respectively as the second and third joint-venture banks during this second sub-period.

The entry of other development banks, finance companies, micro-credit development banks, saving and credit cooperatives and NGOs for limited banking transactions started after 1992 under three major acts namely, Finance Company Act 1985, Company Act 1964 and Development Bank Act 1996.

### **2.3.1.3 The Third Phase**

The current NRB Act 2002 replaced NRB Act 1955 in this phase and allowed NRB to be more independent in decision making for the formulation of monetary and foreign exchange policy as well as monitoring and regulating bank and financial institutions across the country. However, it was experienced that the existing situation of different acts under the banking and financial institution sectors was not effective for enhancement of regulation and monitoring systems. As a result and as a process of financial sector reform program, BAFIA, 2006 grouped all diversified acts. This Act, also known as the Umbrella Act, categorized all

the bank and financial institutions under four heads on the basis of responsibility differences: Group A as commercial bank; Group B as development bank; Group C as finance company; and Group D as micro-credit development bank. The other two forms of institutions, namely savings and credit cooperatives and NGOs, both allowed by NRB for limited banking transactions are, however, not put in any of those groups and are being operated under specific directives and rules.

#### 2.3.1.4 Current Status

Presently, as at the end of July 2011, the number of bank and financial institutions licensed by NRB are: 31 commercial banks under Group A; 87 development banks under Group B; 79 finance companies under Group C; and 21 micro-credit development banks under Group D. Similarly, there are 16 savings and credit co-operatives and 38 NGOs, both being allowed by NRB for undertaking limited banking transactions. The historical development of the number of banking and financial institutions is summarized in Table 2.4 below.

**Table 2.4: Growth of Financial Intermediaries**

Category of Financial Institution	Number at Period End			
	First Phase (1937-1956)	Second Phase (1957-2002)		Third Phase (2003 -2011)
		Sub-period A 1984	Sub-period B 2002	
Commercial Bank	1	4	18	31
Development Bank	-	1	9	87
Finance Companies	-	-	51	79
Micro-credit Development Bank	-	-	11	21
Saving and Credit Cooperatives (Licensed by NRB)	-	-	16	16
NGOs (Licensed by NRB for Limited Banking Transaction )	-	-	35	38
<b>Total</b>	<b>1</b>	<b>5</b>	<b>140</b>	<b>272</b>

*Source: Nepal Rastra Bank (2011)*

Table 2.4 shows that the number of bank and financial institutions have experienced an accelerated quantitative growth after the end of the first phase. Until 1956, there was only one commercial bank, NBL, with the number of all other financial institutions being zero. At the end of the first sub-period of the second phase (second phase A), three more commercial banks and one development bank were established. The number drastically increased in the end of the sub-period of the second phase (second phase B). There were altogether 140 bank and financial institutions (18 commercial banks, 9 development banks, and 51 finance

companies with the establishment of savings and credit cooperatives and NGOs). The growth scenario in terms of number has reached 272 bank and financial institutions with 31 commercial banks and 87 development banks and 79 finance companies with the establishment of savings and credit cooperatives and NGOs as shown in Table 2.4 as at the end of July 2011. The accelerated growth of financial institutions in second phase B and the current third phase is purely from the private and/or joint-venture sector with no participation of the Government of Nepal. This has resulted from greater reform initiatives. This reform includes ease of licensing policies, statutory requirements, foreign exchange exposure, and cash reserve ratios; liberalization of the interest rates; full convertibility of current account and other prudential rules and regulatory reforms. With these quantitative developments in the financial sector, NRB has changed its role from simply focusing on the provisioning of financial services to regulation and supervision aspects in an open and liberalized environment (Bhattarai 2005).

### **2.3.2 Supervision Framework**

Supervision of bank and financial institutions is one of the key tasks of the supervisory authority. Effective supervision of banks and financial institutions is an important constituent of a strong economic environment. Banks are supervised so as to achieve both long-term financial strength and sector efficiency. Effective supervision can be done through the advancement of safe and efficient banking practices. The weakness in legal framework and supervision provide the opportunity for inefficient and unsafe banking practices which increase the risk of bank failure. Considering all of the above motives, the NRB has adopted off-site and on-site inspection methods to monitor and supervise the financial health of financial institutions. However, NRB's main methodologies to supervising banking institutions are to focus on corporate governance, market discipline and management oversight.

#### **2.3.2.1 Present Status of NRB Supervision**

##### **2.3.2.1.1 Promulgation of NRB Act, 2001**

The new NRB Act, 2002 has been promulgated with the objectives of strengthening NRB supervision as one of the main objectives of this Act. This Act has made NRB fully independent from government interference. This Act has prepared several requirements for mitigation of political interference and practice of professionalism in the NRB board by required qualification and code of conduct for governor, deputy governor and other directors

along with the provision of an audit committee to enhance good corporate governance in NRB. Similarly, various other provisions to assist effective supervision have been unified in the Act. This Act authorizes NRB to conduct on-site and off-site inspection of all the bank and financial institutions at any time through internal and external manpower. For enhancement of effective supervision, NRB has specified the time period for submission of a report and also specified the provision for inspection reports to be presented in NRB for necessary comment regarding the corrective measure. The Act has also unified several financial as well as legal penalty provisions in case of non-compliance of NRB regulations and mandatory provisions by the bank and financial institutions to the ultimate provision of cancellation of the operating license along with the authority to suspend the board of the concerned institutions and take it over by NRB vide Sections 86, 99 and 100. Similarly, the new Act has also provided legal protection to supervisors in case of conduct of their duties in good faith by Section 107. The recent amendment in Section 86 of the same Act has further strengthened the supervisory authorities of NRB. It has given better power to NRB with additional enforcement authority in the case of bank and financial institutions that have been identified as troubled institutions by NRB Supervision.

#### **2.3.2.1.2 Promulgation of an Umbrella Act**

For proper and smooth operation of bank and financial institutions, an Umbrella Act named the Bank and Financial Institutions Ordinance, 2004 has been promulgated so as to avoid regulatory fragmentation in the operation of different financial institutions. All the fragmented provisions relating to supervisory authority of NRB have been brought into one place which had previously been scattered in different enactments. This has made possible the concerted and converged supervision. This Act has made enough provisions so as to ensure good corporate governance mechanism and financial discipline in the banking and financial institutions. The Act has also incorporated various provisions for ensuring professionalism in their boards and management teams. It has also given better power to the central bank with enough supervisory and enforcement authorities so as to ensure strengthened supervisory functions on the part of NRB. Similarly, it has also made enough provisions to ensure adequate risk management systems in those institutions.

#### **2.3.2.1.3 Issuance of Prudential Regulations**

NRB has issued several sets of prudential regulations in line with international standards to address and mitigate risks in financial businesses. These regulations include disclosure on

assets quality and connected lending, capital adequacy requirement, loan classification and provisioning, single borrowing limits, accounting policies and financial statements, credit concentration, risk management, corporate governance and code of conduct. NRB has also lately released other regulations concerning periodical reporting requirements and mechanism for divestment of shares by the promoters of the bank and financial institutions. Similarly, NRB is also taking the initiative to the amendment of the licensing requirement which helps to promote strict standards of appropriate and suitable tests for the promoters along with other requirements. All these regulations have been delivered in discussion with World Bank consultants advising NRB and are principally guided by the Core Principles of Bank Supervision prescribed by the Bank for International Settlements (BIS).

### **2.3.3 Capital Markets**

The history of Nepal's capital markets began with the flotation of security by *Biratnagar Jute Mills* in 1936 and Nepal Bank Limited in 1937. The Nepal Government issued the Company Act in 1964 and the first issue of government bonds was made in the same year through NRB to collect the developmental expenditures as well as other landmarks in the development in the stock market. The Nepal Government announced the Industrial Policy in 1974 and, as a result, the Securities Marketing Center was established in 1976 under this policy in order to facilitate the trading of government securities - development bonds and national saving bonds, and corporate securities of a few companies. Then, the Securities Market Center was converted into the Securities Exchange Center (SEC) in 1984 under SE Act 1983 with the objectives of promoting the growth of capital markets. Considering the importance of protection of individual and institutional investors, public participation in various firms and companies, systematic and favorite environment for securities, the SEC started to list and trade in corporate securities (Gurung 2004).

Two investment vehicles i.e. Citizen Investment Fund and NIDC Capital Market were established in the corporate sector after the initiation of financial reforms. The main objectives of the two organizations were to collect the investment funds in the corporate sector (Gurung 2004). The country became more competitive due to the privatization and economic liberalization policies which changed the operation of SEC to compete with the changing economic system. This situation lead the Nepal government to change the structure of SEC and divide it into different entities i.e. Securities Board of Nepal (SEBON) and Nepal

Stock Exchange Limited (NEPSE) at the policy level in 1993. Since then, they are operating as the main constitutions of securities market in Nepal.

The main task of the Securities Board Nepal is to service the development of an active and competitive capital market and continue its integrity, objectivity, competence, transparency and responsiveness under the SE Act 1983 (SEBON 2001). It is the top regulator of the securities market in Nepal. It registers the securities and approves the public issues. Moreover, SEBON sets the policies and programs needed to monitor the securities markets, provide licenses to operate stock exchange businesses and stock brokers and supervisors, and monitor the stock exchange operation and securities business operatives.

NEPSE is a non-profit organization and the SE Act 1983 guides the duties and operation of NEPSE. The basic objective of NEPSE is to communicate free marketability and liquidity to the government and corporate securities by facilitating transactions in its trading floor through market intermediaries such as brokers and market makers, etc. NEPSE opened its trading floor on 13 January 1994. The trading floor is restricted to listed corporate securities and government bonds with the market intermediaries in buying and selling of such securities.

**Table 2.5: Stock Market Development in Nepal**

Indicators	Mid July										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Market capitalization ratio	11.21	8.06	7.66	8.27	11.19	15.84	27.57	48.49	56.41	35.52	26.53
Total value traded ratio	0.57	0.36	0.13	0.43	0.82	0.56	1.24	3.02	2.38	1.12	0.55
Turnover ratio	5.06	4.44	1.63	5.18	7.35	3.56	4.49	6.23	4.23	3.14	2.06
Market concentration ratio	0.76	0.58	0.6	0.66	0.61	0.67	0.67	0.52	0.48	0.51	0.44
Number of listed companies	115	96	108	114	125	135	135	142	159	176	207

*Source: Securities Exchange Board of Nepal (2011)*

Different kinds of indicators are used to measure stock market development. The market capitalization ratio is the first indicator which measures the size of market. It is calculated by dividing the value of capitalization by GDP. The table shows that the average market capitalization ratio is only 23.40 in the span of eleven years, which has been increasing from 7.66 in 2003 to 56.41 in 2009 and declined to 26.53 in 2011. A low stock market capitalization ratio suggests the stock market is yet to indicate its influence on the economic activities of the country.

Total value traded ratio which is taken as market liquidity indicator, is measured as the total value of shares traded in the stock market as a percentage of GDP. This ratio indicates how easily securities can be traded in the market. The table shows that the ratio is below to 1 during 2001 to 2006 and increased to 3.02 in 2008 then decreased to the same level as 2001. The table shows that the ratio is very low compared to the ratio of developed stock markets where this ratio is greater than 40. A low ratio suggests illiquid markets in Nepal and so such trading is more costly and difficult.

The next indicator of share market development is turnover ratio which is the measure of total value of shares traded divided by the average market capitalization. The table shows this ratio is below 8 during the period of 2001 to 2011, which is very low compared to developed stock markets where the standard ratio is closer to 100. This low turnover ratio reflects high transaction costs and it is relatively difficult to trade securities in the Nepalese capital market. The next indicator of share market development is the market concentration ratio which measures by market value of shares of the ten largest companies to total market value of shares. The 2.5 shows that the average concentration ratio is 0.59 which indicates that the market value of shares account for 59 percent which is very high compared to developed stock markets where the standard of this ratio is 20 percent. The number of listed companies indicates the size of stock market. The table 2.5 shows that the number of companies listed is NEPSE is 207 in 2011 which is increased from 96 in 2002. Of the increase in the number of companies, only about 12 percent of the companies registered Company Register Office as public limited companies are listed on NEPSE during 15 year period (KC 2010) which indicates the firm tends to avoid the stock market as an alternative source of long-term capital.

### **2.3.4 Legal Framework for Investors' Protection in Nepal**

Initiation of economic reforms by the government has influenced the functioning and governance of the capital market. Liberalization processes also changed the structure of the Nepalese capital market. Investor protection is one of the necessary functions of regulatory bodies to assist those who participated in the financial market. Stock markets act as a major role in the financial market. Investor protection is necessary for the development of financial markets which helps to mobilize funds in the market. Every nation follows their own legislation framework for the stock market which varies from country to country.

Considering the importance of increasing investor protection, the regulatory bodies implemented several measures to improve the fairness of the capital market. In Nepal, to bring about protection of investor interest in a better way, the country needs effective regulation of the stock market. Considering these objectives, various legislations are designed to regulate the stock market and participants of the stock market. Among other legislations the Company Act 2006, SE Act 1983 has a direct bearing on regulation and investor protection.

#### **2.3.4.1 Company Act 2006**

The Company Act 2006 is a comprehensive piece of legislation administering all the companies in Nepal. The objective of the Act is to provide all the legislative procedure, restriction, rules and regulations and other information related to companies. One of the objectives of the Act is to protect the legitimate interest of the owners and shareholders by ensuring effective participation and control. It provides legislative standards to reduce the risk of the shareholders.

In Nepal, any person likely to form private or public companies, associations and partnerships, has to be registered as a company under this act. Every company which collects deposits from depositors shall request to the tribunal if any default is made by it in repayment of any such deposit. Every company has to make an application to the stock exchange for permission to issue shares before the issue of a prospectus. All public companies intending to issue shares must issue a prospectus by providing details about the company. A Prospectus is any document including any notice, circular, advertisement or other document inviting deposits from the public or inviting offers from the public for the subscription or purchase of any shares, debentures, and a body corporate.

Every prospectus issued by a company shall state the following general information about the company, such as name and address of the company, capital structure of the company, details about the board members etc. The director, promoter or every person authorizing the issue of the prospectus is responsible for any loss or damage which occurs due to an untrue statement included in the prospectus. If any company defaults with the registration particulars while filing its application with the registrar, the company and every officer of the company or other person who is in default, shall be punishable.

Every public company is obligated to hold its first annual general meeting within one year from the date of incorporation. If any company fails to hold a meeting within one year, it is required to hold the meeting within six months from the expiry of its financial year. The regulator may give direction to call the annual general meeting of such a company which fails to hold a meeting within the three months after the finish of the fiscal year. The shareholders have a right to make a petition, setting out the matter, to the court where such petition is made if the company fails to call the annual general meeting even again after three months. In such a situation, the court may either cause to hold the annual general meeting or issue any other appropriate order.

Every public company is obligated to make provision and publish a notice in a national daily newspaper at least twenty days prior to the holding of the annual general meeting. This provision helps shareholders to inspect and obtain the annual audited financial report and director's report. The company has to provide a copy of the audited financial report and director's report to shareholders upon their request. Every public company shall prepare a report with prescribed information and submit the same to the office at least twenty one days before the holding of the annual general meeting.

#### **2.3.4.2 Securities Exchange Board of Nepal**

Securities Exchange Board of Nepal (SEBON) was set up as an administrative arrangement in 1993 under SE 1983. The SE Act gave legal standing to SEBON. It mandates SEBON to execute functions twofold: regulation of the securities market for investor protection and promoting the development of this market. The SE Act has assigned most of the functions and powers to SEBON which bought stock exchanges, their members, as well as contracts in securities which could be traded under the regulation of the Ministry of Finance. In addition to registering and regulating intermediaries and service providers, the SE Act has also assigned the power to SEBON to issue directives to any person related to the securities market or to companies with concern to the issue of capital, securities transfer and disclosure. SEBON also has powers to review books and records, suspend registered entities and cancel registration.

This SE Act requires share traders to obtain a license from the board for operation of the stock exchange. In order to protect investors, any stock exchange established under this Act shall create and manage a compensation fund as may be prescribed by the board. If a stock

exchange fails to create and manage the compensation fund or does not pay or fails to pay the amount of compensation to be payable as prescribed, the Securities Exchange Board may create and manage the compensation fund or make required provision in relation to the payment of the amount of compensation required to be paid as prescribed.

Nepal has well regulated legislation framework to run the market in a systematic way. The Company Act 2006 prevents initial misleading and also systemizes the companies and finally provides the guidelines to do business by starting a company. SE Act controls the business dealing of the stock market; the transactions are monitored and prevent fraudulent dealings. The SE Act 1983 was incorporated especially to protect the investor and promote the business.

### **2.3.5 Legal Framework in Dealing with Problem Bank in Nepal**

Mostly, the liquidity or solvency problem characterizes the bank as a problem bank. Besides this, a bank which required improving its financial resources, risk profile, risk management capabilities and quality of management is also characterized as a problem bank. This situation gives attention on the threat of systematic risk which can be minimized by appropriate remedial action.

At present in Nepalese banking, some Acts like BAFIA, 2006, The NRB Act, 2002, The Company Act, 2006, The Solvency Act, 2006 and The Unified Directives, 2005 (the prudential norms and regulation issued by the NRB to bank) deal with the remedial action for the problem bank.

All the above acts have their different legal framework for dealing with problem companies. However, the provision of the NRB Act 2002 and BAFIA, 2006 is especially for the financial institutions. The NRB has power to declare banks as problematic under section of 86B of the NRB Act.

#### **2.3.5.1 Role and Responsibilities of Different Regulatory Bodies in the Resolution of Problem Banks**

##### **2.3.5.1.1 Nepal Rastra Bank**

The NRB follows a different way for the resolution of a problem bank. In the first case, the problems of the banking institution come to light through the regular off-site supervision and

on-site inspection. Accordingly, the issues are addressed by the supervisory authorities. The Act has prescribed various corrective actions and the bank is instructed to fulfill the addressed issue within the timeframe. However, supervisory authorities give sufficient time to the bank to take remedial action with suitable strategies and planning. In the meantime, the NRB conducts discussions with the board of directors of the bank.

If the bank is unable to correct the shortcoming within the time frame and after declaring as problematic, then NRB can carry out several reform steps in order to save the bank from falling into insolvency and finally liquidation. When the NRB declares a banking institution as problematic, it can initiate two types of modalities for correction and one type of modality for liquidation:

- a. In the first step, the NRB initiates corrective action pursuant to Section 86c of the NRB Act, 2002.
- b. NRB can initiate reform actions by taking control of the bank on its own pursuant to Section 86 d & e of the NRB Act, 2002
- c. In the final stage, NRB can appeal in Appellate Court for liquidation if all the corrective and reform measures fail.

#### **2.3.5.1.2 Debt Recovery Tribunal**

In Nepal, there is a complex and lengthy legal process to recover bad loans of banks and financial institutions. For the minimization of this problem, an institutional framework was introduced in 2002. To deal with the loan recovery cases, the government established Debt Recovery Tribunal (DRT) under the Financial Sector Reform Program. The legal authority assigned the power to DRT to obtain borrowers' / guarantors' other assets which are not pledged to the concerned bank. DRT is also authorized to dispose the acquired assets through auction in order to recover the bank's loan. Problem banks have brought many cases before the establishment of DRT and are seeing some results.

The support of the court is necessary to banking and financial institutions to recover bank NPL quickly. If a bank is unable to recover their NPL, this impacts the ability of the bank to pay their depositors. Adequate and skillful commercial lawyers help to do litigation work to deal with loan recovery cases. Moreover, it is necessary for special legislation bodies to deal with commercial cases.

### **2.3.6 Performance of Commercial Banks**

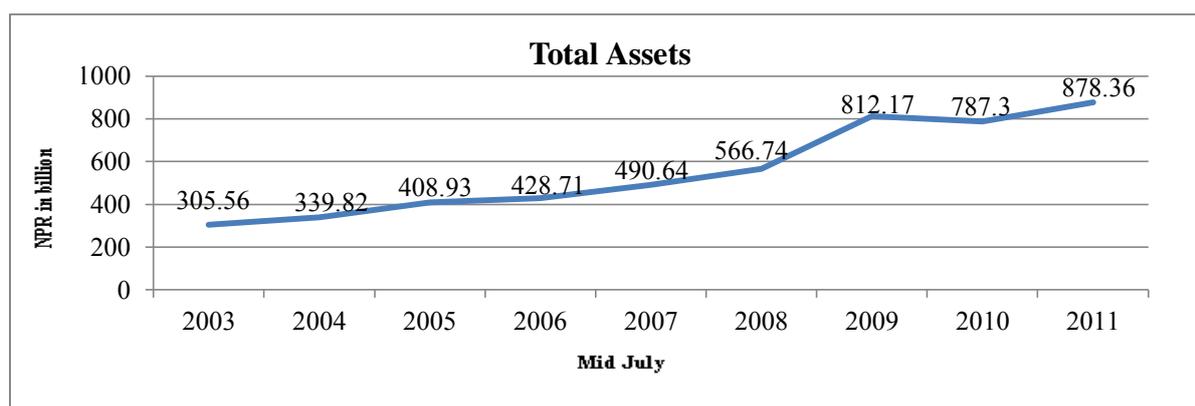
The last nine years has seen many positive developments in the Nepalese banking sector. The policy makers which comprise the NRB, Ministry of Finance and related government and financial sector regulatory entities, have made several notable efforts to improve regulation in the sector. The banking sector is in a progressive trend in terms of total deposits, loans and advances. The bank is more concerned about minimization of NPL. However, due to some problematic banks, the industry is not likely to achieve the target satisfactorily. The brief performance of commercial banks is presented below.

#### **2.3.5.1 Total Assets**

Figure 2.5 shows the trend of total assets of commercial banks from 2003 to 2011. The figure shows that the total assets of the commercial banks are gradually increased from 2003 to 2008, and then it has sharply increased by 43 percent in 2009. However, it has marginally decreased in 2010 from NPR 812.17 (USD 11.33) billion to NPR 787.30 (USD 10.99) billion in 2010 and increased to NPR878.36 (USD 12.26) billion in 2011. The total assets of the commercial banks have increased by 187 percent during the observation years. The increase in the total assets was mainly on account of the growth of loan portfolios of banks.

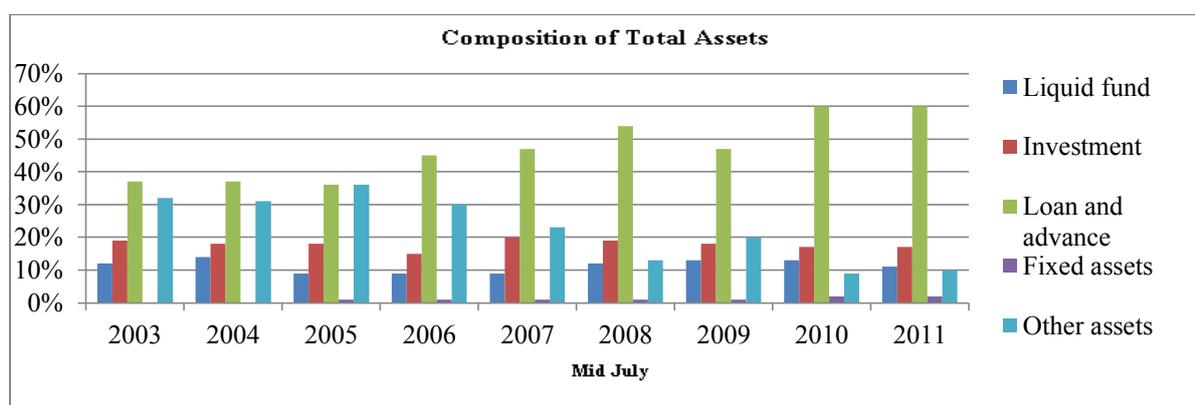
Commercial banks have a variety of assets with loans and advances accounting more than half of the total assets followed by other assets, cash and bank balances and investments. Figure 2.6 shows that proportion of other assets to total assets has been decreased from 2005 to 2011, whereas loans and advances are in the opposite direction. The figure shows that there is not that much variation in the proportion of liquid funds and investments during the observation year. The proportion of loans and advances to the total assets is the same in 2010 and 2011 reported more than 50 percent. The proportion of fixed assets to total assets is very low during observation years. In mid-July 2011, the proportion of loans, liquid funds, investments, fixed assets and other assets to total assets is 60 percent, 11 percent, 17 percent, 2 percent and 10 percent respectively.

**Figure 2.5: Trends of Total Assets of Commercial Banks**



Sources: Nepal Rastra Bank (2011)

**Figure 2.6: Compositions of Total Assets of Commercial Banks**



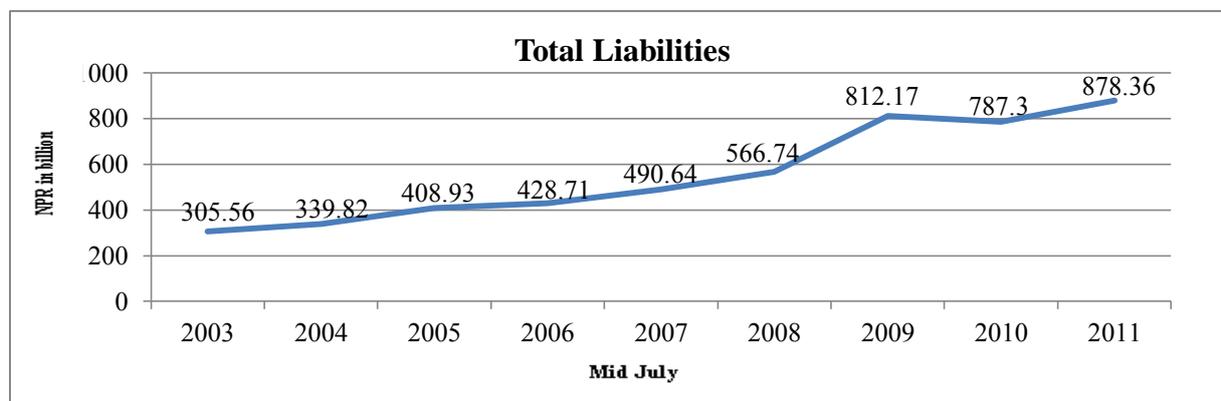
Sources: Nepal Rastra Bank (2011)

### 2.3.5.2 Total Liabilities

The liability side of the balance sheet consists of various sources of funds like capital funds, borrowings, deposits and other liabilities. The largest source, share capital, comprised approximately NPR 60 (USD 0.84) billion in 2011. Share capital of commercial banks was negative from 2004 to 2007 as a result of negative reserves of two banks i.e. Nepal Bank Limited and Rastriya Banijya Bank. Year-on-year comparisons indicate a positive change in the liabilities of the banking sector. Commercial banks were able to mobilize additional deposits of NPR 56.71 (USD 0.74) billion during 2011 as they had mobilized NPR 67.28 (USD 0.87) billion deposits in 2010. The liabilities of commercial banks consist 78 percent of deposits while capital, borrowing and other liabilities accounts for 7 percent, 3 percent and 12 percent in 2011.

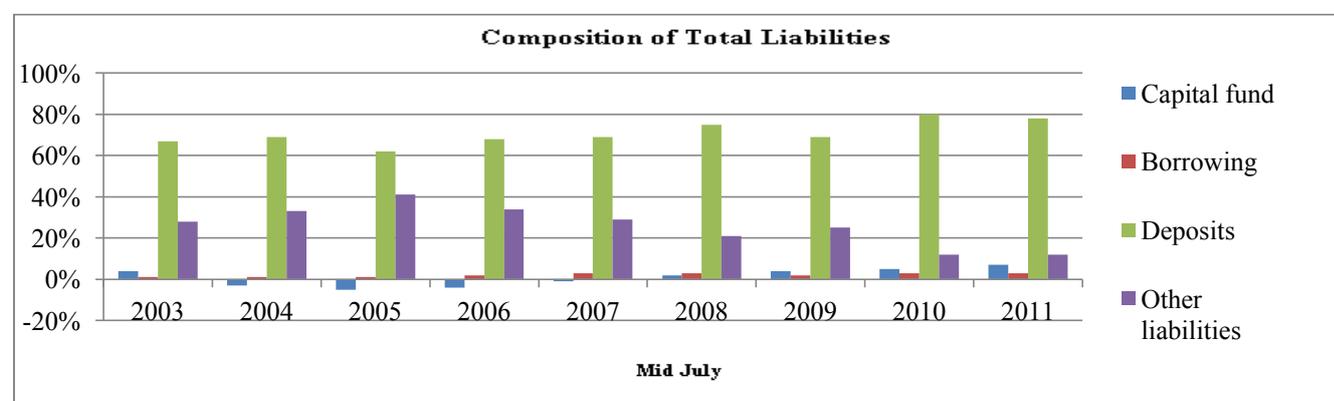
The consolidated capital funds of the Nepalese commercial banks showed a positive trend from 2008. The capital fund increased from NPR. 9.95 (USD 0.13) billion to NPR 59.06 (USD 0.82) billion from 2008 to 2011. Due to inherent problems and high volumes of non-performing assets, Nepal public bank suffered massive losses in the past and that has had an adverse impact on capital adequacy. However, even though the public bank has begun improving their financial position, they are still below the acceptable standard. Two public banks due to their size had a relatively significant influence in the entire industry's capital. The capital of the Nepalese banking industry depicted a favorable trend in 2011. There were various reasons for the improvement. All banks were able to earn profits. Some banks were also able to distribute cash dividends and bonus shares. At the same time some banks raised funds from the market by issuing rights shares.

**Figure 2.7: Trend of Total Liabilities of Commercial Banks**



Sources: Nepal Rastra Bank (2011)

**Figure 2.8: Compositions of Total Liabilities of Commercial Banks**

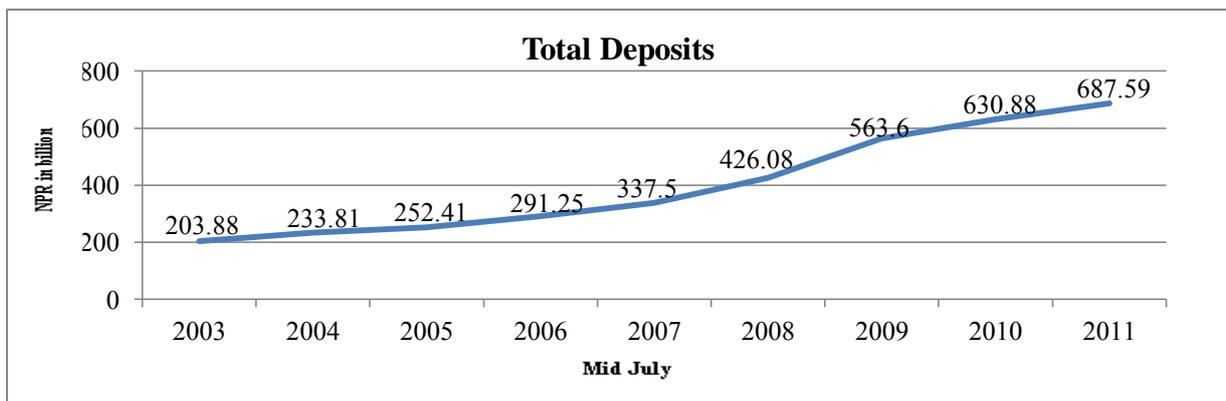


Sources: Nepal Rastra Bank (2011)

### 2.3.5.3 Total Deposits

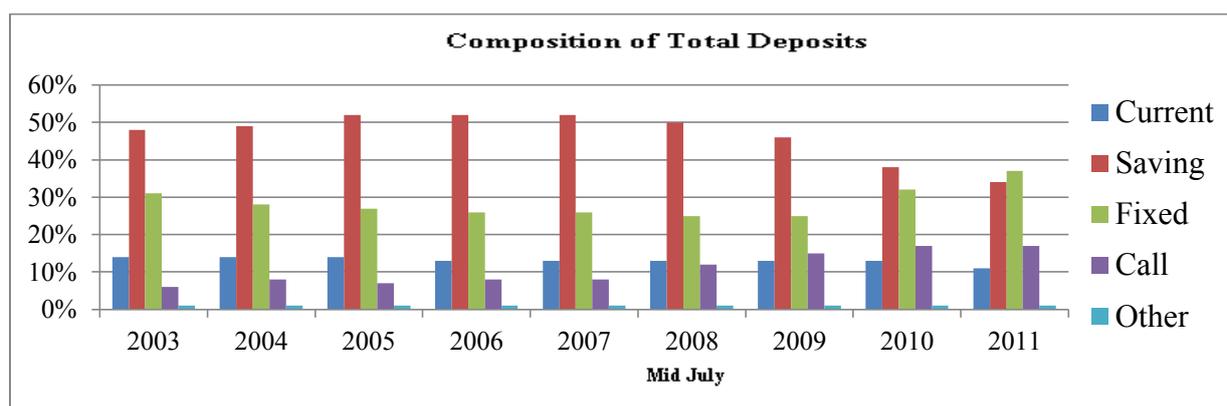
Figure 2.9 shows the trend of total deposits of commercial banks from 2003 to 2011. The trend shows that the total deposits of commercial banks are in increasing trend during the observation years. The trend shows that deposits increased significantly after 2007. The main reason of this increasing trend after 2007 is due to the growth of commercial banks in the country. The total deposits of commercial banks was reported NPR 203.88 (USD 2.84) billion in 2003 which was increased to NPR.687.59 (USD 9.59) billion or by 237 percent in 2011. The deposits of the banking industry were dominated by saving and fixed deposits. The proportion of saving deposits to total deposits was continued to be greater than fixed deposits from 2003 to 2010 but it was decreased in 2011. Saving deposits were in increasing trend from 2003 to 2006 then after it was reported in decreasing trend. However, fixed deposits are in increasing trend from 2004. The figure shows that the commercial banks are also able to increase call deposits which show a marginally increasing trend from 2005. Other deposits have no significant contribution to total deposits during the observation years.

**Figure 2.9: Trend of Total Deposit of Commercial Banks**



*Sources: Nepal Rastra Bank (2011)*

**Figure 2.10: Compositions of Total Deposits of Commercial Banks**

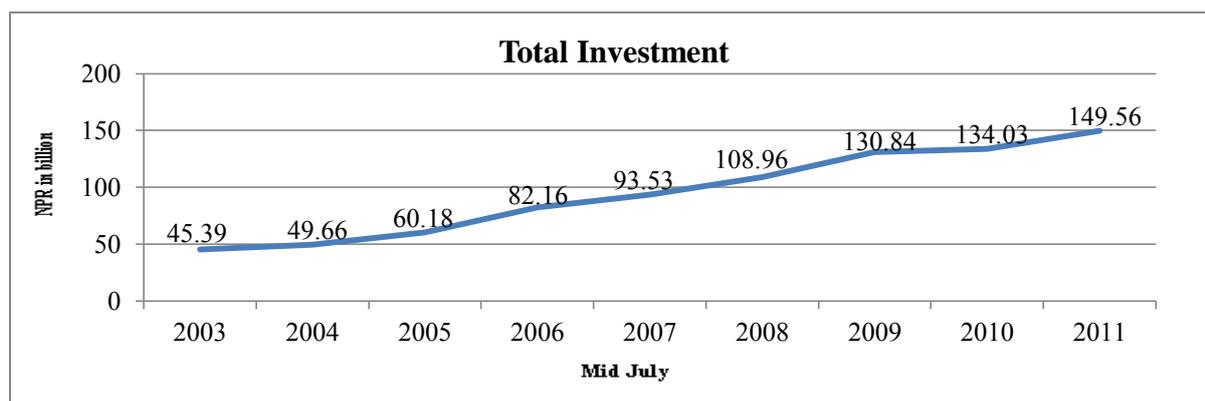


Sources: Nepal Rastra Bank (2011)

### 2.3.5.4 Investment

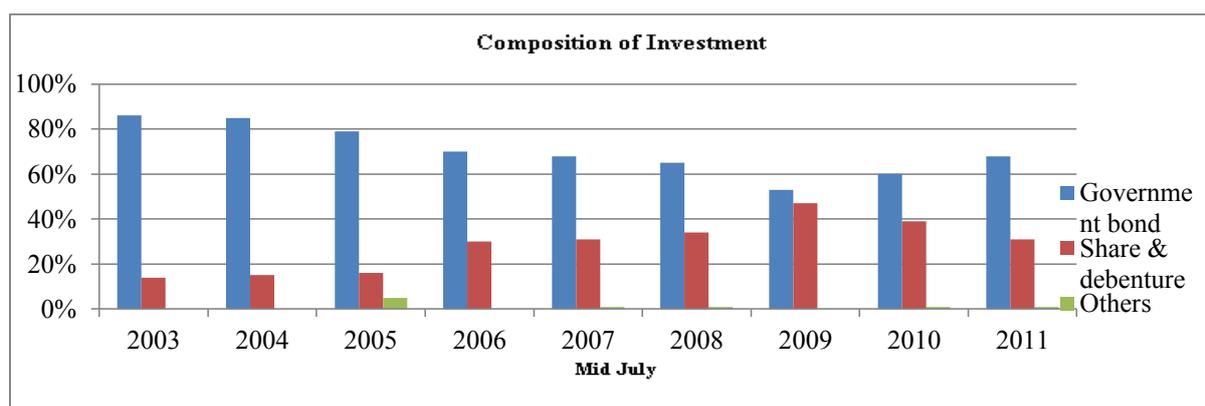
The investment of Nepalese in production sectors was limited. Figure 2.11 shows that the investment by commercial banks in the country is in increasing trend. The investment was recorded NPR 45.39 (USD 0.63) billion in 2003 which increased to NPR.149.56 (USD 2.09) billion in 2011 by 230 percent. Treasury bills and government bonds are the main sectors where commercial banks have been mostly investing. The banks can get the liquidity benefit from the investment in government securities. The other area of investment includes inter-bank placement and investment in shares and debentures. The composition of investments of commercial banks shows a high concentration in government bonds rather than investment on shares and debentures and other investments. Banks are not allowed to invest in shares and debentures of banks and financial institutions licensed by the central bank. This phenomenon has constantly pushed the ratio of investment in other investments to the total investment, upward.

**Figure 2.11: Trend of Total Investment of Commercial Banks**



Sources: Nepal Rastra Bank (2011)

**Figure 2.12: Composition of Investment of Commercial Banks**

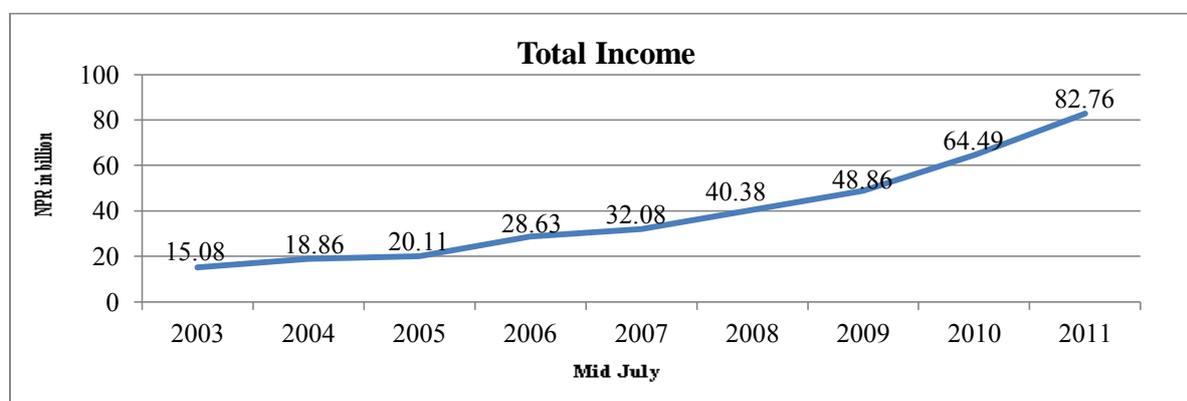


Sources: Nepal Rastra Bank (2011)

### 2.3.5.5 Total Income

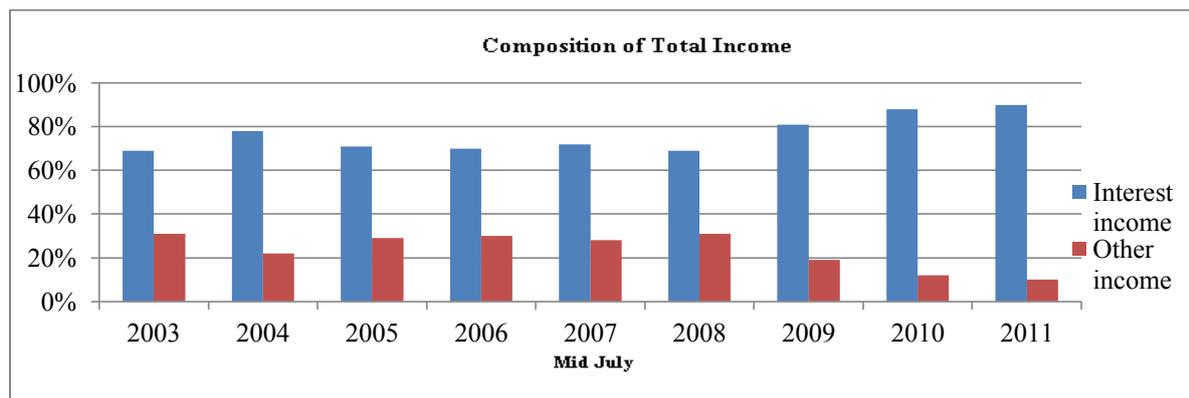
The total income of commercial banks is in increasing trend during the observation years. Figure 12.3 shows that the total income of the commercial banks is sharply increased after 2007. The total income was reported NPR.15.08 (USD 0.21) billion in 2003 which was increased to NPR 32.08 (USD 0.45) billion in 2007 by 113 percent during four years. However, after 2007 it was increased to NPR.82.76 (USD 1.15) billion in 2011 by 157 percent growth rate during three years. The table shows that interest income has occupied a significant portion of total income and it is always constant over 65 percent out of total income. The other income consists of income from commission, other income and non-operating income.

**Figure 2.13: Trends of Total Income of Commercial Banks**



Sources: Nepal Rastra Bank (2011)

**Figure 2.14: Composition of Total Income of Commercial Banks**

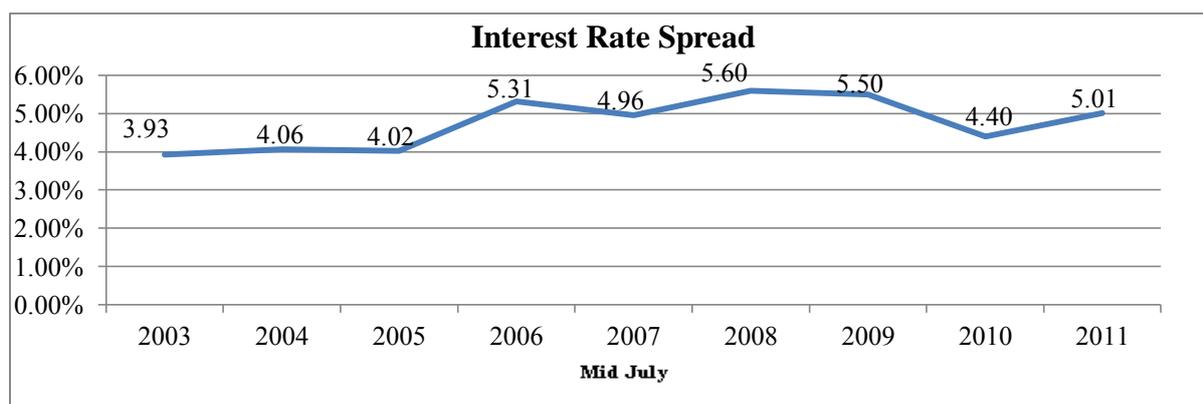


Sources: Nepal Rastra Bank (2011)

### 2.3.5.6 Interest Rate Spread

Higher interest rate spreads indicates either lower interest on deposit or higher interest on lending. In both cases, the bank has to be competitive enough to maintain or enhance profitability. Figure 2.15 shows that the interest rate spreads are in fluctuating trend from 2003 to 2011 and ranged from minimum 3.93 percent in 2003 to 5.60 percent in 2008. The central bank removed the provision of maintaining average interest rate spreads below 5 percent since 2002/03. In the situation of commencement of the institutional restructuring program of the government owned bank and commercial banks, the provision of interest rate spreads was phased out in order to let the market forces determine it competitively. However, despite the competition among the commercial banks, the spread rate has not come down as expected.

**Figure 2.15: Trends of Interest Rate Spread of Commercial Banks**



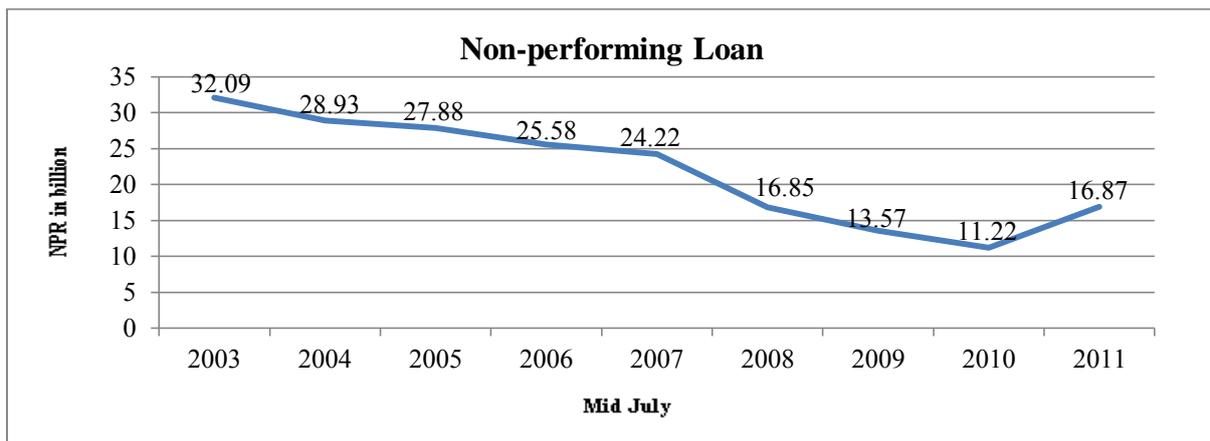
Sources: Nepal Rastra Bank (2011)

### 2.3.5.7 Non-performing Loan

Figure 2.16 shows that the NPL of commercial banks is in decreasing trend from 2003 to 2010. However, it was increased in 2011 and reached to NPR.16.87 (USD 0.23) billion. The NPL is reported from maximum NPR.32.09 (USD 0.45) billion in 2003 to minimum NPR.11.22 (USD 0.16) billion in 2010. NPL is reported very high in 2003 as result of two government owned banks which occupied total NPL of NPR.26.97 (USD 0.38) billion. However, these two banks reduced the NPL to NPR.5.43 (USD 0.07) billion in 2011.

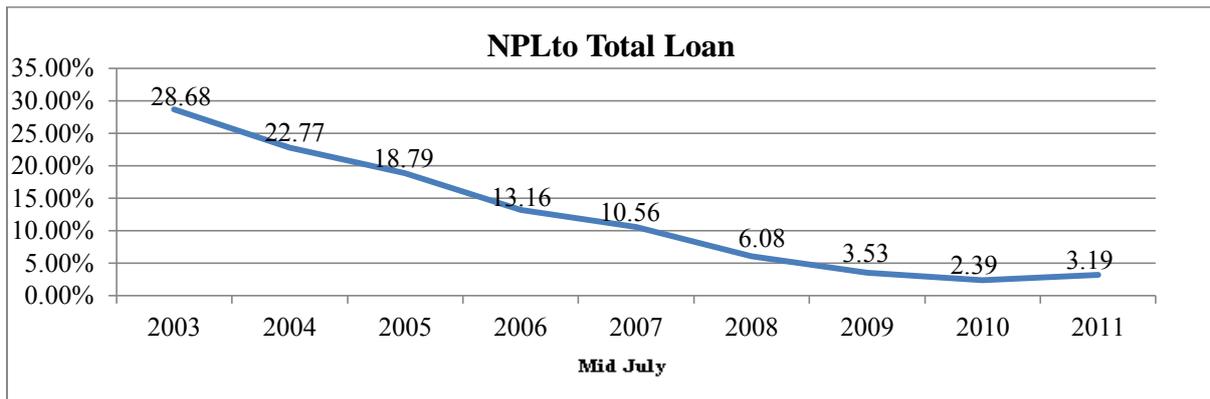
Figure 2.17 shows that the banks are able to reduce the NPL since 2003 to 2010. The NPL is in decreasing trend as a result of ever greening of loans rather than recovery. The trend shows that the banks are able to recover only 50 percent of NPL during the observation years. Among the banks, Rastriya Banijya Bank Limited, Agriculture Development Bank Limited, Nepal Bank Limited and Nepal Bangladesh Bank Limited contributed more than five percent of NPL to the total loan. The high volume of NPL is largely due to the portfolios of public banks.

**Figure 2.16: Trends of Non-performing Loan of Commercial Banks**



*Sources: Nepal Rastra Bank (2011)*

**Figure 2.17: Trends of NPL to Total Loan of Commercial Banks**

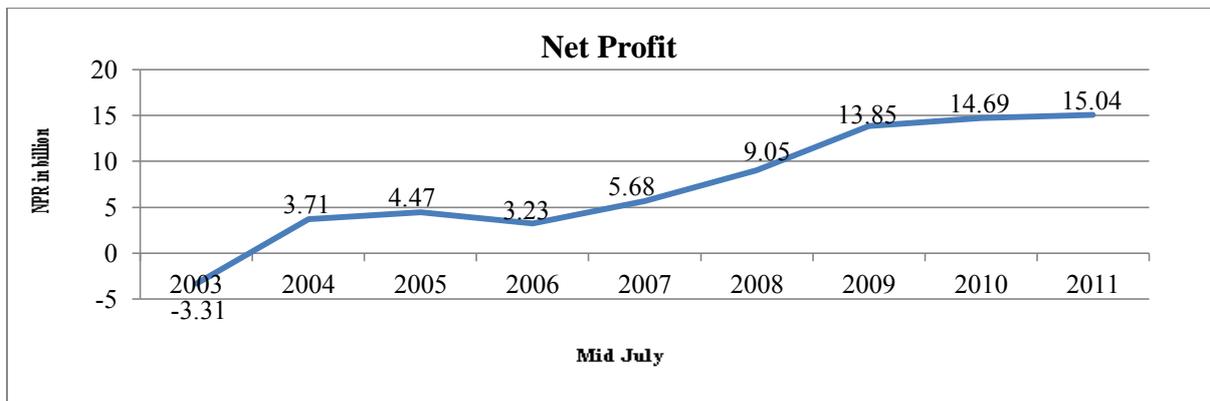


Sources: Nepal Rastra Bank (2011)

### 2.3.5.8 Net Profit

Until 2003, the Nepalese banking industry was unprofitable because of the poor performance of the two government banks. However, their performance improved after restructuring and that has boosted the profitability of the entire industry.

**Figure 2.18: Trend of Net Profit of Commercial Banks**



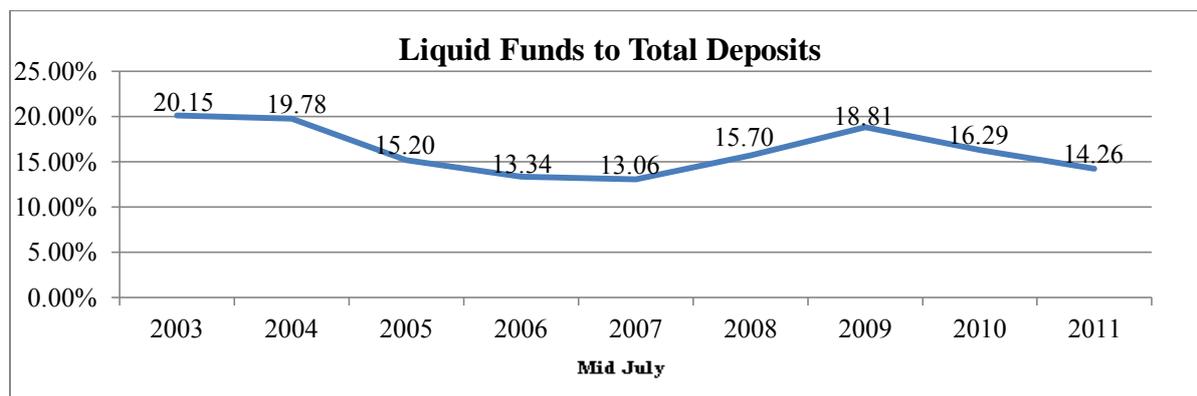
Sources: Nepal Rastra Bank (2011)

### 2.3.5.9 Liquidity

The bank needs to honor the demand for payment of depositors and also fulfill other commitments. For this, banks have to maintain a certain volume of liquid funds, the size and volume of which is determined by the size of operations and past trends. The proportion of liquid funds to total deposits was in decreasing trend from 2003 to 2007, however, it was improved after 2007 and recorded 18.81 percent in 2009. The ratio in mid-July 2011 was 14.26 percent, slightly lower than that in 2010. Data for the past nine years shows a

weakening of the liquidity position of the banking industry and could also indicate the intent of banks to earn more profits rather than hold liquid assets.

**Figure 2.19: Trend of Liquid Funds to Total Deposits of Commercial Banks**



*Sources: Nepal Rastra Bank (2011)*

## 2.4 Summary

This chapter described the details about the brief history of the Nepalese economy where the performance of macro-economic indicators such as GDP, inflation, monetary supply, trade balance and exchange rates and system were evaluated from the 2001 to 2011 time span. The macro-economic indicators of Nepal show lower growth of GDP and higher inflation pressure. Similarly, the trade deficit continued from 2001 to 2011. Thereafter, the growth of the Nepalese financial system was described with the supervision framework in which various Acts were explained in brief. Before the financial liberalization, only one financial intermediary was established but this was increased after financial liberalization and reached to 272 in 2011.

Next in the process of evaluation of financial markets, the history and performance of capital markets was presented. Various directives and Acts such as the Nepal Rastra Bank Act, 2001 and Umbrella Act were issued to strengthen the supervision framework of the central bank of Nepal. The development of market share shows that the market capitalization ratio is in fluctuation trend over the last eleven years. However, the number of listed companies is in increasing trend. Considering the importance of investor protection, the Company Act 2006 and the Securities Exchange Board of Nepal are playing a direct role to strengthen the supervision of companies in Nepal. At last considering the importance of investor protection, the role of legislative bodies for the resolution of NPL and investor protection were also presented in brief which shows that Nepal Rastra Bank Act 2002, BAFIA, 2006 and Debt

Recovery Tribunal have important roles for the resolution of NPL in Nepal. The chapter briefly described the performance of commercial banks in the country. During the observation years, it is found that total deposits are dominated by savings and fixed deposits, whereas bank investment is highly concentrated on government bonds. Interest rate spreads have not decreased as expected even though there is high competition among commercial banks. NPL have been decreased during the observation years; however, it is above 2 percent in 2011. Interest income has been the main income of commercial banks which is in increasing trend during the observation years.

## **CHAPTER THREE**

### **Corporate Governance in Nepalese Banking Sector**

#### **3.1 Introduction**

This chapter highlights the improvement in corporate governance regulation. Awareness of the importance of corporate governance is growing. The central bank of Nepal has introduced corporate governance standards for banks and other financial companies as part of a wider program of financial sector reform. Accounting and auditing standards are being developed. Various laws have been drafted for deepening the reform process. The central bank of Nepal has emerged as an important leader in corporate governance reform in the banking sector. To examine the influence of governance in performance of the Nepalese banking sector, this chapter discusses corporate governance in Nepal especially in the banking sector. The main objectives are to provide a comprehensive description of corporate governance mechanisms in the Nepalese banking sector. This chapter is organized as follows: Section 3.2 defines the corporate governance; Section 3.3 discusses why the bank is different and special features of corporate governance especially for bank; Corporate governance mechanisms especially for the banks is identified in Section 3.4; Section 3.5 and 3.6 explain the corporate governance and its recent development in Nepal respectively; Section 3.7 summarizes this chapter.

#### **3.2 Defining Corporate Governance**

It is acknowledged that the term ‘corporate governance’ is highlighted as an independent field of study since last three decades (Keasey and Short 1999; Denis 2001). The scope of corporate governance has also been extended to different disciplines including accounting, economics, ethics, finance, law, management, organizational behavior, and politics, among others, with no universally accepted definition (Solomon 2007). As a result, there exists a large number of definitions of corporate governance (Cadbury 1992; Shleifer and Vishny 1997; Solomon 2007). Despite there being mixed definitions, however, researchers normally categorize the existing corporate governance definitions as either ‘narrow’ or ‘broad’.

Shleifer and Vishny (1997) defined the corporate governance narrowly. Corporate governance is the way where the investors receive the assurance of getting the return from their investment in a corporation. In this view, the corporation acts as an intermediary and its

main aim is to provide goods or services to customers with the objectives of maximization of wealth to its owners (West 2006). Cadbury (1992) has also defined corporate governance narrowly that corporate governance is the system which directs and controls the companies. Similarly, it is the system which provides the trust to the directors of the company regarding responsibilities and duties related with the affairs of the company (Sheikh and Chatterjee 1995) or system of assurance which ensures that the action and agent of the company which is established by corporation shareholders are directed to achieving the objectives of the company (Sternberg 2004).

These definitions suggest that roles of boards of directors, general assembly of shareholders and an executive management are the three key corporate governance structures which maximize the wealth of owners (Letza, Sun et al. 2004; West 2006). In this case, the corporation is principally responsible to shareholders and as such they have the power to appoint directors and to satisfy themselves that the right governance mechanisms have been instituted (Rossouw, Vander et al. 2002). Also, and at least in theory, the shareholders have the right to reject the board's decision and to dissolve the board through a general meeting. So the board of directors has the responsibility such as to set the company's strategic aims, appointing, supervising and terminating the management team and reporting the owners of the corporation on their stewardship (Rossouw, Vander et al. 2002). So, governance structure can be accepted as a narrow view which mainly concentrates on how the internal mechanism of corporate governance works to maximize the wealth of shareholders rather than for other possible stakeholders, for example customers, employees, creditors, suppliers and the local community.

Many authors include a broad sense of corporate governance. In a broad sense, corporate governance is a set of relationships between a company's board, its shareholders and other stakeholders (OECD 2004) and ensures that the company is operating in a proper way which effectively uses the society's resources (Allen 2005). It concentrates on the objectives of the company and tries to attain those objectives with performance through monitoring and also it is a system of maintaining external and internal balance to companies which gives assurance to all their stake holders and society that the companies are acting and discharging their responsibility properly (Solomon 2007).

The above definitions imply that the role of corporate governance is not only limited in immediate internal corporate structure, it is also concentrated on external corporate governance mechanism and stakeholders (OECD 2004; Gillan 2006; Mallin 2007). Typically, it has been explained above that mechanism of corporate governance is only limited to shareholders, boards of directors and executive management. By contrast, corporate governance may consist of legal systems, the market for managerial labor and corporate control, regulators, local communities, cultural, political, social and economic policies, and institutions within which corporations operate. So, the terms corporate governance provide an outline where corporate objectives are set and performance is monitored due to relationships among management, the board of directors, shareholders and other stockholders (Mehran 2004). It also delivers a mechanism by which the company sets its objectives, and the resources of getting those objectives and monitoring performances are set. Good corporate governance delivers appropriate incentives for the board and management to follow objectives in which the company and shareholders are interested and also enable effective monitoring which encourages firms to use resources more efficiently. In this case, the corporation is considered as a social institution which focuses on the accountability and responsibility to different stakeholders, shareowners, creditors, suppliers, customers, employees, management, government and the local community (Freeman and Reed 1983; West 2006; Mallin 2007).

The aim of corporate governance is to assist in the effective utilization of resources by minimizing fraud and mismanagement with the view not only to maximize but also to align the often-conflicting interests of all stakeholders (Cadbury 1999). In brief, and in contrast to the 'narrow' characterization, a 'broad' corporate governance structure's central pre-occupation is to examine how both external and internal governance mechanisms can be run to maximize firm value and/or performance for the mutual advantage of shareholders and other potential stakeholders. As a result, most studies generally describe corporate governance in terms of two differing models i.e. narrow and broad e.g. (Rossouw, Vander et al. 2002; Agle, Donaldson et al. 2008). On the narrow point of view, corporate governance usually focuses on 'shareholding' because it considers the objectives of companies are primarily responsible and accountable to their shareholders whereas as in contrast, in the broad sense, extends the corporate governance role to stake holding. Essentially, the both models depend upon country and legal origin. Specifically, it has been suggested that narrow models tend to be common in Anglo-American countries such as the UK and US with

common law origin, whilst the broad model is usually found in Continental Europe and Asia, like Germany and Japan with civil law origin (Aguilera and Cuervo-Cazurra 2009).

### **3.3 Corporate Governance in the Banking Sector**

Corporate governance has received much attention in the current studies all over the world especially after many corporate scandals and the failures of some of the biggest firms around the world such as Enron, Adelphia and World Com. Corporate governance of banks seems to be more important than other industries because the banking sector plays a crucial financial intermediary role in any economy. Even in developed markets, there is a great debate on how bad or good the current corporate governance mechanisms are in banks. The characteristic of banks is different to other non-financial firms which suggest a different corporate governance mechanism.

#### **3.3.1 Why does Corporate Governance Differ in the Banking Sector?**

The Financial sector which is the main element of economy has received much interested topic in recent times (Arun and Turner 2004; Das and Ghosh 2004; Hackethal, Schmidt et al. 2005; Mallin, Andy et al. 2005). Within the financial sector, the banking sector is the most important sector so that the focus on the banking sector is the most important issue for academic and policy makers (Basel 1999; Macey and O'hara 2003). Financial stability is the main issue worldwide so the central bank is faced with setting the proper policy which promotes the banking sector and helps to boost financial stability. Moreover, in order to perform corporate governance functions effectively, the financial sector itself must be efficient (Mallin, Andy et al. 2005). Therefore, the banking sector is regarded as a challenging sector in developing economies and Nepal is also included in this situation.

Banking is critically linked to the industrial growth, the firm's corporate governance and capital allocation (Kaplan and Minton 1994; Levine 1997; Levine 2004). Banks stimulate productivity growth through the efficient mobilization and allocation of funds, which helps lower the cost of capital to firms (Levine 2004). Thus, the functioning of banks has ramification for the operation of firms and the wealth of nations (Levine 1997). Different features make the banks different from other non-financial firms.

The bank plays a role as monitor of their borrowers (Diamond 1984). In a contract between the lender and borrower, only borrowers know the ex-post information asymmetry problem

which links the realized output of their businesses and therefore, they would not give attention to it unless he has an incentive to do so. In contrast, if the lender knows detailed information about the borrower, in this situation the lender can overcome this disadvantage and minimize agency costs. Due to monitoring costs, it makes it easy for investors to lend to a specialized agent i.e. an intermediary who can monitor the borrower on behalf of the investor and monitoring costs will be cheaper to the investor rather than investing directly with borrowers.

Another feature in a bank is that opacity is more concentrated in banks than other non-financial sectors of the economy because outside investors are less informed than bankers about the utilization of their funds (Levine and Caprio Jr 2002). Evidence suggests that information asymmetries are deep rooted in banks compared to other sectors (Furfine 2001). Furfine (2001) added that in a banking transaction, the quality of loans is not easily noticeable and can be manipulated for a long time. Moreover, banks can adjust the risk arrangement of their loans more quickly than most non-financial sectors, and they can immediately conceal problems by sanctioning loans to doubtful clients. Secondly, banks are normally very highly controlled and the government enforces a detailed range of regulations on them because of their importance in the economy, opacity of assets and activities, and ready source of fiscal revenue (Furfine 2001).

The next feature in a bank is the capital structure which is different than other non-financial firms. Banks tend to have very little equity relative to other firms. More than 90 percent of a bank funding is typically depended upon from debts (Macey and O'hara 2003). A bank's liquidity production function makes them special because their liabilities are largely in the form of deposits which are available to their creditors/depositors on demand, while their assets often take the form of loans that have longer maturities. The mechanism of liquidity production may create a collective action problem among depositors because banks maintain only a certain portion of deposits on reserve at any one time (Diamond and Dybvig 1983).

Banks are critical elements in a country's financial system and their health is very important for the economy. In addition, banking crises significantly announce the massive consequences of poor governance of banks (Levine 2004). The fact that the public deposits money in a bank on the trust, the corporate governance mechanism for banks should give focus to them as well as shareholders. The depositors are generally not informed about the

loan portfolio of banks because that information is not easily communicable and also very expensive to disclose. This opportunity encourages banks to invest in risky assets rather than as originally promised. In this situation, if the investors are ill-informed then all the returns from investments go to the bank owners whereas the cost of investment is borne by depositors (Hellman, Murdock et al. 2000). According to Arun and Turner (2004), if depositors are supposed to be sensible then owners of banks bear the agency cost in the form of higher compensating risk premiums. So, this scenario creates the problem of inconsistency, the response that the bank may fail to offer reliable assurance to depositors (Diamond and Dybvig 1983). This problem can be solved through the investment by the assurance of governments which insist individuals and companies deposit their funds in a bank with the hope of substantial part of the moral hazard cost borne by the deposit insurer, for example the government. In this situation when the government undertakes the assurance of deposit funds, then the mechanism of corporate governance may be a more interested subject for the government. In fact, good corporate governance in the banking sector uses the deposit funds which are deposited by the general public as insured deposit which is important in order to control conflict of interest (Witherell 2003). So, policy makers are more interested to improve the ability and incentive of creditors and other market members to screen banks which improves corporate governance of financial intermediaries, especially banking companies (Caprio and Levine 2002). According to Caprio and Levine (2002), the governance problem in banking is rigorous but it is not impossible.

Besides this discussion, another related issue is the role of the central bank. The central bank tries to maintain effective risk management for the financial stability which is important for sustainable growth in a country. For the banking stability, a central bank performs three major functions i.e. lender of last resort, to help to maintain short to medium-term liquidity problems of banks which helps to avoid a banking crisis in a country. Development and implementation of good regulatory and efficient monitoring is also a most important job which the central bank performs. In recent years, corporate governance has become one of the important drivers of determination of the health of a financial system which helps to absorb economic shocks.

It is evident that the bank plays an important role in the financial sector which reflects the importance of corporate governance particularly in banks or financial institutions. In the present scenario, risk in the banking system is increasing due to globalization, deregulation

and technological advances. Most of funds managed by banks belong to their creditors or depositors which is not common in non-financial firms (Macey and O'Hara 2003). Due to this fact, the failure of banks may have created systemic risk on the stability of other banks not only to stakeholders of a particular bank. Theory suggests that agency problems and conflict of interest between owners and managers is a cause of information asymmetry which can be solved through the design of good corporate governance. Further, government regulation and regular involvement minimizes the incentive for effective monitoring and makes supervision less effective. In this context, the corporate governance of a bank becomes a more important challenge and different as compared to other firms.

### **3.3.2 Special Characteristics of Corporate Governance in the Banking Sector**

The fact about the specificity of banks is that their creditors are in the form of depositors which causes free rider problems related to monitoring of widely held banks (Freixas and Rochet 1997). They state that the majority of debt in non-financial firms is held by professional investors such as bank or “informed” private investors but in the case of bank “uninformed” small agents for example households, they hold the debt and bear less monitoring role about the bank. So strict monitoring is necessary to solve this problem in banks relative to other non-financial firms.

On the other hand, compliance with regulation in the banking industry has an important influence on the governance of banks (Llewellyn 2001), so that banking regulation raises new questions and uses specific regulatory instruments compared to other regulated non-financial industries (Freixas and Rochet 1997). Considering it from a different point of view, if the presence of particular directives on the banking sector provides the way to the option of interaction between private and public governance systems, it can also be claimed that this interaction does not only mean that banks are affected by regulation but that they can influence it too. In the situation of high regulation, it can be imagined that banks are trying to influence national regulation in order to improve their competitiveness in relation to foreign banks because better investor protection can boost up corporate valuation (La Porta, Lopez-de-Silanes et al. 2002).

So far, it seems like that the basic features of banks and their regulated condition are possibly to have an impact on the specific arrangement of their corporate governance model. Prowse (1995) analyses the usefulness of different approaches of corporate mechanisms for a sample

of US commercial bank holding companies considering different measures of performance, ownership structure, and board composition. In the analyses, hostile takeover and intervention by the board of directors are found as weaker governance mechanisms in the banking industry compared to firms from other sectors of the economy. He found that these two mechanisms make the governance of the bank holding companies a more serious issue to deal with by regulators than in the case of non-financial firms.

The research conducted by Adams and Mehran (2003) is helpful to understand the difference in the function of corporate governance in banks compared to other industries. The study shows that board size, the number of outside directors in the board, the number of committees and the frequency of reunion of the board are, in all cases, larger for bank holding companies than for firms in the manufacturing sector. Conversely, the proportion of CEO stock pay to salary plus bonuses, the percentage and market values of direct CEO equity holdings and block ownership appear to be smaller for bank holding companies relative to manufacturing firms. This study confirms that governance structures are industry-specific. Investors are not only interested in the bank's activities but also regulators and depositors are too. Realizing the importance of the effect of bank performance on the overall economic situation, regulators are particular interested in the governance mechanism of banks. The regulation has an important role in the process of design of corporate governance mechanisms in banks. Executive pay is another mechanism of corporate governance which varies with company size, industry and country (Murphy 1999). Basically, a CEO of the financial firm gets a higher level of the pay than other sectors of the economy. According to Murphy (1999), firms in regulated industries (including financial services firms) present lower pay-performance sensitivities than other corporations belonging to other economic sectors.

### **3.4 The Corporate Governance Mechanism**

Governance mechanisms are the way that principals pay incentives for the monitoring and controlling agents. Corporate governance mechanisms are therefore used for the assurance that the appointed agent is performing the task in the manner in the best interest of their principals (Hill and Jones 2004). Mixed internal and external governance mechanisms help to govern the company and the importance of this mechanism depends upon the context of the institution. Anglo-Saxon economies in specific are considered by strong external governance mechanism whereas the Rhineland and Japanese governance mechanism displays more belief on internal control devices.

### **3.4.1 Internal Governance**

Internal governance consists of board of directors, executive compensation schemes and internal audit. These mechanisms are explained briefly in this section.

#### **3.4.1.1 Board of Directors**

The role of a board of directors is as mediator between principal and agent who are the controllers of a corporation and they have important relations between the shareholders who deliver capital, and the managers who are agents and allocate such capital for wealth maximization (Monks and Minow 2001 p.81). Shareholders elect the board of directors and set the role to fulfill their responsibilities such as appointing, and terminating and compensating employees and advising top management (Denis 2001). The board also takes the responsibilities of quality audit control which shows the actual financial performance of the company (Hill and Jones 2004 p.386). Boards can be structured as a combination of inside and outside directors. Inside directors are those who control shareholders and senior positions for example the executive director in the firm. Internal directors are important for firms because they are experienced about the company's activities which help the board to perform its monitoring role. Next, outside directors are not related with the company and generally represent industry experts. The outside directors are also known as non-executive or independent directors. Experience which they hold for wealth maximization of the firm helps them to be a valuable director on the board. Since the majority of board members hold full-time positions in the organization, then they invest the necessary time and effort to meet the objectives of the company.

#### **3.4.1.2 Executive Compensation Schemes**

The level of executive pay and the sensitivity of pay to performance are the main two principles of setting executive compensation (Denis 2001). Salary, bonuses, stock options and long-term incentive plans are the elements of compensation. Managerial ownership and stock options are the main element of executive compensation and amount of compensation can play as significant mechanisms to attach managerial interests to those of the minority shareholders. Stock options are agreements that provide recipients the right to buy a portion of stock at pre-specified 'exercise' or 'strike' price for pre-specified terms (Murphy 1999). Since stock options create direct connection between managerial rewards and share-price maximization, they are a better instrument to provide managers with incentives to perform. This function is beneficial to a company so that the managers try to select the less risky

project to get the good return with the expectation of an increase in stock price. In other words, stock options add convexity to managers' payoff functions (Denis 2001). The manager also offers an attractive way to reschedule taxable income and is largely invisible from corporate accounting statements (Murphy 1999). However, there is little evidence that aggressive performance based compensation plans are helpful for good returns for the company (Murphy 1999). Several studies on CEO compensation plans are available in the context of the US. International evidence regarding executive pay as a form of good corporate governance mechanism to minimize the risk in companies is just starting to accumulate in the context of other developing economies.

### **3.4.1.3 Internal Audit**

Internal auditing is a primary element of the corporate governance mechanism in public as well as in private sectors (Cohen, Krishnamoorthy et al. 2002). Internal audit has been believed as a monitoring function, Morgan (1979), considered as an important element of organizational control but supposed dutiful to the accomplishment of most important corporate objectives.

According to Konrath (1996), internal auditing is an independent judgment job which is supposed to enable an organization to examine and evaluate organizational activities. Internal auditing is an important managerial control device which measures and evaluates the effectiveness of organizational control (Carmichael, Willingham et al. 1996), and is linked to the structure and rules of the organization (Cai 1997).

IIA (2004) states the extended role of internal auditing is the activity of appraising and adding to the enhancement of risk management, control and governance, and of identifying the guarantee and conferring with responsibility of internal auditing in corporate governance. In the business setting, internal auditors are now supplying a wider range of information about the activities of organizational financial, operational and compliance which helps to improve effectiveness, efficiency, and economy of management performance (Rezaee 1996).

With the help of audit committees in organizations, internal auditing contributes to corporate governance by providing information about any fraudulent activities or irregularities (Rezaee and Lander 1993) and encourages audit committees to perform periodic evaluations of its activities and ensures that auditing procedures are consistent with leading practices (Sawyer,

Dittenofer et al. 2003).

### **3.4.2 External Governance**

Involvement of takeovers and the influence of the regulatory environment can be further categorized as external corporate governance mechanisms. External governance is briefly explained below:

#### **3.4.2.1 Takeovers**

Prior to the 1980s, corporate governance mechanism was structured in a way that shareholder interests were hardly ever the most important agenda for the management. Very less interest was given to shareholder interest and management was devoted to the company rather than shareholders (Holmstrom and Kaplan 2001). However, the 1980s and 1990s the US faced the problem of free-cash flow and poor performance of conglomerate firms where takeovers were seen as a way to correct this problem. By acquiring control of the firm through purchase of stock, an acquirer can improve the operations of the firm and realize a profit on the increased value of the acquired shares (Denis 2001). It has been seen that takeovers minimize governance problems and that they boost the joint worth of the target and acquiring firm. The use of takeovers as a governance mechanism is gathering pace internationally. However, Shleifer and Vishny (1997) note that takeovers also have their limitation. Firstly, they can be excessively costly and time consuming to succeed. As a result, large variations between the present value and the possible value are inducements for management to have adequate incentives to increase a takeover. They need a way in to huge financial resources. Secondly, as an alternative of controlling agency costs, they can promote these when management overpays for acquisitions that result in the right to use to personal benefits of control. Thirdly, serving managers frequently actively lobby to circulate anti-takeover legislations. The problem of losing prospective jobs means that managers frequently use a massive selection of takeover defenses to stop takeovers from succeeding.

#### **3.4.2.2 Ownership Structure**

Several dimensions can be involved to define ownership structures and which have important implications for corporate governance. The following sections outline some of these.

### 3.4.2.2.1 Concentration

The nature of ownership concentration is different around the world. La Porta, Lopez-de-Silanes et al. (1998) argue corporate ownership is extremely concentrated in the United States and United Kingdom and elsewhere around the world. In the present context of around the world, there are three points of view to consider on the differences in ownership concentration. The first one is 'over-regulation' Black (1990) and Roe (1994) are the leading advocates of the over-regulation perspective. Black (1990) argues that regulation creates the expenses to block holders and, as a result, shareholders become passive in the United States. Whereas Roe (1994) contends that regulation helps to prevent potentially important investors from holding blocks of shares in the United States. Secondly, La Porta, Lopez-de-Silanes et al. (1998) present the difference of ownership concentration from the investor protection perspective. He states that inadequate protection of investors is the cause of ownership concentration. The countries which have good protection of investors have lower levels of ownership concentration, and vice versa.

### 3.4.2.3 Identity

The issue of shareholder's identity has important implications for corporate governance because different shareholders bear the different objectives and attitude in which they use their power which is reflected in the company's strategy to meet profit targets, dividends, capital structure and growth rates (Thomsen and Pedersen 2000). Prior research has not dedicated sufficient consideration to this issue (Thomsen and Pedersen 2000; Gugler 2001; Odegaard and Bohren 2004). Two characteristics i.e. inside or outside, are shown to categorized the identity of shareholders.

Managerial holdings and block holdings by controlling owners is known as *Inside* owners whereas *Outside* holdings are usually shares held by institutions and/or block holdings outside the range of control of the controlling owner. Next, the nature of relationships with the firm where they invest in also determines the identity of insiders and outsiders. Brickley, Lease et al. (1988) use such a categorizing arrangement and classify owners as *pressure-sensitive*, *pressure-resistant* and *pressure-indeterminate*. In the case of pressure-sensitive shareholders, shareholders are liable to the authority which they get from the management of the firm. They have possibly extensive relations with firms. On the other hand, those owners who have clear performance objectives and any non-investor dealing with concerned firms

come under pressure-resistant owners whereas if there is no any clearly defined role for the investor, they come under pressure-intermediate investors. Pressure-intermediate investors do not have a clearly defined role. Activity of pressure-intermediate investors depends upon the circumstances where they act in. They could be passive or active depending on the circumstances. Considering the importance of the owner's identity, the issue is investigated in following section.

#### **3.4.2.3.1 Block Shareholders**

Block shareholdings minimize the free-riding problems linked with numerous atomistic shareholders. These shareholders are able to address the agency problem because they have interest in profit maximization (Shleifer and Vishny 1986). Generally, outsiders held this shareholding. The problem created through the separation of ownership and control, large managerial shareholdings help to minimize the problem which is created through the separation of ownership and control (Jensen and Meckling 1976). However, a down side related to a high level of owner-manager holdings is the probability of entrenchment consequences setting in (Barberis, Boycko et al. 1996; Stulz 1988;) and minimized risk taking (Dharwadkar, George et al. 2000) at high levels of ownership mainly in the context of a developing economy. Individual, corporation and institutional holdings can be characterized as block holders and their character could have a meaningful bearing on their influences. The monitoring role of this shareholding can be significantly enhanced if they are experienced in the same industry (Allen and Phillips 2000). This is the conflict between block holders and minority stockholders. Problems, however, result from personal benefits enlarged at the expense of other shareholders. As a result, the effect of these shareholdings can then be negative, mostly if they qualify the regulating owner to practice pyramidal and cross-holding structures that improve control and expropriation possibilities (Denis and McConnell 2003). These problems can be mainly rigorous in developing economies where the weak regulatory and legal structure and ineffective implementation of laws exist.

#### **3.4.2.3.2 Debt Holders**

Large debt holders have large investments in the company and their objectives are to get an adequate return from their investment which motivates them for close monitoring of the company. As Shleifer and Vishny (1997) mentioned, their influence is because of three motives: firstly, the debt holder gets a variety of control right when a firm defaults; secondly, certain debt holders lend on a short term basis and companies have to move toward these

lenders at short term time for more funds; and thirdly, the necessity of quick cash payments provides the company's management with more incentive for efficient operation for generation of more cash flow (Denis 2001). All these activities and situations lead to minimize the agency cost of free cash flow. In several countries, banks are linked with business group structures. This results in an included element in examining the control of these debt holders on firm governance. This trend is often referred to as relationship banking. Relationship banking can have both helpful as well as risky effects. The helpful effects are the minimization of information asymmetries *vis à vis* arms-length lending, while the harmful effects are created with the effect of capital misallocation and the failure to dismiss borrowers' credit limitations due to lenders' rent extraction (Claessens and Fan 2002). La Porta, Lopez-de-Silanes et al. (2003) consider a similar phenomenon i.e. related lending where banks are controlled by those persons or big business groups who own certain part or interest in non-financial firms and in turn they receive significant amounts of loan from the same bank. Such structures are common practice in emerging economies. However, business group structures, where groups try to control over the bank and this situation leads to the problem of diversion of resources from depositors and/or minority shareholders to controlling owners.

#### **3.4.2.3.3 Family Holding**

Family holding is characterized as inside holding which denotes holding of a significant portion of the equity stake. Claessens, Djankov et al. (2000) found strong existence of family ownership in Asia as well as other developed economies. They found the ten largest families control a third of the corporate sector in countries such as Indonesia, Philippines and Thailand. Due to the dual role of family owners in the firm as owner and manager, they seem to be the most dedicated and long-term investors in the firm. This situation linked the family's wealth with the concerned firm and longer-term view outcomes in family managed firms being less probable to decline larger investment opportunities to improve current earnings. Schulze, Lubatkin et al. (2001) present a view based on an unselfish attitude regarding family members. This view argues that unselfishness generates a self – supporting arrangement of incentives that inspire family members to come to a mutual understanding and maintain the family relationship. This inspiration helps to reduce costs related to monitoring (Schulze, Lubatkin et al. 2001).

However, block family holdings could result in risk avoider outstanding to the inconsistent share of the family's wealth being invested in the firm (Thomsen and Pedersen 2000). Biased

selection of managers and directors which drive to lower values relative to non-family firms may be the result of higher levels of family ownership (Gomez-Mejia, Nunez-Nickel et al. 2001). Especially those family managed firms, which are connected to business group structures, seems to be pursued by expropriation distresses.

#### **3.4.2.3.4 Institutional Holdings**

A unique feature of institutional holdings which compare to other groups of owners is that they perform as intermediary owners for the final agents. Institutional owners are also relatively varied and signify pension funds (public and private), mutual funds, bank and insurance companies (Chaganti and Damanpour 1991). The attention has been given to institutional ownership due to the large holding among institutional owners particularly in the US and UK and also due to the series of scandals of corporate governance on both sides of the Atlantic. These shareholders are frequently perceived as possibly one of the most important agents to supervise the management of firms (Shleifer and Vishny 1986). However, the manner and objectives of these owners results in meaningful heterogeneity in their transaction behavior and their relationship to the performance of firms as a result of combination in their arrangement. Institutional holdings are influenced to be involved in a high degree of activism because they are completely independent and do not have any commercial relationship with the company in which they invest (Holderness and Sheehan 1988). This character or situation makes them pressure-resistant and have a high degree of activism. In contrast, insurance companies and banks seem to be particularly pressure-sensitive in the situation of when most of their business comes from those corporations in which they hold equity positions. Moderate level of activism exists in mutual funds and private pension funds. The activism of private pension funds seems to be mitigated as a result of greater focus on financial performance when they have a long-term horizon. Some researchers see the institutional shareholder as the best owner (Monks and Minow 2001) because they have unique characteristics and are highly motivated with vision and are active to face rising governance issues. However, the results of this increased activism are at best ambiguous.

#### **3.4.2.3.5 Foreign Holding**

There is an important issue for firms regarding foreign holdings which is linked to the performance of the firm. Foreign ownership created the differences in the performance of firms due to accumulated firm-specific advantages. These firm specific rewards derive from

managerial skills, export relations, coordinated relationships with suppliers and customers and reputation (Aitken and Harrison 1999). Empirical studies support such an assumption. Boardman, Shapiro et al. 1997 found significant differences in performance among multinational companies and domestic firms in Canada. In the context of emerging economies, Willmore (1986) found foreign firms to have higher ratios of value-added to output, labor productivity and greater capital intensity in Brazil. Similarly, Wiwattanakantang (2001) found the firm controlled by foreign ownership has superior performance in Thailand. Foreign or institutional investors can, therefore, perform in a way that is extensively different from foreign corporate investors. Fund managers decide to trade shares of domestic firms whose performance is measured by the stock market indices or the performance of the firm in a similar industry in the case of foreign financial institutions. These institutions have long term investments and they focus on market based measures of performance. They have the necessary motivations to sell their stakes unless a firm can maintain short-term capital market gains. Foreign fund managers also diversify investments in different industries to obtain the return associated with diversification of investment portfolios.

#### **3.4.2.4 External Audit**

Corporate auditing is the most reliable way of assurance to the investors and other stakeholders about the company. To conduct the audit into the affairs of a corporation is the major feature of guaranteeing effective corporate governance including transparency, accountability and integrity. Under the corporate governance structure, management is accountable to prepare detailed financial reports of the organization. However, financial statements may not be reliable and shareholders may not trust the information enclosed therein. To solve the problem of reliability of financial statements, management appoints independent auditors to inspect the information which is included in financial statements and report any discrepancies to the shareholders (Al-Thuneibal, Issa et al. 2011). In the process of this audit function, the independent auditor promotes the belief to the public and gives confidence to trust about the truth and fairness of financial statements (Sikka 2009). According to Hopt (2007), the result of the Enron collapse emphasized the involvement of external auditors for improvement of corporate governance. So involvement of external auditors in the corporate governance mechanism is one of the best measures to contribute corporate governance effort in addressing the agency problem. Corporate audit through external auditing is made enforceable by laws to deal with agency problems which take place from the separation of ownership from corporate management (Solomon 2007). Statutory

legislation enforces the appointment of an external auditor for investigation of financial statements of a company and the expectation of independent opinions of the auditor about the fairness of financial statements.

### **3.5 Corporate Governance in Nepal**

Even though the capital market is small in Nepal, it is active with hundreds of thousands of retail investors. Capital market developments have been hindered due to the weakness in the overall framework for investor protection and corporate governance (World Bank 2005). As for other developing countries, the role of banks is important in the Nepalese economy as the major financier for the industrial and commercial activities. Some policies such as interest rate deregulation, decentralization, provision for domestic and foreign bank have been implemented in the 1990s to reform the financial sector. However, the efficiency of banking institutions was not satisfactory. The sector witnessed less efficiency in profitability, increasing NPL, lack in credit appraisal, shortfall in capital, slow recovery rate, ineffective supervisory and regulatory role. Low accounting systems and audit qualities also hampered the internal control system. All of these problems have been characterized as a lack of sound corporate governance among the banks.

Considering the role of corporate governance in the financial sector, the central bank launched corporate governance standards for banks and other financial companies with a financial sector reform program. In the same way, accounting and auditing standards are developed (World Bank 2005).

With the longer-term goal to promote sustainable growth and reduce poverty as well as with a medium-term goal to improve corporate governance in the financial sector, the Asian Development Bank approved the Corporate and Financial Governance Project on 22 November 2000 to Nepal. To meet the longer-term and medium-term goal, the project targeted to strengthen the capability the SEBON, the Nepal Stock Exchange (NEPSE), the Companies Registrar's Office (CRO) in the Department of Industries, and the Central Depository System. This project came into effect in 2001 with the target. Besides this, the project also targeted to improve legal enforcement capacity and infrastructure by establishing the National Judicial Academy (NJA), a legal information center and secured transaction registry. This project became effective on 28 November 2001 (ADB 2010).

At the first stage of the project, financial sector of Nepal was fragile and ineffective and did not contribute a significant role in mobilizing savings for productive investments. State control, limited competition and poor governance were obstacles for improvement in the banking industry. However, during the project preparation members involved in this project agreed to give focus to improving corporate governance and developing the capital market (ADB 2010).

With the support of the World Bank, the financial sector reformation project started in 2002 (Adhikary, Pant et al. 2007). Then NRB Act 2002, Bank and Financial Institution Act-2006 and Company Act-2006 were enforced. These acts have completely given power to NRB to licensing, supervising and regulating all banks that are incorporated in Nepal except cooperative organizations, employee provident funds and the Citizen Investment fund. The NRB Act-2002 has, in this regard, arranged the fundamental legal and operational proposals by which it can be run as an independent and autonomous central banking organization. This feature can be imagined in the legal conditions setting out the structure of the board and areas of responsibilities. The NRB Act- 2002 has made several provisions regarding the appointment of professional and experienced members of boards of directors. The specific educational qualification and experience are division for appointment and conflict of interest has guaranteed that the bank and financial institutions can be run with good corporate governance and manner with trust.

Later, the BAFIA -2006 made the NRB more powerful. It has repealed five statutory laws and their powers and included them in the single Umbrella Act for the purpose of improving the NRB as a central bank of Nepal. The Company Act-2006 has emphasized good corporate governance among its major characteristics. It has focused on protection of the interest of shareholders, the company itself, the influencing stakeholders and the larger society. It has separated administrative and judicial functions respectively to the company registrars' office and the court. Besides the Company Act-2006, the Competition Act, and the Security Exchange Act also has focused on the concepts such as accountability, responsibility and financial transparency in the companies. In this context, the Security Exchange Board, Management Association of Nepal, Federation of Nepalese Chambers of Commerce, and other NGO's, international NGOs have all conducted a study project for the purpose of promoting good corporate governance in Nepal.

The Institute of Chartered Accountants Nepal started to issue accounting and auditing standards through the affiliated Accounting Standard Board. The number of standards remains to be an issue and the Institute of Chartered Accountants Nepal recommended to follow the standards based on International Financial Reporting Standards and International Accounting Standards (World Bank 2005).

### **3.5.1 Recent Developments in Corporate Governance in Nepal**

As discussed earlier, financial sector reform processes started first in the 1990s and then in 2000 with some success. For the financial sector stability, the NRB issued Corporate Governance guidelines for the banking sector. The main focus of the project was to create awareness in stakeholders, capacity building and networking with other developing economies. To overcome these problems, the NRB issued Unified Directives 6 for provisions relating to good corporate governance. Guidelines for boards of directors, managers and shareholders were the main objectives of this handbook. This handbook was prepared on the basis of recommendations and guidelines made by the Basel Committee on corporate governance and the Organization for Economic Co-operation and Development (OECD), which has covered the four more important areas such as boards of directors, management, financial disclosure, and auditors. The recommendations made in this handbook are summarized below.

#### **3.5.1.1 The Board of Directors**

A single tier board system is common practice in Nepal. Boards in general have some members not related with the same family and separation of chairman and managing director is practiced in most companies (World Bank 2005). As per the Bank and Financial Institute Act (BAFIA) 2006, annual general meetings and articles of association appoint the directors for banks and financial institutions. In the case of a vacancy of a director before a general meeting, the promoter appoints the director for the remainder of term. In the case of professional directors, the board appoints the professional director from the list of professional experts maintained by the central bank. In the case of educational background, BAFIA 2006 has specified for directors to have at least a bachelor's degree with five years of experience in those institutions which are related with governmental, or banking, or financial, or corporate sectors. However, there is no restriction in education for directors who are elected from the general public or shareholders. Articles of association mention the tenure of office of a director to be not exceeding four years. In the case of retirement on tenure, they

are eligible to be reappointed to the office of director. In the case of stipend, the director only gets the meeting allowance when they attend a board meeting. Other stipends are to be paid to them when they are involved in a transaction of the bank or financial institution as mentioned in the article of association. Except for this stipend, if a director is found to have any other stipend that director shall be believed to have committed an offence and such stipend shall be recovered from him or her.

BAFIA 2006 has also specified details about the board size, independence and board diligence. Under the BAFIA 2006, every bank or financial institution has to maintain the board size with not less than five and not more than nine directors, and also appoint at least one professional director from the list maintained by the central bank. The board may hand over its authority to the chairperson, any director, CEO or any person, firm, company or body acting as the CEO on the condition that such powers shall be exercised under its supervision or direction. The board can form one or more sub-committees for any specific purpose as may be required. In the case of diligence, the board shall hold meetings at least twelve times per year with the interval between any two meetings not to exceed two months. If at least two-thirds of the directors request for the board meeting in writing, the chairperson can call a meeting at any time. At least fifty-one percent of the total number of directors is required for the board meeting. BAFIA 2006 has also specified the responsibilities of boards of directors as mentioned below.

- Directors are prohibited to do anything for personal benefit in the course of performing the function of the bank or financial institution. If any director is found to have derived a personal benefit, the bank or financial institution shall recover that benefit from such director.
- Prior to appointment to take over the duties of the board, if there was any financial or personal interest of any director in the business of the bank or financial institution, that matter can be disclosed to the board.
- If any director performs any action beyond his or her jurisdiction, the bank or financial institution shall not be responsible for this situation.
- If any person performs any transaction with any director knowing that this is a personal interest of the director, or cause to harm to the bank or financial institution, such person shall not be considered for any claim against the bank or financial institution in connection with such transaction.

- All directors are prohibited to interfere with the regular work relating to the management of the bank or financial institution.

### **3.5.1.2 Management**

The BAFIA 2006 has specified the responsibilities and appointment criteria of management. The appointment condition of the CEO is the same as appointment of a member of the board of directors. The board appoints the CEO of the bank and financial institution under this Act and memorandum and articles of association. The board has to appoint a qualified person as CEO who has at least a bachelor's degree in any subject and with at least five years of experience of the office of director, or of the executive level in banking, financial or corporate sector. The post of any governmental, banking and financial, corporate sector or any international financial institution, organization or any level which is up to or higher than such officer level, are defined as executive level. The CEO can be reappointed. However, the tenure of CEO should not be more than four years. The board prescribes conditions for the remuneration and other conditions of service of CEO. BAFIA 2006 has also specified the duties and powers of the CEO. This Act has made the CEO accountable to the board for all of the functions performed by him or her. Under this Act and memorandum and article of association, the CEO has to supervise and control the activities for implementation of the board's decision. In this process, the CEO has to prepare annual budgets and action plans of the bank or financial institution and present them for the board approval before implementation.

In addition BAFIA 2006, Unified Directive issued by the central bank regarding code of corporate governance has specified additional qualities about the CEO. The appointed CEO should not have been declared bankrupt or convicted of an offence involving dishonesty or fraud. Besides this, he or she should not have also been blacklisted (or from having completed three years from being released) if blacklisted. If the situation of absence of the CEO on leave or travelling abroad, the bank has to inform the legislative bodies prior to appointing the person to officiate as the CEO. Such person shall be fully responsible, able and qualified. The directives have also prohibited the CEO to work as an executive in any other licensed institution.

### **3.5.1.3 Audit Committee**

The Company Act 2006, BAFIA 2006 and Unified Directives issued by the central bank regarding provision of a code of corporate governance have specified the audit committee size, independence and duties. As per the Company Act 2006, every company whose capital is listed with thirty million Nepalese currencies and which is fully or partly owned by the government of Nepal, shall form an audit committee under the chairmanship of the non-executive director who is not involved in day to day transactions of the company. Under this Act, the committee shall consist of at least three members on the audit committee. This Act has prohibited the person to be an audit committee member who is the close relative of the CEO of a company. Similarly, the Unified Directive issued by the central bank regarding code of corporate governance has specified that the CEO of a bank or financial institution cannot be member of the audit committee. However, he can participate as an invitee whenever necessary. The Company Act 2006 has mentioned that at least one member on the audit committee should be an experienced person with a professional certificate in accounting or having gained experience in accounting and financial fields after having obtained at least a bachelor's degree in accounting, commerce, management, finance or economics.

As per the Unified Directive issued by the central bank regarding the code of corporate governance, in the process of implementation of day to day work, this audit committee shall evaluate the financial condition of institutions, mechanisms of internal control and issue necessary guidelines to the management of the institution, and also supply the findings of the internal audit to the board of directors for the necessary action. This audit committee has also responsibility to review the remarks contained in the external audit report and take initiation for necessary corrective actions. It is also the responsibility of the audit committee to inform the board of directors about the accuracy and fairness of accounts with adequacy of provision for contingencies and classified credit. The audit committee also reviews the compliance of the regulation issued by legislative bodies to the bank.

### **3.5.1.4 External Auditors**

Under the Company Act 2006, every company shall have to appoint an auditor to audit the company's financial position. If the company has a branch office outside of the country, the appointed auditor can audit that branch also if the foreign country's law allows. As per this Act, the company can appoint an auditor from amongst the licensed auditors by the general

meeting and in accordance with the provisions as contained in the memorandum and article of association. However, the board of directors may also appoint the auditor prior to the first annual general meeting. Under this Act, BAFIA 2006 specified that the appointed auditor for banks and financial institutions should be from amongst the auditor included in the list of auditors approved by the central bank. As per BAFIA 2006, the general meeting of the bank and financial institution cannot appoint the same auditor for more than three consecutive terms. In the process of appointment of auditor from among the auditors listed in the auditors list approved by the central bank, the auditors should be a chartered accountant in case of licensed institutions of Class “A” (commercial bank), ‘B” (development bank) or “C” (finance company) and a chartered accountant or registered auditor in the case of licensed institutions of Class “D” (co-operative). The central bank is authorized to remove any auditor from the list of auditors who fails to fulfil the duty entitled to audit the accounts of licensed institutions.

### **3.6 Summary**

This chapter defined about corporate governance. The chapter highlighted the importance of corporate governance as its scope is widespread in different disciplines including accounting, economics, finance, law etc. Two perspectives i.e. narrow and broad - of corporate governance are followed by organizations to strengthen their corporate governance practices. Different perspectives such as narrow and broad for corporate governance has been described. In the process of understanding corporate governance, special features of banks and other non-financial firms in regards to corporate governance are analyzed in this chapter. It is found that corporate governance is different for banks other than non-financial firms due to their complexity such as opacity, liquidity production function, less informative etc. So, internal and external governance mechanisms are the way to minimize the agency problem in any organization. The main internal (board of director, CEO scheme, internal audit) and external corporate governance mechanisms (takeovers, ownership structure, external audit) are defined to understand the mechanism of corporate governance. Considering the importance of corporate governance in any country, the present scenario and recent development of corporate governance especially in the Nepalese banking sector in regards to boards of directors, management, audit committees and external auditors is also explained. BAFIA (2006) has specified the mandatory requirements for boards of directors such as their appointment, allowances and responsibilities. Similarly, this Act has also specified the procedure for appointment of management and external auditors. This chapter highlighted

that as part of a broader reform of the financial sector, the NRB has been given the authority to oversee corporate governance standards for banks and other financial companies.

## **CHAPTER FOUR**

### **Literature Review**

#### **4.1 Introduction**

The main objectives of this study are to examine the determinants of Non-performing Loans (NPL) and the influence of corporate governance on bank NPL and performance according to the available Nepalese literature in this industry, of which there is virtually nothing. To understand the theoretical framework, this chapter's attention on reviews of previous studies that examine issues which have an impact on bank NPL and the influence of corporate governance on bank NPL and performance. Section 4.2 presents the financial intermediaries' theory, agency theory and diversification theory which are related to bank risk and performance. Section 4.3 and 4.4 present the existence of different risk in banks and also a brief knowledge about the efficiency of banks. The theoretical link and previous empirical findings of macro-economic and bank specific determinants of NPL and influence of corporate governance on NPL and performance is explained in Section 4.5. Section 4.6 summarizes this chapter.

#### **4.2 General Theories of Banking**

The diversity and complexity of banking activities makes it difficult to define banks. The studies on the field of several banking theories were developed to explain the existence of banks in the economy. Certain concepts such as monitoring, information processing, liquidity transformation, smoothing of consumption and commitment methods starts to define these theories. Understanding the role banks have in the financial system is one of the fundamental themes in economic and financial theory.

##### **4.2.1 The Theory of Financial Intermediation**

Although this thesis is specifically focusing on banks, it is necessary to address the broad role of financial intermediaries in the market as banks, at first, are a special group of financial intermediaries. In order to understand what a bank does, firstly we should make it clear why financial intermediaries exist.

Conventionally, understanding the existence of financial intermediaries leads from market deficiencies. Financial intermediaries act as the agents that transfer funds from people who have a surplus of funds to people who have a shortage of funds (Mishkin 2007). The financial intermediaries would be unnecessary in the situation of non-existence of transaction costs in cases of perfect market situation where both borrowers and lenders have perfect knowledge. But, these assumptions do not exist in the real world. As the existence of friction such as transaction costs and information asymmetries in the market rationalize the existence of financial intermediaries (Mace 1979; Allen and Santomero 2005; Matthews and Thompson 2005; Scholes, Benston et al. 2012).

Many researchers suggest that financial intermediation can be understood by looking at the role of transaction costs (Gurley and Shaw 1966; Scholes, Benston et al. 2012). Financial intermediaries have the ability of minimizing various transaction costs such as search, verification, monitoring and enforcement costs (Matthews and Thompson 2005) and also affect consumers' inter- and intra-temporal decisions (Scholes, Benston et al. 2012).

An alternative rationalization of financial intermediation focuses on the argument of information asymmetry. Some argue that information-based theories of intermediation provide a more fundamental interpretation than some other approaches (Bhattacharya and Thakor 1993; Brealey, Leland et al. 2012). Brealey, Leland et al. (2012) argue that moral hazard prevents direct information transfer between market participants. Borrowers have better knowledge about their project than lenders as lenders have to face the problem of costs to get information and it is difficult to ascertain the quality of information. In this situation, financial intermediaries can solve both these problems if they act as information sharing coalitions that buy and hold assets on the basis of their specialized information (Matthews and Thompson 2005; Brealey, Leland et al. 2012).

The existence of financial intermediaries is based on minimization of transaction cost and information asymmetry. However, the reasons for intermediation are complex (Santomero 1984). In addition, dramatic and rapid changes in the financial market improved the functions of financial intermediation. The function of financial intermediaries is not only limited to minimizing transaction costs and information asymmetry (Allen and Santomero 1997; Allen and Santomero 2005). Allen and Santomero (2005) argue that in recent decades, intermediation is an increasing trend even though transaction costs and asymmetric

information is in declining trend. Some then suggest that, nowadays, the main role of the financial intermediaries is risk management (Allen and Santomero 1997). In this viewpoint, financial intermediaries have the ability of transforming more risky assets into less risky ones (Fabozzi, Modigliani et al. 1994).

Whatever new functions a financial intermediary performs, it basically is an economic agent that specializes in providing brokerage (e.g. transactions services, financial advice, and insurance, etc.) and qualitative asset transformation services (e.g. divisibility offered by mutual funds, and liquidity provided by bank funding, etc.) (Bhattacharya and Thakor 1993). There are different kinds of financial intermediaries in the financial market such as building societies, credit unions, insurance companies (life and general), and banks, etc. Compared with non-bank financial intermediaries that often specialize in one or more of brokerage and asset transformation services, banks provide virtually all of the above services (Bhattacharya and Thakor 1993).

The debate of whether a market-based model or bank intermediation-based model is desirable has lasted for several decades. Some researchers argue that the market-based system is to some extent more advanced than the bank intermediation-based system (Allen and Gale 1995). For example, market-based financial systems provide various instruments through price mechanisms, and hence improve the asset allocation process (Canals 2011). This system is also efficient in terms of risk diversification (Canals 2011; Levine 2012), and provides a high degree of liquidity (Holmstrom and Tirole 1996; Canals 2011). On the contrary, others argue that bank intermediation offers some advantages compared with the capital markets. Apart from the benefits of reducing transaction costs and transforming information that have been outlined before, a significant advantage that bank intermediation has is to solve a major part of the agency problem by performing a company-monitoring function (Diamond 1984; Canals 2011). Moreover, banks have a comparative advantage of providing investment opportunities for small investors (Canals 2011).

In market-based financial systems where the capital market has a lead role in transferring funds, some argue that bank-like intermediaries are not important and may be in the process of disappearing. However, Canals (2011) points out that a market-based system has a significant disadvantage, that is, it is difficult to monitor and supervise companies due to the complete separation between capital markets and the company. In this sense, banks as

“delegated monitors” (Diamond 1984) that operate in financial markets can provide ongoing information about the borrowers to the lenders. In addition, banks as a mechanism for delegated monitoring can dominate direct lending by using their own capital to reduce default risk as well (Winton 1995).

The efficiency hypothesis suggests that technological development could increase scale economies over time and allow larger banks to be managed more efficiently compared with smaller banks. For example, on the lending side of the bank, because large banks have a comparative advantage in using hard-information that is based on quantitative data, such as valuations of collateral, financial ratios and credit scores (Berger, Molyneux et al. 2010), they are better in micro-business lending, asset-based lending, and financial statement lending than are small banks. However, on the other hand, large banks have a comparative disadvantage relative to small banks in collecting and acting on soft-information that is based mainly on qualitative information (e.g. character and reliability of the owner of the firm), and thus small banks are likely to be better in relationship lending than large banks (Cole, Goldberg et al. 2004).

As banks are important in the financial market and the real economy, it is crucial for banks to rethink their business models to cope with the changes in the competitive environment as bank strategies are of critical value to the stability of the sector. After the most severe financial crisis since the Great Depression (Brunnermeier 2008), commercial and residential real estate values continue to fall, avenues for bank financing via the securitization business and interbank markets have dried up and major banks have suffered large losses of capital (Berger, Molyneux et al. 2010). Wilson, Casu et al.(2010) suggest that it is necessary to re-examine the scale, scope, governance, performance, and the safety and soundness of financial institutions.

#### **4.2.2 Agency Theory**

Economists explored risk sharing among individual and groups during the 1960s and early 1970s (Wilson 1968). Different attitudes of cooperating parties towards risk create the risk-sharing problem. Agency theory extended this risk-sharing problem as an agency problem which results from different objectives and division of labour of cooperating parties (Ross 1973; Jensen and Meckling 1976). Specifically agency theory is guided at the pervasive agency relationship in which one party (the Principal) assigns responsibility to another (the

Agent), who executes that work. Agency theory tries to define the relationship using the offer of contract (Jensen and Meckling 1976). Agency theory deals with the relationship between the agent (manager) and the principal (shareholders) under which shareholders assign responsibilities to the manager to run their business. This theory argues that when both parties are expected to maximise their utility, there is good reason to believe that the agent may engage in opportunistic behaviour at the expense of the principal's interest.

Agency theory tries to solve two problems in the agency relationship. The first problem is concerned with the different desires and goals of principal and agent. The second problem is verification of the agent's work and whether or not it is in the interest of the principal because this process increases the monitoring cost. The problem arises in an agency relationship because the principal and agent may follow different actions due to their different risk preferences. Jensen and Meckling (1976) describe this situation as an agency relationship where the inability of the principal to directly monitor the agent's action could lead to moral hazard, thus increasing the agency cost.

In large corporations with a diverse shareholding, management actions deviate significantly from satisfying shareholders' interests and tend to seek to maximize their own personal interest at the expense of the shareholders (Davis, Schoorman et al. 1997). Because management often has little or no capital invested in corporations that they manage, they tend to exploit shareholders' wealth. This exploitation usually takes the form of higher salaries, bonuses and consumption of prerequisites. This is referred to as the agency cost.

Management is often referred to as the agent and the shareholders as principals. The principal-agent relationship is based on a symbiotic scheme whereby principals have capital and lack managerial skills while managers have the skills but lack the capital. They, thus, come together since they both complement each other for a business to be a reality (Adams and Ferreira 2009) but, unfortunately, human nature is so possessive that self-interest prevails and erodes trust between the two parties.

Next, agency theory is based on the assumption of man as being a rational actor who seeks to maximize their individual benefits. In agency theory, both the agent and the principal seek to benefit as much as possible with the least possible expenditure but each always seeks the option that is most beneficial to their individual utilities. Principals incur agency costs when

there is divergence between the interest of shareholders and agents because agents will rationally seek to maximize their own utilities (Davis, Schoorman et al. 1997).

Agency theory is criticized on the claim that it assumes that a rational man is self-interested and acts only to satisfy their egos. This implies that there is no trust and a form of moral scepticism which is not helpful in building systems of applied ethics (Heath 2009). The objectives of agency theory are to minimize the agency costs incurred by principals through the internal controls in order to check agents' egoistic behaviour (Davis, Schoorman et al. 1997).

To reduce the conflict, it was suggested that managers own shares of the firm so that their interests are in line with shareholder wealth maximisation. The traditional manager-shareholder conflict, however, is not as relevant to firms with highly concentrated ownership. Large shareholders can more easily monitor managers because they have more access to information and thus have more knowledge of decision making (Shleifer and Vishny 1986). However, since the large shareholders' investment is less diversified and they thus have limited liquidity, they are exposed to financial loss if the firm experiences difficulties. This constraint may encourage them to extract a private benefit at the expense of the minority shareholders. As large owners have effective control of the firm and also because they oversee the financial reporting policies of the firm (Fan and Wong 2002), they can, and will, conceal any expropriation from the financial reports and other investors. Leuz, Nanda et al. (2003) affirmed that the incentive to avoid external monitoring and loss of reputation to encourage the dominant shareholders to conceal their behaviour.

In addition, agency theory points out the role of the board of directors to monitor both the majority shareholders and management; and to protect minority shareholders' interests (Fama and Jensen 1983). It was suggested that the board of directors could help reduce agency costs because it holds ultimate control over management even though some of the decision functions are entrusted to top management. Sound corporate governance should be considered as a vital means in reducing agency conflict especially when it functionally accommodates the interest of all shareholders. Complementing the board role in monitoring the management, resource dependence theory suggests the board be represented by outside directors to enhance the flow of information and to reduce uncertainty and secure firms' resources. Pfeffer and Salancik (2003) suggested that the board acts as a 'co-operatives'

mechanism that links firms with the external environment in accessing resources, exchanging information, developing inter-firm commitment and establishing legitimacy.

Managerial hegemony theory views the board of directors as a legal fiction that is ineffective in reducing agency conflict, if the management dominates the board (Mace 1979). As a 'co-optatives' mechanism, the board is flexible and easy to implement as management may control the selection of the outside directors (Pfeffer and Salancik 2003). Management may appoint outside directors who have less knowledge about the business, hence making them dependent on the information supplied by the managers or the outside directors who are motivated merely by the financial incentive from the board seat and desire the reputation associated with board membership (Kosnik 1987). Directors who have less knowledge about the business are less likely to challenge the management decision.

### **4.2.3. Diversification Theory**

Due to competitive pressures, banks pursue diversification strategies in order take advantage of asset growth, realization of efficiency gains, reduction in idiosyncratic risk and increased profitability (Wilson, Casu et al. 2010). The concept of diversification to minimize risk is originated principally from portfolio theory. The primary principle of portfolio theory in finance recommends that diversified investments balance risk. Diversification assists to minimize risk in the situation of non-perfect correlation of cash flow and total risk (Markham 1973). However, this view was assessed by Levy and Sarnat (2012) and reasoned that a firm should not diversify without operating synergies because the firm value would not be improved. Their arguments are founded on the Capital Assets Pricing Model (CAPM) with the hypothesis that there are no benefits to diversification that shareholders cannot obtain by diversifying their own portfolio of financial assets. Lewellen (2012) and Higgins and Schall (2012) give the financial justifications for diversification because, through the diversification, the firm can minimize the cost of capital by obtaining cheaper debt because of a reduced threat of bankruptcy or by minimizing taxes.

Traditional portfolio and banking theory suggested that diversification actually improves the performance or reduces risk and consequently imparts greater safety on the part of banks (Hayden, Porath et al. 2007). The banks are affected by several regulations which create incentives either to diversify or to focus their portfolios, i.e. the imposition of capital requirements tied to the risk of the bank's assets or asset investment restrictions. This kind of

regulation gives the importance of “focus versus diversification” issues in the bank. So, policymakers should be especially concerned to understand whether or not banks can achieve the advantages from diversification (Hayden, Porath et al. 2007). Professionals in financial institutions mostly argue that highly leveraged banks should diversify their portfolios to minimize their costly financial distress. Furthermore, some models of intermediation theory recommend that diversification helps the institution to achieve integrity in their role as screeners or monitors of borrowers (Diamond 1984; Boyd and Prescott 1986).

Diversification involves entering into different economic sectors or different geographical regions other than the bank’s home base. It is argued that the entrance of banks in new areas may create the adverse selection in its pool of borrowers (Gehrig 1998). Thus, general diversification is further likely to be unattractive, mostly when the bank’s home sector loans have either low or high downside risk.

One argument always in favour of diversification is that the bank with lending activities in different markets is always safer than the bank lending in a single market. Diversifying lending activities into more markets/sectors or regions lets banks spread risk across regions, and if loan earnings across regions are not perfectly correlated, geographically diversified banks are safer because they are less exposed to shocks that hit individual areas (Diamond 1984; Demsetz and Strahan 1997; Morgan, Rime et al. 2003). The risks taken by banks depend upon the market structure that could change as the result of diversification across the market due to competition of banks in the market. The expansion of banks decreases a bank’s rents, erodes its charter value and, therefore, provides incentives to take more risk as result of competition for borrowers (Keeley 1990). Besides this, high competition might also drive to lower loan interest rates or reduce any moderation to acceptable levels of risk that minimize the degree of borrowers’ risk shifting incentives and thus reduces a bank’s exposure to risk of failure (Boyd and Gertler 1993).

Diversification theory hypothesizes that a well-diversified portfolio can minimize risk which can be in the form of assets or geographic locations. Therefore, if a bank can diversify its loan portfolio among many borrowers, or spread the loan into several sectors and/or in many geographic locations, the lending bank can reduce its risk exposure, resulting in increased safety for its depositors.

Hence, for a diversified firm to function effectively, both core competences across multiple businesses within the same corporation and the corporate parenting advantage must be identified, developed, and matched together on a dynamic basis. For our theoretical synthesis, this aspect will be referred to as the resource-based explanation of the diversification and performance relationship.

### **4.3 Different Types of Risk Faced by Banks**

There are many definitions of risk that vary by specific application and situational context. Risk is usually considered as reproducing a deviation in the allocation of likely outcomes from an assumed investment (March and Shapira 1987). Risk is also expressed as the possibility that real benefits from holding a security will depart from the projected benefit; the greater magnitude of deviation and the greater probability of its occurrence, the greater risk (Saunders and Cornet 2008). Risk is a situation under which there is a probability of an opposing departure from a projected outcome that is estimated. Thus, risk can be defined as a measure of the possibility that the future outcome may be unpredictably different from that which we expected.

Banks are financial firms pursuing the objectives of maximization of the value of equity and wealth of shareholders (Bauer and Ryser 2004). Hence, banks take risks so as to realize a return. Banks are risky by their nature. In other words, banking is the management of risk (Gup, Avram et al. 2007). Bessis (2002) defines risk as uncertainties resulting in adverse variation of profitability or in losses. There are so many potential risks which impact on bank returns such as credit risk, liquidity risk, interest rate risk, market risk, foreign exchange risk and political risk (Campbell 2007).

#### **4.3.1 Credit Risk**

Credit risk which is the risk of a customer or counterparty defaulting is the biggest risk the financial intermediaries are facing (Gray, Cassidy et al. 1997). Credit risk is the risk that a credit that has been disbursed by a bank will not be repaid, either partially or in full, at the maturity. In some situations, payment may fully repay after the maturity date of loan. In some situations, the bank will have to face the bad debts due to the borrower's situation of non-payment of loan on maturity (Campbell 2007). Whereas, Gup, Avram et al. (2007) define credit risk as the borrower failing to meet their obligation which is related to the earnings and

capital of the bank. Sobehart, Keenan et al. (2003) define credit risk as the possible risk that relates to the failure of the borrower or counter party to meet their obligation as per a signed contract regarding loan repayment.

The authors classify credit risk into firm specific credit risk and systematic credit risk. Firm specific risk is the risk of default connected with the specific types of risks taken by that firm. While a change in external variables in the financial markets, regulation and economic conditions are associated with systematic credit risk (Hassan, Karels et al. 1994; Corsetti, Pesenti et al. 1998; Ahmad and Ariff 2007) which affects all borrowers.

### **4.3.2 Liquidity Risk**

Liquidity risk is the risk which arises from the inability to achieve reasonable returns (Muranaga and Ohsawa 2002). Basel (1997) stated, liquidity risks are created from the failure of a bank to accommodate a decrease in liabilities or to fund an increase in assets. The bank cannot collect adequate funds either by increasing liabilities or by transforming assets quickly enough and at a reasonable cost if the bank faces the liquidity problem which directly affects the profitability of the bank. There are some drivers such as promised based deposits and long-term lending that create massive liquidity problems for banks (Kashyap, Rajan et al. 2002). Liquidity risk can be divided in two risks - market liquidity and funding risk (Decker 2000). Market liquidity risk is related to the problem of selling assets due to a lack of liquidity in the market and this risk is a sub-set of market risk as well. Next, is funding liquidity risk when the liabilities cannot be met as they fall due or it may be paid at an uneconomic price.

It is found that liquidity risk created various consequences for banks following the subprime mortgage crisis. Following the credit crunch of 2007, many banks were reminded of the importance of liquidity risk. Considering the importance of liquidity risk in the future, it is essential for banks to strengthen liquidity risk management.

### **4.3.3 Market Risk**

On the other hand, market risk results from the movements in the market factors such as the interest rate and foreign exchange changes. It is also sometimes called systematic risk or un-diversifiable risk. Bessis (2002) defines market risk as arising from adverse deviations in the value of trading portfolios as a result of market movements. While Saunders, Cornett et al. (2006) define market risk as the risk related to the uncertainty of bank earnings on their

trading portfolio caused by the change in market conditions. Previous definitions show that market risk is closely related to interest rate and foreign exchange risk. In fact, the market risk increases when bank trade assets and liabilities rather than hold them for a long term investment or funding purposes. In other words, banks face market risk when interest rates and foreign exchange movements combine with trading activities (Gallati 2003). In contrast, interest rate and foreign exchange risks are not limited by trading activities. They are resulting from the movement of interest rate and foreign exchange rates, and affect assets and liabilities in general.

#### **4.3.4 Operational Risk**

The risk which is related with business strategy, internal mechanisms and operations, technology and mismanagement is defined as operational risk (Sun and Chang 2011). As one of the innovations proposed by Basel II, operational risk is defined by Basel (2001, p.2) as “the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events”. This approach is in accordance with other opinions (Santomero 1997) that consider operational risk associated with the problems of accurately processing, setting and taking or making delivery on trades in exchange for cash.

However, the Basel Committee suggested that the bank should not depend on this general definition of operational risk because size, nature and complexity of these activities have unique definitions of operational risk. The Committee believes that lack of understanding and managing operational risk which are almost inherent in all bank mechanisms and transactions might, to a large extent, minimize the possibility of identifying and controlling some of the risk. So operational risk is a term that has a variety of meanings within the banking industry and, therefore, for internal purposes banks may choose to adopt their own definitions of operational risk. This internal definition should respect the individual situation of every bank such as its size and sophistication. The nature and complexity of its activities in an economic manner, considering the full range of material operational risk facing the bank, captures the most significant causes of severe operational losses. As a result, sound operational risk management is a reflection of the board’s and senior management’s effectiveness in managing its product portfolios, activities, mechanisms and systems.

## **4.4 Definition of Efficiency**

### **4.4.1 Efficiency**

In the present context, efficiency is one of the most important objectives for the manager and most valuable destination of all organizations (Hoseininassab, Yavari et al. 2012). Efficiency is the important target commercial banks are striving for as efficiency reflects a bank's resource allocation performance and is also the result of evaluation of all input as well as output (Kang 2013). The company injects the resources for the output which is known as efficiency. Through the injection of limited resources, the company sets a target to obtain maximum output. Efficiency tells not only the things reflected in financial statements but also the business performance which financial analysis has difficulty to explain (Kang 2013). Therefore, bank efficiency is an indicator that shows what part of the capital of the bank was used to cover the additional operational and management cost of the bank. Similarly, from an income point of view, a bank's efficiency indicator shows what income is generated by banks from their activities (Lakstutiene 2008) and evaluating both the bank's core ability or competence and future sustainable development ability. Analysis of bank efficiency will help us to find what the bank is not doing well and propose corresponding solutions to improve management performance.

### **4.4.2 Non-performing Loans**

The main function of a bank is to collect deposits from customers and lend those deposits to the borrower (Warue 2013). In the process of lending, it is difficult for a bank to predict whether a loan will be paid in full or not. This process creates default risk in lending. Banks use diversification and other credit risk management techniques, such as screening borrowers for minimization of loan default rates, consequently they are able to minimize levels of NPL. Basel (2006) recommended banks to categorize NPL according to days at risk and set the provision for loans when analyzing NPL. The committee recommends the loan loss provision as follows:

Normal: 1 percent provision for loans less than 30 days at risk.

Watch: 3 percent provision for loans with principal or interest due and unpaid for 30 to 90 days.

Substandard: 20 percent provision for loans past due more than 90 days but less than 180 days.

Doubtful: 50 percent provision for loans past due for more than 180 days but less than one year.

Loss: 100 percent provision for loans and past due for 360 and above.

The risk classification using days at risk is used to calculate NPL. This is of the general opinion that a high proportion of NPL reflect that banks use less resources than common practice in their credit evaluation and loan monitoring process (Karim, Chan et al. 2010). Several researchers including Altunbas, Liu et al. (2000), Fan and Shaffer (2004) and Girardone, Molyneux et al. (2004) found that NPL minimize the efficiency in the banking sector. Similarly, Altunbas, Liu et al. (2000) also found that the level of NPL is negatively related with bank efficiency. Berger and DeYoung (1997) and DeYoung (1998) highlighted that efficient banks manage credit risk in better ways. When the bank books the loan amount for recovery, banks will bear additional operating costs from non-value added activities to manage and supervise the collection process which minimizes the efficiency (Karim, Chan et al. 2010).

#### **4.5 Determinants of Non-performing Loan**

The literature of determinants of NPL identifies two sets of factors to explain the evolution of NPL over time. One group focuses on external events such as the overall macro-economic conditions which are likely to affect borrowers' capacity to repay their loan, while the second group which looks more at the variability of NPL across banks, attributes the level of NPL to bank level factors. Empirical evidence, however, finds support for both sets of factors.

##### **4.5.1 Macro-economic Variables**

The financial crisis in different time periods has identified the cost that the economy has to bear as a result of banking crises (Agnello, Furceri et al. 2011; Agnello and Sousa 2012). Considering this cost, it has also inspired some economists to explore the drivers that may trigger a banking crisis (De-Grauwe 2008; Laeven and Valencia 2008; Laeven and Valencia 2010). Llewellyn (2002) found that interaction between the economic, financial and structural weaknesses are the main determinants of a banking crisis. Likewise, movements in economic situations from a growth cycle to a recession led the banking crisis in many countries. Research on determinants of credit risk which is often measured by NPL has shown that the macro-economic factors are the main drivers which influence risk in all sorts of investments (Crouhy, Galai et al. 2000; Saunders, Cornett et al. 2006). The degree of investment credit

risk is highly influenced by changes in economic policies, political changes and the goals of leading political parties (Belkin, Suchower et al. 1998; Saunders, Cornett et al. 2006). Changes in monetary and tax policies, economic legislation changes, as well as import restrictions and export stimulation, signify that economic policy changes also influence the range of investment credit risk (Saunders, Cornett et al. 2006). Macro-economic factors include the growth in domestic product, inflation rate, the employment rate, stock index, and exchange rate movements in the economy (Aver 2008).

#### **4.5.1.1 Economic Activity**

##### ***The theoretical link***

Many studies of bank risk conceived risk as forming from economic activity. The nature of banking business is to function as an intermediary for the real sector which is closely related to economic conditions that largely determine the aggregate health of the real sector. The risk in intermediaries tends to rise during stagnation and recession periods because these situations worsen the business condition. Adverse selection and moral hazard of borrowers are high during business cycle troughs that led the bank to vulnerable situations (Baele, Vander et al. 2005). Loan quality is sensitive to economic cycles (Hadad, Santoso et al. 2006). There is a correlation between economic activity and loan quality (Kalirai and Scheicher 2002). Worsening economic activity decelerates the income and accelerates the payment difficulties and more businesses are adversely affected which will result in higher default risk. Therefore, the cyclical variable the GDP growth, is projected to be negatively related to NPL. Koch and McDonald (2003) suggest that good economic conditions build the confidence of both borrower and lender about the investment project and their ability to repay their loans. This confidence of borrowers encourages banks to relax credit standards and accept more risk. In contrast, during recession periods when NPL and provisions for loans increase, banks might be very conservative and tighten credit requirements and only borrowers with high credit ratings get new loans. Thus, lending during recessions is safer which leads to low NPL. Furthermore, declining economic situations are responsible for having a negative effect on profitability of banks because low interest rates in recessions contribute to the reduction of bank interest margins. In summary, it can be estimated that the business cycle is negatively correlated with bank risk accelerating at times when economic activity slows down.

By contrast, it is also noticed that cyclical downturns are not always the cause of higher riskiness in banking; they can also help improve the efficiency in bank risk structures that were built up during business cycle upturns. There is evidence that financial systems tend to behave pro-cyclically, that is business and financial cycles co-move (Borio, Furfine et al. 2001). During good economic conditions, collateral value is high and banks lend funds more readily and asset growth accelerates. By nature the bank is a risk taker and often takes excessive credit risk which is apparent in subsequent recession periods when the bank's earnings from borrowers, payment of principal and collateral value decline. Thus it is very important to check the degree of risk that is already reported on bank loan portfolios and its concurrent risk taking behavior. For example in business recessions, the bank may behave more risk-aversely by tightening credit conditions for new borrowers while the risk connected with its assets-acquired previously may still increase due to factors mentioned above.

Bhattacharya and Roy (2008) and Salas and Saurina (2002) suggest the opposite. During boom periods, economic activities in general are increasing and the volume of cash held for either businesses or households is increasing. These conditions contribute to the increased ability of borrowers to repay loans which leads to reducing credit risk for banks. When growth is down or even negative, cash inflow of businesses and households is reducing which in turn, increases the likelihood of delaying their financial obligations. Moreover, during economic downturns, the value of collateral usually falls. This could increase the problem of moral hazard and adverse selection of borrowers (Arpa, Giulini et al. 2001). As a result, bank NPL exposure increases.

### ***Empirical findings***

An investigation of the relationship between economic cycles and bank risk exposure shows that the relationship is dialectical (Jiménez and Saurina 2006). The empirical evidence shows that bank risk is closely related to the economic and business cycle.

The impact of economic growth on bank failure was studied by Richard (1999). He assumed that a slower or negative growth would probably increase NPL, financial stress and reduce bank profitability. He found a significant and negative relationship between the real GDP growth and bank failure. Das and Ghosh (2007) investigated the drivers of problem loans in the Indian stated owned bank during 1994 to 2005. They found a significant and negative relationship between problem loans and GDP growth which indicates problem loans are

mainly the result from downturns in the economic activity. Similarly, Thiagarajan, Auuapan et al. (2011) examined the relationship between current GDP and one year lag GDP with NPL in the Indian banking sector and found a negative relationship between current GDP growth and NPL, and found no significant relationship between one year lag of GDP growth and NPL. The same relationship was found by Jiménez and Saurina (2006) and Salas and Saurina (2002) who studied the determinants of problem loans in the Spanish banking sector. According to Jiménez and Saurina (2006), the elasticity of GDP growth shows an increase of one percent as the rate of GDP growth decreases the NPL ratio by 0.03 percent.

Similarly, other studies conducted by Zribi and Boujelbene (2011), Gonsel (2012), Ali and Daly (2010) and Castro (2012) in the case of the commercial bank of Tunisia, North Cyprus, Australia and GIPSI (Greece, Ireland, Portugal, Spain and Italy) respectively, and found a negative relationship between GDP and credit risk. Saba, Kouser et al. (2012) and Fofack (2005) examined the relationship between GDP per capita as an economic condition and credit risk in the US and Sub Saharan Africa respectively and found the same result. However, Fofack (2005) found no significant influence of GDP growth on NPL in Sub Saharan Africa. The same result was found by Aver (2008) and Kalirai and Scheicher (2002) in the case of the Slovenian and Austrian banking sector respectively. In contrast to all above results, a study conducted by Bofondi and Ropele (2011) in the Italian banking sector showed that GDP is positively related to credit risk lag of three and four quarters in firm lending and household lending respectively.

#### **4.5.1.2 Inflation**

##### ***The theoretical link***

Inflation is another macro-economic factor which affects the efficiency of the banking sector. Inflation depreciates the value of money which reduces the rate of return in general. As a result, the financial sector makes fewer loans, resource allocation is less efficient, and the intermediary role is reduced with a negative impact on capital investment. The reduction in the capital investment negatively affects economic performance (Boyd, Levine et al. 2001). Inflation is important for banks because they typically deal in nominal financial instruments that is, instruments denominated in fixed amounts. For example, when a bank makes a loan, it accepts nominal financial instruments (notes, mortgages, commercial paper and other financial securities) as evidence of the debtor's obligation to the bank. When a bank borrows, it issues nominal financial instruments to creditors (deposit liabilities, acceptance and

debentures) as evidence of its obligation. While nominal financial instruments differ from one another in many respects, they share one important characteristic: their payments are fixed in nominal value that is, in terms of currency. Nominal instruments make up the bulk of bank assets and liabilities. Furthermore, bank is typically net creditors in nominal instruments because their nominal assets exceed their nominal liabilities (Kessel 1956; Kessel and Alchian 1962). An increase in anticipated inflation raises the nominal interest rate. This increases the number of currencies that creditors or debtors who are transacting in nominal financial instruments expect to receive or pay when loans mature. If this expectation is realized, all nominal values will be higher at maturity.

In the banking area, Athanasoglou, Brissimis et al. (2008) suggest that the impact of inflation on bank profitability depends on whether the operating expenses increase at a faster rate than inflation. Since inflation reduces the future value of money, it pays people (both potential borrowers and lenders) to try to forecast inflation over the relevant time period. This forecast is called anticipated inflation (Kessel and Alchian 1962). When banks accurately forecast inflation, bank managers can appropriately adjust the interest rate in order to increase their revenues faster than the cost which mitigates the negative impact of inflation. If borrowers and lenders expect the value of the currency to depreciate in terms of the goods it will buy over the life of the loan (i.e. if they anticipate inflation), the nominal interest rate specified in the loan contract will take account of this. The nominal interest rate quoted in financial markets is formed in the process of contracting between borrowers and lenders. They indicate the amount of currency the borrower must pay to the creditors in the future in exchange for a given amount of present value. The interest rate will be sufficiently high to compensate for the expected depreciation in the value of the currency (Sargent 1972).

As for the impact of changes in the inflation rate on the credit risk exposure of banks, Ahmad and Ariff (2007) suggest that high levels of inflation lead to an increase in the price of properties and real state. As a result, speculative activities in share trading increased by asset price bubbles in properties and real estate. These activities could lead to high credit risk in the absence of reform policies which aim to reduce the asset price bubbles due to high rates of inflation. Thus, high interest rates increase the costs of borrowing which leads to an increase in the obligation of borrowers resulting in an increase in the NPL.

### ***Empirical findings***

The findings of previous studies indicate that a high rate of inflation affects negatively the rate of real growth of the economy which affects the financial sector efficiency. A low and stable inflation rate is essential for the future economic growth and gives a sense of confidence in the future. Thiagarajan, Auuapan et al. (2011) examined the relationship between current inflation and inflation with a one year lag with NPL and found a positive relationship, and no relationship between inflation with one year lag and NPL in the case of public sector banks. The result showed that there is no significant relationship between inflation and credit risk in the case of private sector banks. Similarly, Gonsel (2012) and Rinaldi and Sanchis-Arellano (2006) examined the influence of inflation to credit risk in North Cyprus and Euro Zone countries respectively and found a positive relationship. By contrast, Zribi and Boujelbene (2011) and Vogiazas and Nikolaidou (2011) when examining the Tunisian and Romanian banking sector, found a negative relation between inflation and credit risk. However, some other studies by Aver (2008), Bofondi and Ropele (2011) and Castro (2012) in the case of the Slovenian, Italian, and GIPSI banking system, did not find any influence of inflation on credit risk. Inflation has the dual effect of eroding the real value of outstanding loans as well as reducing borrowers' real income. As one effect is almost terminated by the other, the ultimate effect of inflation on the credit risk is null (Castro 2012).

#### **4.5.1.3 Money Supply**

##### ***The theoretical link***

Money supply is another macro-economic factor that has an impact on borrowers and thus on NPL. The total amount of money in an economy in the form of coins, notes, and bank deposits is known as the money supply. A change in the money stock can be generated in several different ways (Arestis and Skouras 1985). There are two primary suppliers of money: the monetary authorities and the banking system. The banking system supplies deposit money through credit creation. In the context of the banking system, the focus is on the liabilities side of the bank's balance sheets, since the money supply consists mostly of bank deposits. The bank multiplier is assumed to be stable. On the other hand, the money demand is understood to be a stable function of income. On the liabilities side, the velocity of circulation of deposits can be highly variable; any shortage of money can be partially offset by a change in velocity. On the assets side, credit creation is the source of deposit liabilities.

Kaldor and Mirrlees (1962) argued that the endogenous money supply helps the financial system to be stable. According to Kaldor and Mirrlees (1962), a credit loan is different to other products. As the requirement for granting a loan, the bank creates the deposit. The changes in the bank's credit demand are endogenously responsive to the supply of deposit money. Credit growth by banks in the market accelerates the demand for deposits.

Expansionary monetary policy increases the money supply which stimulates credit demand directly by minimizing the cost of funds indirectly by a potentially positive effect on the activities of the economy (Eickmeier, Hofmann et al. 2009). The changes in money supply in the economy affect the behavior of borrowers and this behavior impacts on the relationship of money supply to credit risk. The money supply increases if the central bank follows the expansionary monetary policy because this lowers the required reserve rate and reduces the discount rate. Increases in money supply assist investment and consumption which directly increase the productivity and profitability. Moreover, increasing the money supply will decrease interest rates and increase the opportunity of the public to have cheaper funds. These conditions increase the ability of borrowers to pay back their obligations and contribute to decreasing bank exposure to credit risk (Ahmad and Ariff 2007). Accelerating money supply growth can act as an indicator of future growth potential (Berk and Bikker 1995).

### ***Empirical findings***

Money supply is an important factor that affects the economy. The impact of money supply on credit risk was examined by Ahmad (2003). She examined factors contributing to risk formation in 65 deposit taking institutions in Malaysia. She found a significant and negative relationship between broad money supply (M3) as a proxy of money supply, and credit risk. A similar result was found by Vogiazas and Nikolaidou (2011) and Kalirai and Scheicher (2002) in the Romanian and Austrian banking systems. Bofondi and Ropele (2011) examined the relationship of money supply on bank NPL in household lending and firm lending in Italy. His result showed that money supply is negatively related with NPL if banks lend to firms, and found no significant relationship if bank lending is to households. Similarly, Fofack (2005) found no significant relationship between money supply and credit risk in Sub-Saharan African banks.

#### **4.5.1.4 Exchange Rates**

Exchange rates are also one of macro-economic debates in the literature for developing markets and volatility of exchange rates is one of the main sources of economic instability

(Zameer and Siddiqi 2010). The volatility in exchange rates that was found to have an important role in inducing banking crises in many countries, at first weakens economic and financial stability (Lindgren, Garcia et al. 1996). The inter-relation between currency movement and bank foreign exchange exposure drives the effect of exchange rate fluctuations on bank risk. The exchange rate measures the relative worth of a domestic currency in terms of another (Zameer and Siddiqi 2010). The depreciation of a domestic currency is supposed to harm that bank whose foreign exchange liabilities significantly go beyond their assets denominated in foreign currencies. However, Lindgren, Garcia et al. (1996) argued the importance of the relationship between the exchange rates and NPL is to impact on the performance of bank borrowers which reduces the bank's profitability. Overall, devaluation of a domestic currency is expected to increase and decrease credit risk for bank loans extended to importers and exporting sectors respectively.

The devaluation of a local currency against a foreign currency is the main problem a firm faces that makes it difficult to retain local customers because the high prices of imported products tend to affect the prices of final products sold locally (Sirpal 2009). As the domestic price of foreign exchange rates rises (depreciates), it becomes more expensive to procure foreign products and services as their cost would have increased thereby requiring more units of domestic currency to acquire the same quantity of foreign goods and services than before. This result leads to an increase in the demand for bank credit to support finances for covering the additional expenditure required as a result of exchange rates depreciation (Ngerebo 2011) and reduces the firm's profitability. If the firm's profitability decreases, the firm faces the problem to service its interest and principal on loans. A real depreciation is supposed to have a good effect on the operating profit of a firm which is involved in exporting and the opposite effect on those firms which are involved in importing (Nucci and Pozzolo 2001). By contrast, a large currency depreciation may worsen the firm's net worth through the balance sheet effect, as the dollar-denominated debt burden of firms increases (Pratap and Urrutia 2004).

In the case of nominal exchange rates, depreciation of the local currency leads the borrowers to repay less than they borrowed initially which improves the net real position of borrowers. With regards to exports, a lower domestic currency is taken as positive. So, depreciation of the local currency leads to lower loan defaults and losses if the country's trade is based on exports. In contrast, this situation may be the opposite for those borrowers who borrow

foreign funds and can stand to profit if the domestic currency appreciates (Kalirai and Scheicher 2002).

### ***Empirical findings***

In general, the relationship between the exchange rates and loan losses is unclear (Kalirai and Scheicher 2002). Castro (2012) conducted a study in GIPSI (Greece, Ireland, Portugal, Spain and Italy) from 1997 to 2011 and found a negative relationship between real effective exchange rates and credit risk. He argued that increases in exchange rates i.e. the goods and services produced in a country may be relatively more expensive as a result of the appreciation of the domestic currency. This situation weakens the competitiveness of export-oriented firms and affects adversely their ability to service their debts. Zribi and Boujelbene (2011) conducted a study in Tunisia and used the ratio of risk weighted assets to total assets as a proxy of credit risk and found a negative relationship between exchange rates and credit risk. Similar results were found by Günsel (2012) as well. Some researchers including Aver (2008) and Kalirai and Scheicher (2002) in Slovenia and Austria did not find any significant relationships between foreign exchange fluctuations and credit risk. However, these authors used different measurements for credit risk rather than NPL. Vogiazas and Nikolaidou (2011) found real effective exchange rates with a three quarter lag are negatively related with NPL in Bulgaria between 2001 to 2010 which was also found by Fofack (2005) in Sub-Saharan Africa.

#### **4.5.1.5 Share Price Indices**

##### ***The theoretical link***

Stock market indices provide an indication of cyclical trends of the macro-economy and within industry sectors. Increasing stock market indices supply higher profits to investors which minimizes the probability of loan defaults (Kalirai and Scheicher 2002). This linkage is captured at the level of an individual firm in the benchmark model of (Merton 2012). The trend of share market indices gives the picture of general financial conditions of companies and sectors in the market. The growth of share prices indicates an improvement of the financial position of the firm which may contribute to minimizing credit defaults. Good stock market performance contributes to reduce the credit risk. A high share market index denotes a high return for investors and hence, lowers the credit risk (Hadad, Santoso et al. 2006). Growth rates of share price indices reflect a positive outlook on a firm's profitability; moreover, an increase in financial wealth is expected to decrease the probability of

households defaulting on loans since it gives them additional means for servicing their debts (Bofondi and Ropele 2011).

### ***Empirical findings***

Aver (2008) examined the influence of stock exchanges in the credit risk of the Slovenian banking system and found a positive relationship. Kalirai and Scheicher (2002) found a fall in the stock index amounted to an increase in the credit risk in Austria. Bofondi and Ropele (2011) found no relationship in growth of share indices and credit risk in Italian banks if the loan is disbursed in households, and found an inverse relationship if the loan is disbursed to firms. Castro (2012) conducted a study in GIPSI (Greece, Ireland, Portugal, Spain and Italy) from 1997 to 2011 and found a negative relationship between share price indices and credit risk. Beck, Jakubik et al. (2013) also found a negative relationship between share price indices and loan quality. Increases in share prices reflect an improvement in the financial condition and contribute to a reduction in the rate of NPL.

#### **4.5.1.6 Market Interest Rate**

##### ***The theoretical link***

The interest rate is also one of the important factors which affect the NPL because it impacts on the debt burden. As the consequences of market interest rates affect the debt burden, it is positively related with NPL. In fact, rising interest rates increase the debt burden and lead to higher rates of NPL (Aver 2008; Nkusu 2011; Louzis, Vouldis et al. 2012).

Market interest rates which are a central source of market risk for banks, drive the interest rate for banks. Increasing interest rates directly affect the profitability of banks and it bears the danger of increased credit risk. Asymmetric information theories claim that higher interest rates taken as the problem of adverse selection in the credit granting process, and also high interest rates create the chance of selection of adverse projects which creates risk in banks. High interest rates discourage good borrowers who have good projects and this situation shifts bad applications toward risk. Moreover, increasing interest rates change the *ex post* incentives for borrowers encouraging them to take on riskier projects (borrowers' moral hazard) (Stiglitz and Weiss 1981). Thus, in setting information asymmetries, a rise in interest rates will *ceteris paribus* increase credit risk on bank balance sheets.

Koch and McDonald (2003) suggest a negative relationship between interest rates and credit risk. In time, when interest rates are low, good economic performance stimulates firms to

achieve good earnings and banks tend to be less restricted in their credit standards. However, some new borrowers may not provide important information to banks for the credit assessment process. These conditions lead to an adverse selection problem which increases NPL in banks and finally leads to higher credit risk. Similarly, Das and Ghosh (2007) suggest that high real interest rates raise the cost of funds for borrowers which increase their obligations. As a result, the borrowers will face difficulties to repay their loans on time. These conditions increase the probability of default for borrowers and increases bank credit risk exposure.

### ***Empirical findings***

Interest rates are an important macro-economic factor that affects bank risk and profitability. Richard (1999) found a significant negative impact of real interest rates which is measured by nominal interest rate on three year treasury notes minus the inflation rate on bank failure. A similar result was found by Fofack (2005) in Sub-Saharan Africa and found a positive relationship between real interest rates and credit risk. This suggests that the rising interest rate, to the extent that the increase of the cost of deposits at the commercial bank, may have contributed to a decrease in bank profits. On the other hand, Jiménez and Saurina (2006) used interbank interest rates to measure the impact of interest rates on problem loans. They found a significant and positive relationship between interest rates and problem loans. The same relationship was found between the interest rates measured by ten year Italian Treasury bonds and the loan loss provisions (Quagliariello 2007). Castro (2012) conducted a study in GIPSI (Greece, Ireland, Portugal, Spain and Italy) from 1997 to 2011 and found a positive relationship between long term interest rates and NPL. Similar positive relationships between interest rates and NPL were also found by Aver (2008), Nkusu (2011), and Beck, Jakubik et al. (2013). This supports the idea that high interest rates increase the obligation of borrowers and thus increases bank NPL. Ali and Daly (2010) found no significant relationship between short-term interest rates and NPL in Australia.

### **4.5.2. Bank Specific Variables**

The determinants of NPL should not be sought exclusively in macro-economic factors which are viewed as exogenous forces influencing the banking industry. On the contrary, the distinctive features of the banking sector and the policy choice of each particular bank with respect to their efforts for maximum efficiency and improvement in their risk management are expected to exert a decisive influence on the evolution of NPL. In the previous section,

some of the macro-economic determinants of NPL are discussed. However, bank specific variables may provide much richer insight into the determinants of NPL. Even though macro-economic conditions may offer a valuable contribution to explain credit risk at an aggregate level, it is the bank's specific financial situation that will ultimately determine whether it will default on its liabilities. Taking bank specific variables may provide a clearer understanding of which factors drive NPL. A strand in the literature has examined the connection between bank specific factors and NPL.

#### **4.5.2.1 Non-performing Loans Lag**

##### ***The theoretical link***

For most banks, the loan account represents a half or more their total assets and about half or more of their revenue. Hence, banks are looking for ways to keep the quality of their loans high in order to generate higher returns. An increase of NPL is a major problem that faces most banks. A high level of NPL causes banks to increase spending on monitoring, working out and possibly becoming more careful in managing the part of their loan portfolio that is currently performing (Sanjeev 2007). If the risk is not identified quickly this leads to reducing the quality of loans and thus, increases problem loans. When such low quality loans grow, a large amount of them become NPL. A high proportion of NPL reflects a decrease in the quality of loans which finally increases bank exposure to credit risk (Campbell 2007). Higher credit losses are naturally associated with higher levels of NPL. So management of NPL has always been a point of concern for regulators and researchers. The lagged NPL can positively influence the current NPL levels because the problem loans of one year are not completely written off and have a carryover effect (Thiagarajan 2013).

##### ***Empirical findings***

A study to examine the influence of previous year NPL to current year NPL was conducted by Salas and Saurina (2002) in context of Spanish commercial and saving bank between 1985 and 1997. They found a positive relationship of one year lag NPL with current year NPL. In the same direction, Das and Ghosh (2007) also found the same result in Indian state-owned bank. A recent study was conducted by Thiagarajan (2013) in the commercial banking sector of Belize to examine the relationship of one year NPL lag with current NPL. He also found a positive relationship between the two variables.

#### 4.5.2.2 Loan Loss Provision

##### *The theoretical link*

Provision for loan losses shows management's perception of the quality of bank loans. Loan loss provision is important in assessing the financial system which contributes to a fluctuation in bank profitability and capital position (Beatty and Liao 2009). Loan loss provision measures the credit risk from a bank's portfolio generated within one year and correlated positively. Loan-loss reserves serve to cover NPL and thus the ratio of NPL. The risk in bank portfolios builds up during the expansion period. In recessions, the *ex ante* credit risk increases *ex post* in credit losses. It is important for banks to identify the increase in credit risk/credit losses in their loan portfolios when it is building up.

Loan loss provision is an accounting tool which is used to cover credit losses. An appropriate identification of credit risk and credit losses along the lending cycle will improve the soundness of each and help to control pro-cyclicality in lending. The estimated amount of loan loss provision should be adequate to bring the balance of allowance of loan losses to an adequate level to absorb expected loan losses (Koch and McDonald 2003; Quagliariello 2007).

Based on the performance of quality of loan portfolios, banks set the loan loss provision. The decision to set aside provisions depends on certain credit risk considerations: default risk, risk tolerance and the macro-economic environment. In most countries, setting the provisions are based on losses on individually assessed loans or the amount of defaulted loans and are also based on a portfolio of loans. This system varies across the countries (Borio and Lowe 2001). Pérez, Salas-Fumás et al. (2008) note that during an economic upturns, banks lend more loans which increases the loan loss provision during this period. With the materialization of risk, loan loss provisions increase in cases of riskier companies during downturns which lead to setting higher loan loss provisions. Loan loss provisions are generally at a minimum level during most of a boom period which start to occur at the end of the expansion period and report very high levels in a downturn. Banks set low loan loss provisions during good economic conditions because a higher loan loss provision is perceived by shareholders as a signal of low credit quality (Quagliariello 2007). Goldstein (1998) noted that reorganization of bad loans can be considerable, if it is classified on the basis of loan payment status rather than the borrower's creditworthiness or market value of collateral. If the bank can recognize NPL

systematically, then the loan loss provisions are apt to be too low and bank net income and capital will be systematically overstated.

### ***Empirical findings***

A study to examine the behavior of loan loss accounting disclosure of banks in Hong Kong, Malaysia, and Singapore from 1993 through 2000 was done by Eng and Nabar (2007). They found that loan loss provisions are positively and significantly related with both of beginning loans outstanding and change in NPL. This suggests that firms increase their provisions in response to an increase in credit risk. Ahmad and Ariff (2007) conducted a multi country study and found a positive relationship between loan loss provision and credit risk in Australia, Japan, Mexico and Thailand. The same result was found by Fischer, Gyeyie et al. (2000) and Bikker and Metzmakers (2005). This indicated that the higher loan loss provision ratio signals potentially higher credit risk on banks needing to make greater provision against potentially greater NPL.

### **4.5.2.3 Loan Growth**

#### ***The theoretical link***

Rapid credit growth can generate distress in banking sectors through shocks in macro-economic conditions and loan quality because loan assessment may suffer due to huge amounts of new credit granted (Duenwald, Gueorguiev et al. 2005). It is an obvious reason that the business cycle impact on loan growth which may be the cause of loan losses. Business expansion requires the bank to increase the loan which can turn into loan losses during business contractions. Thus, rapid credit growth as the result of business cycles may naturally be inclined to continue high loan losses (Keeton 1999). Das and Ghosh (2007) suggest that rapid credit growth contributes to a decrease in the quality of loans which are considered one of the most important causes of problem loans. Economic expansion periods require the bank to engage in competition for market share in loans which results to rapid credit growth rates. Lending credit facilities to lower credit quality borrowers is the best way to gain market share on loans (De-Lis, Pagés et al. 2001) which eventually deteriorates asset quality during the next economic downturn. If the bank enters a new market or product in this situation, this kind of market share strategy may be harmful to banks due to informational disadvantage (Shaffer 1998). Keeton (1999) suggests that banks have to lower their loan rate and credit quality if they are more willing to lend. As a consequence of this, more borrowers may request loans which then increase the volume of loans. However, loan losses will take a

few years to respond because generally the tendency of loan losses cannot be examined in the same year. In the different situation, if there is a high demand for credit in the market, the bank can raise loan rates and increase the assessment process of loans which minimizes the credit growth. However, this leads to future loan losses and increases the credit worthiness of borrowers.

In some situations, for example, high demand for loans and credit growth, other than a shift in supply may not lead to higher loan losses. If there is not any relation between credit demand and borrowers' underlying creditworthiness then the rapid credit growth may not transform into loan losses. Next, if in the market there is the possibility of an increase in return on investment, this may boost the demand of credit which increases the capacity of borrowers to repay the loan. So, in the above situation, the rapid credit growth may not result in loan losses (Keeton 1999).

### ***Empirical findings***

Loans represent the main use of funds in most banks, and thus they are the main source of income for banks. Therefore, banks are looking for ways to increase their lending. In contrast, rapid credit growth could lead to an increase in bank credit risk exposure. Salas and Saurina (2002) used percentage change in loan growth rates lagged three periods as a proxy for credit growth. They found a positive and significant relationship between the rapid growth of loans and problem loans. The same result was found by Jimenez and Saurina (2006). This indicates that banks which have aggressive growth policies have a greater tendency for an increase in problem loans. Similarly, Das and Ghosh (2007) found a strongly significant and positive relationship between lagged credit growth and problem loans. Accordingly, credit growth today will convert into a problem loan after one year. In contrast, Altunbas et al. (2007) used the ratio of net loans to total assets as a proxy of net lending. They found a significant and negative relationship between bank risk measured by loan loss reserves and net lending.

Vogiazas and Nikolaidou (2011) found loan growth is negatively related to credit risk in Bulgaria. Castro (2012) conducted a study in GIPSI (Greece, Ireland, Portugal, Spain and Italy) from 1997 to 2011 and found a positive relationship between loan growth and credit risk. Extensive credit growth may be a sign that several risky loans are being approved increasing the number of possible failures to pay in future. Vogiazas and Nikolaidou (2011)

conducted a study in Romania from 2001 to 2010 and found a negative relationship between credit growth and credit risk which is measured by loan loss provision to total loans.

Kraft and Jankov (2005) analyzed the phase of credit boom during the transition period in the Croatian banking system and did not find a strong relationship between rapid credit growth and credit quality.

#### **4.5.2.4 Capital**

##### ***The theoretical link***

The capital account of the bank plays several important roles in supporting daily operations and ensuring its long run viability. One of the capital functions is to provide a cushion against the risk of failure by absorbing the financial and operating losses until the management can address the bank's risk. The bank capital and risk are related to each other. When the borrower fails to pay its obligations, the defaulted amount results in losses that can eventually reduce the bank's capital (Bessis 2002). The nature of a financial intermediary requires that it holds capital that is sufficient to reduce the probability that it will default on its debt to a minimum level (Gascón and González Méndez 2000). Existing theories justify capital regulation of banks as moral hazard problems.

Several studies have been done on the subject of capital. With the portfolio approach which is used by Hart and Jaffee (1974) and Pyle (2012), banks are treated as utility-maximizing units. Koehn and Santomero (2012) stated that banks maintain higher leverage ratios to divert their portfolio to riskier assets. To solve this situation, Kim and Santomero (2012) recommended the correct measurement of risk by regulators is the calculation of solvency ratios. Bichsel and Blum (2004) suggest two channels of how the capital ratio of the bank affects its possibility of failure. The first channel is adequate capital which has superior cushion to manage an adverse shock and hence reduce the probability of failure. The second channel is a negative correlation between capitalization and probability of default. The negative relationship implies that an improvement in capitalization leads to decreasing the probability of default. Cannata and Quagliariello (2006) suggest that the relationship between capital and risk under minimum regulatory requirements is supported by one of the following of two explanations. Firstly, those banks try to increase more capital assuming more risk taking in future and to maintain expected profitability levels. Secondly, the bank's reaction to capital increases depends on the initial capital base. Well capitalized banks tend to maintain existing

levels of capital, and poorly capitalized banks react either by increasing capital or reducing risk in order to build capital reserves.

### ***Empirical findings***

The capital of a bank is an important factor that covers losses resulting from risks with which banks deal, and support growth opportunities. A study to investigate the relationship between change in risk and change in leverage of 19 Swiss banks for the period 1990 to 2002 was done by Bichsel and Blum (2004). A positive and highly significant correlation was found between change in capital and risk. Altunbas et al. (2007) studied a number of banks operating in 15 European countries between 1992 and 2000. They found a significant and positive relationship between capital level and bank risk. The bank with higher loan loss reserves tends to have a higher capital level. Ahmad and Ariff (2007) conducted a multi country study and found positive relationships between capital and credit risk in Japan, Malaysia and Mexico. This reflects that banks would be required to maintain adequate capital as a safeguard to absorb significant losses that might arise because of increased credit risk. Berger and DeYoung (1997) also found the result in the same direction and rationalized that large banks have the capability to absorb the losses through their capital so they tend to invest with risky borrowers for lucrative returns whereas Godlewski (2006) found a significantly negative correlation between capital ratio and credit risk which is proxy by NPL to total assets ratio. Zribi and Boujelbene (2011) conducted a study of 10 commercial banks in Tunisia and found that the prudential regulation of bank capital also negatively influenced the level of bank credit risk. By using annual data of Italian bank during 1994-2003, Cannata and Quagliariello (2006) found a negative significant relationship between change of capital levels and bank risk in terms of those banks whose relative capital ratio is close to regulatory requirements but the result was not supported in the case of banks with large capital levels. Different to the above studies, Aggarwal and Jacques (2001) found no significant relationship between capital and loan portfolio risk.

#### **4.5.2.5 Profitability**

##### ***The theoretical link***

Efficient banks are better at managing their NPL as highlighted by Berger and De Young (1997). Banks tend to experience a decrease in their scale profitability level after controlling for risk factors. Inefficient banks performing poor screening and monitoring of borrowers will tend to have inferior portfolio quality. Kwan and Eisenbis (1997) demonstrate that higher

levels of bank profitability can minimize problem loan ratios of banks. Any efficient bank management strives to keep the growth of revenues which come mainly from bank loans and investment and service fees. At the same time, the management has to manage the rising costs which are the interest paid on deposits and borrowing from the money market in addition to the operational expenditure such as the employee salaries and benefits (Koch and McDonald 2003). The bank manages its profitability through different ways. Firstly, cost efficiency which measures management flexibility to adjust costs to changes in the business development signaled by revenue. It shows how well management and staff have been able to keep the growth of revenue which mainly comes from the bank's loans in advance of rising costs mostly comes from interest on deposits. A decrease in margins can prompt banks to adopt 'gamble for resurrection' strategies, resulting in the creation of loan portfolios with higher probability of default in the future (Das and Ghosh 2007).

According to Angbazo (1997), one of the revenues the bank earns comes from the interest margin which produces profit in order to increase capital which absorbs the increasing risk exposure. Hence, the bank with highly risky loans will need high net profits to compensate for higher credit risk or NPL.

### ***Empirical findings***

As for the relationship between the bank's profitability and risk exposure, Angbazo (1997) found that the relationship between credit risk exposure measured by the net charge off, which is the difference between loans that are actually written off and recoveries divided by the total loan and net interest margin, is significant and positive. This indicates that the bank with a higher interest margin increases risky loans. On the other hand, Fan and Shaffer (2004) analyzed profitability of large commercial banks in the US by accounting for NPL. They found that although bank profitability is negatively related to NPL, it is not statistically significant.

In contrast, Das and Ghosh (2007) who studied the relationship between net interest margin and credit risk found a significant and negative relationship between the two variables. Salas and Saurina (2007) conducted a study of the relationship between inefficiency as a proxy for operating expenses to operating margin and NPL, and found a significantly positive relationship in the case of savings banks. Similarly, they also examined the relationship between interest margins and performance with two and three lag and non-performing lag

and found interest margins with a three year lag are negatively related with NPL in savings banks.

#### **4.5.2.6 Branch Growth**

##### ***The theoretical link***

The effect of geographic diversification on bank returns and risk is a more debatable issue among researchers. Researchers argue that geographic diversification helps the bank to achieve a lower cost of funds by enlarging their geographic deposit marketing and when they diversified geographically they can increase their revenue by accessing more profitable products and maintain expected profitability. In addition, geographic diversification assists the managers to extend their expertise on operations and benefiting from scale and scope economies and improve bank earnings. Deposit marketing, branch networks and branching in different sectors is a basic element of diversification (Hughes, Lang et al. 1996).

In some cases, diversification does not imply safer banks. Bank preference is also important so that in some situations, the bank can follow the policy of safe investment by taking risk through increasing leverage and the holding of risk assets, or both (Morgan and Samolyk 2003). It is also supported by the theoretical literature about banking regulation that bank branching networks lead to a more stable banking system by helping banks to diversify their assets and broaden their deposit base (Hubbard 1994). Similarly, geographically diversified loans can be expected to minimize the credit risk in loan portfolios (Hughes, Lang et al. 1996). An argument usually created in the study is that branch banking stabilizes banking systems by minimizing their vulnerability to local economic shocks whereas limitations on branching have been connected to the volatility of the banking system (Carlson and Mitchener 2005). Volatility of returns on bank loan portfolios can be minimized by geographical diversification (Hughes, Lang et al. 1996). However, the close relationship between the bank and the borrower provides comprehensive and important information about borrowers; hence the lack of necessary credit risk management expertise probably leads to more problem loans. In some cases, when banks increase their volume of loans, they are likely to face problems if the credit expansion is made to a new sector or geographical area which the bank does not have experience in the conditions. As a result, the adverse selection problem will increase (Jiménez and Saurina 2006).

### ***Empirical findings***

Conventional wisdom would argue that banking instability in the United States in the 1930s would have been less severe had the US allowed extensive branch banking (Calomiris 2000). Similarly, Friedman and Schwartz (1971) suggest that the severity of banking panic during the great depression in the US was the result of the absence of branching. Numerous studies about bank failure from the depression state that permitted branch banking had lower failure rates than unit banking (Wheelock 1995). Similarly, studies regarding individual banks showed that banks that had branches were more stable than unit (or single office) banks (Calomiris and Mason 2000; Carlson 2004).

The various studies regarding the effect of bank branching at the aggregate level hypothesized that branch banking increased systemic stability. Wheelock (1995) examined the impact of different regulations on bank failure during the 1929 to 1932 period in different states and found lower failure rates of banks in the states which allowed branch banking. Mitchener (2006) found the same result in states with legalized branching which had lower failure rates during the Depression. Grossman (1994) compared 25 different countries during the Great Depression and found the same result. Large branching network banks were less likely to experience a banking crisis. Also, using data on individual state banks from the depression period, Carlson (2004) examined three states where branch banking was relatively widespread and found that branched banks were more likely to fail than unit banks. Instead, he found that branch banks used diversification to reduce their reserves rather than lower the risk of their portfolio - a strategy that worked poorly during the global shock of the Great Depression. Thiagarajan, Auuapan et al.(2011) examined the Indian banking sector and found no significant relationship between branch expansion and credit risk. Salas and Saurina (2002) found the growth policy of banks negatively affects the level of problem loans and has a statistically significant coefficient of branch expansion with a three year lag. Commercial banks with more aggressive growth policies and branch expansion suffer an increase in problem loans three years later. Das and Ghosh (2007) conducted a study in Indian state owned banks and found no relationship between branch growth and NPL.

#### **4.5.2.7 Size**

##### ***The theoretical link***

The scholars in the banking studies tend to assume that when risk is calculated as *ex ante* risk taking incentive, size and safety do not go hand in hand. They provide many results that

larger banks are not safer than smaller banks even if they have better diversified asset portfolio composition. Large banks follow the policy to gain their diversification advantage by lending in risky assets and use less capital. However, they are not safer than smaller banks in overall risk (Lee 2008). Generally, large banks recognize a cost benefit over small banks because they have the ability to operate with less capital. They usually have the same opinion that less capital may bring the risk into the firm because of both a leverage effect and a moral hazard incentive of stock holders. Furthermore, there is belief by investors that the regulators protect large banks from failure because of their importance in the economy; the regulators would not have a great incentive to monitor the risk taking behavior of large banks (Lee 2008). So the large bank gets the opportunity to take more risk due to less monitoring by investors (McAllister and McManus 1993) which shows that large banks operate with lower capital ratios.

### ***Empirical findings***

Empirical results show that the size of bank has a major effect on the bank's operations. According to Das and Ghosh (2007), bigger banks have more ability to control problem loans by diversifying their loans compared to smaller banks. Nevertheless, they found a significant and positive relationship between size measured by a natural log of value of the total assets and problem loans. Salas and Saurina (2002) used the ratio between the assets of a chosen bank in a chosen year, and the total assets of all banking in the same year as a measure of size. They suggested that big banks have more possibilities of promotion, have more power and higher management salaries. They found a significant and negative relationship between problem loans and size. This indicates that larger banks appear to have fewer problem loans than smaller banks. The size provides more diversification opportunities for banks; fewer concentrated portfolios is the reason for the negative relationship. The same result was found by Altunbas et al. (2007) who measured size by a natural log of dollar value of the total assets in the European bank. They suggested that small banks tend to deal with higher moral hazard activities by pledging highly risky projects.

#### **4.5.2.8 Interest Rate Spread**

##### ***The theoretical link***

Financial institutions assist in savings mobilization, diversification, risk taking, and resource allocation. The bank incurs certain costs as a result of non-synchronization of deposit and loans (Ngugi 2001). They fix the deposit and loan interest rate as their intermediary service

charge under uncertainty. The difference between borrowing rates and lending rates defines the intermediary cost (Rhyne 1998). The policy environment and market microstructure characteristics of the banking sector define the interest rate (Ngugi 2001). Risk-averse banks operate with a smaller spread than risk-neutral banks since risk aversion raises the bank's optimal interest rate and reduces the amount of credit supplied. Actual spreads, which incorporate the pure spread, are, in addition, influenced by macro-economic variables including monetary and fiscal policy activities (Emmanuelle 2003).

The banking firm tries to maximize the utility of their profit or expected profit with the trend of market structure and risk management. So, the component of interest rate spread fluctuates with market structure. For example, interest rates are outlined using the variation in loan rate if there is competitive deposit rate and market power in the loan market. But interest rate simply denotes the difference between the lending rate and the deposit rate if there is market power in both the loan and deposit markets (Collins and Wanjau 2011). Interest rate measures the profitability between cost of funds and return on investments. These costs are normally transferred to the borrower who might, with time, be in a position of not repaying the loan (Collins and Wanjau 2011). When there is high intermediation cost, reflected in the high interest rate spread, the borrower may be unable to repay his/her loan due to the cost of such borrowings. This leads to a high risk of loan default and hence, non-performance (Chand 2002).

### ***Empirical findings***

Das and Ghosh (2007) measured interest rate spreads as interest income minus interest expenses and found no significant relationship in Indian state owned banks. Ahmad and Ariff (2007) conducted a multi country study and found a negative relationship between interest rate spread (total interest income/total earnings assets minus total interest expenses/total earnings assets) and credit risk in India and Thailand but positive for banks in France. They also found no significant relationship for banks in Malaysia, Korea, Mexico, US and Australia. The opposite relationship implies that the higher spread rate may well discourage less qualified borrowers to borrow, thus minimizing the bank's credit risk exposure.

### **4.5.3 Corporate Governance Variables**

Previous studies in the area of corporate governance present the details of many-sided nature and behavior of the companies. It is argued that that there is no one theoretical perspective

that can fully summarize the complicities of an organization (Martin and Cullen 2006). This requires different theories to offer better reasons for corporate governance characteristics and mechanisms for a different point of view and different dimensions. Daily, Dalton et al. (2003) stated that a multi-theoretic approach to corporate governance is important distinguishing many mechanisms and structure that might suitably improve organizational functioning. As the governance literature suggests, the study will explain the complicities of relevant governance mechanisms in the light of the two corporate governance theories - agency theory, and stewardship theory of which agency theory will dominate and the other one is situational explanatory. The effect of governance mechanisms to control the effect which agency problems have on company financial efficiency has been the subject of a number of empirical studies. A case of banks in Germany conducted by Lowengrub, Luedecke et al. (2003), supports that the larger role of corporate governance can solve the agency problem in particular banking firms. One of the facts regarding the importance of corporate governance in banking firms is that the governance mechanism would be able to minimize the expropriation of bank resources and promote bank efficiency (Caprio, Laeven et al. 2007). This section summarizes the studies that have been based on corporate governance mechanisms (Board characteristics, Audit Committees characteristics, ownership structure and CEO compensation) and on financial efficiency of firms.

#### **4.5.3.1 Board of Directors Characteristics**

Fama and Jensen (1983) suggest that the board of directors represents the higher form of internal control to monitor top management including the CEO. Board size, board composition and board diligence are among important attributes of the board. Jensen (1993) argued that these factors influenced the board's role in monitoring managers.

##### **4.5.3.1.1 Board Size**

###### ***The theoretical link***

Corporate board size is believed to be one of the most important structural variables in corporate governance. There is no conformity which board size either small or large is better for a firm. The assumption originated from agency theory is that smaller a board is recommended to minimize the agency cost by effective control over the management, whereas larger boards might have a large number of possible interactions and conflicts among the group members (Yoshikawa and Phan 2003). Jensen (1993) argued that when a board gets too big, it does not only become difficult to co-ordinate but also comparatively

easier to control by dominant CEOs due to associated directors shirking and free-riding. Lipton and Lorsch (1992) and Jensen (1993) suggested that corporate board size must preferably fall between eight and nine directors. According to Lipton and Lorsch (1992), a board size of more than nine directors is less likely to criticize the policies of top managers, hence are subject to CEO control. Further, larger boards tend to involve less meaningful discussion since too many directors are involved in the discussion, making it both time consuming and difficult to achieve cohesiveness. A large board is less effective due to slowness in decision making, is more risk averse and creates a free rider problem i.e. one member is dependent on other members to monitor management. Further, larger boards seemed to be sluggish in decision making (Yermack 1996) because due to limited time available in board meetings, larger boards face greater difficulties in expressing their opinions (Lipton and Lorsch 1992).

In opposing arguments, Dalton and Dalton (2005) suggested that a large board offers a broader pool of knowledge and expertise but Jensen (1993) argued that that problem of coordination in large boards can outweigh the benefit. Also Dalton and Dalton (2005) argued that fewer members on the board occupied themselves with decision making, and hence became less effective in monitoring the management. According to Di Pietra, Grambovas et al. (2008), large boards reduce firm value in small and medium firms but not significantly in large firms. Based on the complexity of the firm's business Coles, Daniel et al. (2008) argued that a large board was beneficial in a complex firm because they have greater advisory needs, a larger degree of diversification, and higher financial leverage. Pfeffer (1973) and Zahra and Pearce (1989) suggested that large boards have a variety of skills to make decisions for a company as the CEO cannot direct a large board because the joint power of its members is higher and it can oppose the unreasonable decisions of the CEO. However, Coles, Daniel et al. (2008) argue that the relationship between board size and performance also depends upon in which economic environment the firm is operating.

However, there is another school of thought in favor of larger boards. The company with a bigger board size has the capability to force the managers to track lower costs of debt because creditors view these firms as having more effective monitors of their financial accounting processes and increased performance (Anderson, Mansi et al. 2004). Wen, Rwegasira et al. (2002) supports those large boards with superior monitoring ability to attract higher leverage to raise the firm's valuation.

### ***Empirical findings***

Empirically, the evidence regarding the association between board size and firm performance is conflicting (Yermack 1996; Beiner, Drobetz et al. 2004; Adams and Mehran 2008; Guest 2009). Yermack (1996) is one of the first to investigate the relationship between board size and financial performance in a sample of 452 large US industrial corporations between 1984 and 1991. Generally, he reports an inverse relationship between corporate board size and performance. His results show that investors' valuation of companies declines steadily over a range of board sizes between 4 and 10. Beyond a board size of 10, he finds no relationship between board size and market valuation. Recent US evidence by Vafeas (1999), Cheng (2008), and Coles, Daniel et al. (2008), and non-US evidence of Eisenberg, Sundgren et al. (1998), and Guest (2009) is largely consistent with those of Yermack (1996) that, on average, smaller boards tend to perform better than larger ones.

Using a large sample of 2,746 UK listed firms from 1981 to 2002, Guest (2009) reported a statistically significant and negative relationship between board size and performance. Haniffa and Hudaib (2006) report a negative relationship between board size and financial performance measured by Tobin's Q. In a sample of 347 Malaysian listed firms, Staikouras, Staikouras et al. (2007) and Rashid, DeZoysa et al. (2010) also found a negative relationship between board size and accounting return of the firm.

Sierra, Talmor et al. (2006) suggest that strong boards improve bank performance. Adams and Mehran (2008) also found a positive relationship between bank board size and performance in US listed banking firms from 1959 to 1995. Similarly, for a sample of 69 commercial banks from six OECD countries including US, Andres and Vallelado (2008) found a positive but non-linear, inverse U-shaped relation between both bank board size and performance.

Some studies did not find any relationship between board size and performance. A study conducted by Wintoki, Linck et al. (2009) used a panel of more than 6,000 firms between 1991 and 2003 and found no relation between board size and firm performance. Beiner, Drobetz et al. (2004) conducted a study over companies listed on the Swiss Stock Exchange and did not find a significant relationship between board size and firm valuation, as measured by Tobin's Q. Topak (2011) examined the relationship between the board size and financial

performance of the 122 Turkish firms in Turkey for the period of 2004-2009 and found there is no relation between the board size and the firm's performance. Nyor and Mejabi (2013) and Liang, Xu et al. (2013) conducted a study in Nigerian deposit money bank and Chinese commercial bank respectively and found no significant relationship between board size and bank performance which is measured by NPL to total loan.

#### **4.5.3.1.2 Board Independence**

##### ***Theoretical links***

One of the internal corporate governance mechanisms that the theoretical literature suggests can be used in reducing agency and information asymmetry problems in modern firms is the appointment of independent directors (Fama 1980; Lipton and Lorsch 1992; Jensen 1993). There are two theoretical views with regard to independent directors: those who are in favor of more independent directors on the board, and those who prefer more executive directors. The involvement of independent directors in boards is important to make rational decisions and create value for the shareholders. From monitoring the manager and minimizing the agency cost perspective, board composition is perceived as an important element in firms (Choe and Lee 2003). Although the executive directors have specific talents, knowledge and important knowledge of the firm's operating policies and day-to-day activities, the firm can get the fresh ideas, independence, objectivity and experience in a specific field by the involvement of independent directors on the board (Weir 1997; Firth, Fung et al. 2002; Choe and Lee 2003).

Related to a separate system of control and decision, Fama and Jensen (1983) acknowledged that internal managers dominate the board because they can perform better if they are in the capacity to control and make decisions. However, they further noted that dominant insiders are less likely to survive in a competitive business because of a lack of separation between decision making and decision control. Hence, it was suggested that the presence of independent directors on the board ensures board independence from the management as it clearly segregates the management and control task. In addition, independent directors can solve disagreements among the internal managers or between the internal managers and residual claimants. Thus, boards comprising independent directors will provide a counter balance so that the insiders do not take advantage of their position and sacrifice shareholders' wealth. Based on resource dependent views of Pfeffer and Salancik (2003), the presence of independent directors on the board will enhance the flow of information, and hence protect

the firm's resources and reduce uncertainty. Independent directors are important for banks as they help to improve earnings quality and provide well-suited compensation incentives to the managers (Mishra and Nielsen 2000; Cornett, McNutt et al. 2009).

By contrast, high levels of executive directorships are connected with high access to information which leads to high quality decision-making (Nicholson and Geoffrey 2003). This can impact positively on financial performance. Crucially, independent directors would usually not have the same access to informal sources of information and knowledge within the firm. As a result, decisions made by a board controlled by independent directors would be of an inferior quality and this would in turn lead to lower firm performance. Further, it has been argued that corporate boards controlled by independent directors tend to smother managerial plans and strategic actions which arise from excessive managerial supervision (Haniffa and Hudaib 2006). Likewise, inside directors who have firm specific knowledge, may be beneficial for those banks where the high information asymmetry problem is present (Fama and Jensen 1983). Therefore, as suggested by theoretical models of Raheja (2005), Harris and Raviv (2008) and Adams and Ferreira (2009) banks with high information asymmetry should not depend only on outside directors.

### ***Empirical findings***

Consistent with the conflicting nature of the theoretical literature on independent directors, prior empirical evidence regarding the relationship between the percentage of independent directors and firm performance is mixed. It is often supposed that if the proportion of independent directors increases on a board, the board becomes more independent (John and Senbet 1998). A strand of the empirical literature reports that boards dominated by independent directors deliver higher performance. A study conducted by Baysinger and Butler (1985) of 266 US corporations; found that a higher number of independent directors are expected to pursue activities which realize higher performance. In a similar study, Ezzamel and Watson (1993) found that outside directors are positively associated with profitability among a sample of United Kingdom firms. In the same way, using a sample of 311 UK listed firms from 1994 to 1996, Weir (1997) also found a positive relationship between board independence and firm performance i.e. Tobin's Q. Recently, El-Mehdi (2007), and Mangena and Taurigana (2008) reported evidence which is entirely consistent with prior research that boards dominated by independent directors perform better for a sample of Tunisian and Zimbabwean listed firms, respectively. Liang, Xu et al. (2013) found

involvement of independent directors improved the loan quality and minimized the NPL in the context of Chinese commercial banks.

By contrast, a group of researchers report that the percentage of independent directors is negatively correlated with performance (Agrawal and Knoeber 1996; Yermack 1996). In a sample of 25 Canadian firms from 1976 to 2005, Bozec (2005) found a negative relationship between board independence and performance. Similarly, Sanda, Mikailu et al. (2005) report that Nigerian firms with a low percentage of outside directors performed better than those with more non-executive directors. Bhagat and Bolton (2008), Fauzi and Locke (2012) and Wang, Tsai et al. (2013) also found a negative relationship between board independence and performance. This suggests that whilst independent directors can bring independence, objectivity and experience to bear upon board decisions, they may also stifle managerial initiative through excessive monitoring.

While some studies show neither positive nor negative relation between board independence and performance, Fosberg (1989), and Bhagat and Black (2001) failed to find a significant relationship between board independence and performance. Similarly, Rashid, DeZoysa et al. (2010), Staikouras, Staikouras et al. (2007) and Al-Saidi and Al-Shammari (2013) did not find any significant relationship between board independence and accounting returns. Hermalin and Weisbach (1991) also found no association between the proportion of outside directors and Tobin's Q.

#### **4.5.3.1.3 Board Diligence**

##### ***The theoretical link***

The association between the board diligence and firm financial efficiency is another internal corporate governance issue that gives rise to concern for policy-makers and researchers. Board diligence is an important determinant of the board's effectiveness (Vafeas 1999). Board diligence is related to factors that include the number of board meetings and its members' qualifications (Carcello, Hermanson et al. 2002). De Zoort, Hermanson et al. (2002) suggest that the frequency of meetings can be a proxy of diligence. One view is that board meetings are beneficial to shareholders. Meetings are believed to be an important signal of time which the directors use to monitor managerial activities (Vafeas 1999) and also as an important resource in improving the effectiveness of a board (Lipton and Lorsch 1992). Board meetings measure the intensity of the board's activities, and the quality or

effectiveness of its monitoring (Conger, Finegold et al. 1998). All else being equal, a higher frequency of board meetings will result in a higher quality of managerial monitoring which can impact positively on financial efficiency. It has been contended that regular meetings allow directors more time to confer, set strategy, and to appraise managerial performance (Vafeas 1999). A more diligent board will be concerned with devoting more time for supervision of the manager's activity to achieve the shareholders' expectations. Moreover, more frequent meetings inform the board about the relevant performance of the company and make them aware in advance to take and direct the appropriate action to address the issue if any (Abbott, Parker et al. 2003). In fact, Sonnenfeld (2002) suggested that regular meeting attendance is considered a hallmark of the conscientious director. Also, frequent meetings intermingled with informal sideline interactions can create and strengthen cohesive bonds among directors (Lipton and Lorsch 1992).

An opposing theoretical view is that board meetings are not necessarily beneficial to shareholders. Vafeas (1999) argues that limited time is not useful to directors for the meaningful exchange of ideas among themselves. Instead, routine tasks such as presentation of management reports and various formalities absorb much of the meeting. This reduces the amount of time that outside directors would have to effectively monitor management (Lipton and Lorsch 1992). Secondly, board meetings are costly in the form of managerial time, travel expenses, refreshments and directors' meeting fees (Vafeas 1999). Vafeas (1999) also notes that an increase in board meetings is actually the result from the poor performance of the firm which confirms the suggestion of Jensen (1993) that meetings were reactive responses and not proactive measures. However, Vafeas (1999) also found that the number of board meetings increases after a crisis for the improvement of the company's performance.

In fact, Jensen (1993) contends that boards in well-functioning companies should be relatively inactive and exhibit little conflict. He suggests that rather than necessarily organizing frequent board meetings, it will be more profitable for corporate boards to establish a system that is responsive to their specific challenges. For example, directors can increase the frequency of meetings during a crisis or when shareholders' interests are visibly in danger, such as when replacing the CEO or fighting hostile takeovers. Consistent with Jensen's (1993) suggestions, Vafeas (1999) argued that companies that are efficient in setting the right frequency of board meetings, depending on its operating context, will enjoy economies of scale in agency costs.

### ***Empirical findings***

Firstly, there is limited evidence on the relationship between the frequency of board meetings and firm financial performance. Secondly, the limited evidence is also conflicting which makes the frequency of board meeting-financial performance association a productive area for further research. For 307 US listed firms over the 1990-1994 period, Vafeas (1999) reported a statistically significant and negative association between the frequency of board meeting and financial performance, as proxied by Tobin's Q. By contrast, he found that operating performance significantly improved following a year of abnormal board activity. This suggested that while directors who confer more regularly can make better decisions and engage in active monitoring, the potential benefits of such intense monitoring are expected to reflect in future years' performance.

On the contrary, Karamanou and Vafeas (2005) examined the impact of board meetings on management earnings forecasts in 275 US listed firms and found a weak positive relationship. Hermalin and Weisbach (1991), Klein (1998), Bhagat and Black (2001), Andres and Vallelado (2008), Brick and Chidambaran (2010) and Velnampy (2013) also did not find a significant relationship between board diligence and bank performance. Menon and Williams (1994) also argued that frequency of board meetings is just a rough signal of activity and not a sign of the work accomplished during these meetings. Thus, unclear consequence of higher board activity is a corporate response to poor performance of firms. So, differing conflicting views about the board activity raises the question of the importance of board meeting frequency for the performance of firms. Evidence about the importance of board meeting frequency carries possible important governance implications. Fich and Shivdasani (2006) offer evidence which is in line with the results of prior research that more frequent board meeting are valued less by the market in a sample of US listed firms from 1989 to 1995.

#### **4.5.3.2 Audit Committee Characteristics**

An audit committee is a sub-committee of the board of directors. An audit committee performs the important role to provide assurance as to the quality of financial reporting and corporate accountability (Carcello and Neal 2000). An audit committee bridges the information asymmetry between external auditors and the board which helps them to monitor the firm (Klein 1998), and makes an auditor independent from management (Mautz and Neumann 1977). A well-functioning audit committee is thus critical in enhancing effective

oversight of the financial reporting process and achieving high quality financial controls. Since the Securities Exchange Commission has become concerned that the audit committees are failing to do their job properly (Lublin and MacDonald 1999), the Blue Ribbon Committee recommendation addressed the importance of audit committee composition and operational characteristics such as their size, independence, financial literacy and activities.

#### **4.5.3.2.1 Audit Committee Size**

##### ***Theoretical link***

Agency theory suggests that the management (agent) may not always act in the interest of owners (principals) so shareholders require protection. To overcome this agency problem, boards take for granted oversight roles that naturally engage in monitoring of the CEO and other executives, approving the strategy of the corporation and also monitoring the internal control system. Due to diverse duties, the board of directors hands over some of its oversight to the audit committee (Jensen and Meckling 1976). Next, the complexity of a firm's accounting and financial substances require audit committee members to invest substantial effort. The audit committee implements the duties for the firm's financial reporting process (Bradbury, Mak et al. 2006). Audit committee performance has come under close analysis from a variety of policy-makers, interest groups and researchers (DeZoort 1997). The literature states that the number of members on an audit committee, which measures the audit committee size, has a positive impact on audit committee effectiveness. This is because it is likely that larger audit committees have better resources than smaller audit committees (De Zoort, Hermanson et al. 2002). Researchers also argue that more people involved in activity significantly boosts group performance and decreases the chance for misconduct because collusion becomes more difficult (Cummings, Huber et al. 1974; Burton, Pathak et al. 1977). Thus, it can be argued that decision-making in large audit committees is of better quality than in smaller audit committees. However, upon satisfying the minimum size requirement, a large committee may suffer from the free-rider problem where individual members may not exert their opinion forcefully. So Mohiuddin and Karbhari (2010) suggest that the audit committee should consist of independent directors, experts and knowledgeable members with adequate authority.

##### ***Empirical findings***

There is mixed result regarding audit committee size and firm performance. A larger audit committee size faces more difficulties to reach conclusions. However, it provides stricter

monitoring. Klein (2002) examined the 695 publicly traded US firms and found a positive relationship between audit committee size and monitoring role. Similarly, Coleman-Kyereboah (2007) examined 103 listed firms from Ghana, South Africa, Nigeria and Kenya between 1997 and 2001 and found a positive relationship between audit committee size and performance i.e. ROA and Tobin's Q. In the same way, using 51 companies in Malaysia in the financial year 2007, AlBeera (2009) found a positive relationship between audit committee size and performance i.e. ROA and operating cash flows. By contrast, Al-Matari, Al-Swidi et al. (2012) found a negative relationship between audit committee size and firm performance in Saudi Arabian listed companies.

However, other studies find no relation between an audit committee size and efficiency. Using 50 UK life insurance companies for the period 1994 -1999, Hardwick, Adams et al. (2003) found no relationship between audit committee size and efficiency. Similarly, in the case of developing economies, Kajola (2008) examined a sample of twenty Nigerian listed firms between 2000 and 2006 and found no relationship between audit committee size and performance. Similarly, Rouf (2011), Ghabayen (2012) and Hamdan, Sarea et al. (2013) also found the same result as Kajola (2008) in the case of developing economies Bangladesh, Saudi Arabia and Jordan respectively.

#### **4.5.3.2.2 Audit Committee Independence**

##### ***Theoretical link***

Independent directors involved in the audit committee are more interested to demand higher audit quality for protection of their reputation (Abbott, Park et al. 2000; Carcello and Neal 2000). Reputational capital enhancement theory explains that independent directors hold a high reputation within the business community and they perceived the directorship as a path of further developing their name as a specialist in decision making (Fama and Jensen 1983). Specifically, Beasley (1996) indicated that outside directors use their directorship to signal both to outsiders (e.g. investors) and external auditors that (1) they are decision experts, (2) they understand the importance of decision controls, and (3) they can work with such controls. The independent audit committee monitors managers better because they have no economic or personal relationship with management. In addition, they are decision experts and good at decision control (Abbott, Parker et al. 2004).

Next, independent directors tend not to have psychological ties with companies because, unlike executive directors, they are not economically dependent on the company. Consequently, such directors would also be more willing to question management's decisions.

As contended by Beasley, Carcello et al. (2000), independent directors' decisions are arguably less unfair over an entity's financial outcome and they would oppose any mismanagement of resources that is negatively related with a firm's financial performance. Likewise, Baysinger and Butler (1985) also found that independent audit committees were interested to investigate the variety of management issues. For instance, when a firm faces the financial reporting issue, then the independent audit committee seeks in-depth audit coverage. The independence of audit committees allows internal and external auditors to audit and assess financial information more objectively and, thereby, strengthen internal control functions. Thus, audit committee independence can reduce financial fraud (Abbott, Parker et al. 2004), but Mustafa and Youssef (2010) reported that audit committee independence was not effective unless the independent directors are also financial experts.

### ***Empirical findings***

The empirical result on the relationship between audit committee independence and firm performance is ambiguous. Erickson, Park et al. (2005) suggest the independent directors can reduce the agency problem. Similarly, an independent audit committee can also reduce agency problems. They find a positive relationship between audit committee independence and firm performance. In contrast, Klein (2002) and Weiss (2005) did not find a positive relationship between audit committee independence and firm performance. The study by Klein (2002) showed a negative correlation between earnings, management and audit committee independence. Kajola (2008) used Nigerian data on twenty firms. The results show the audit committee occupied by a majority of outside members has no influence on the firm's performance.

A study of 103 listed firms from Ghana, South Africa, Nigeria and Kenya conducted by Kyereboah-Coleman (2007) found no significant relationship between audit committee independence and firm performance. However, the study found a significant negative relationship between audit committee independence and Tobin's Q in a sub-sample of Ghanaian and Nigerian firms. This proposes that it is possibly significant to employ people

with the technical knowledge and those who have had something to do with an organization's value creation.

#### **4.5.3.2.3 Audit Committee Diligence**

##### ***Theoretical links***

Effective monitoring mechanisms can be achieved through a more active audit committee. Since, the intensity of audit committee activity is a sign of good governance; this increases a firm's efficiency. As best practice, the firm holds an audit committee meeting at least once a year without involvement of executive board members. However, the company's terms of reference and the complexity of the firm's operations can determine the number of audit committee meetings.

Governance practice guidelines assist the audit committee to be diligent for fulfillment of their jobs (Beasley, Carcello et al. 1999). The number of meetings held during the year is perceived as the signal of audit committee diligence. Previous studies also propose that increased frequency of audit committee meetings minimizes the risk which arises from financial reporting. Frequent meetings with external auditors and managers, inform the audit committee about accounting and risk management issues, and also about difficult accounting and audit issues (Raghunandan, Rama et al. 1998). The coordination between the audit committee and management is supposed to improve risk management approaches to provide a balanced flow of information to the firm's decision makers.

Abbott, Parker et al. (2003) suggest that increasing the number of audit committee meetings can improve the process of financial accounting which leads to better performance. However, they argue that the number of audit committee meetings may not enhance the performance of a firm if there is a lack of quality in the meeting. A survey conducted by KPMG (2008) suggested that audit committees feel that overloaded agendas and activities on compliance may be hampered negatively impacting their effectiveness.

##### ***Empirical findings***

The result of previous research of audit committee diligence and firm performance is mixed. Empirical evidence by Huang, Lai et al. (2008) found no relationship between audit diligence and firm performance. In the sample of Ghanaian firms, Kyereboah-Coleman (2007) found a

negative significant relationship between audit meeting frequency and ROA which justified that these meetings were for crisis fixing.

#### **4.5.3.3 Ownership Structure**

One important issue for governance is the nature of the relationship between ownership structure and financial performance. Some corporate governance studies such as Jensen and Meckling (1976), Lichtenberg and Pushner (1994) and Mehran (1995) support the presence of a linear or monotonic relationship between ownership and performance while other studies including Morck, Shleifer et al. (1988) and McConnell and Servaes (1990) support a non-linear or non-monotonic relationship between them. Based on the norms that ownership is exogenous, both sets of studies accept a uni-directional relationship between ownership and performance. This idea was examined by Demsetz (1983), and Demsetz and Lehn (1985), who argue that ownership structure is endogenously related to firm performance with no direct relationship expected between the two. Some of the recent empirical studies broaden this debate.

##### **4.5.3.3.1 Institutional Ownership**

###### ***Theoretical links***

The existing literature recognizes that institutional investors serve a significant role as external monitors in the stock market (Agrawal and Knoeber 1996). Investments made by institutional investors are so large that they do not have the ability to divest their holdings without severely affecting the share price (Pound 1993). As a result, institutional investors have a strong long-term interest in the financial success of the companies (see Holderness and Sheehan 1988; Gilson and Kraakman 1991; Smith 2012) and may play an active role in monitoring top management (Hoskisson, Johnson et al. 1994).

There is alternative view that institutional investors have failed to monitor managers. This perception seems to arise from two sources: (i) the dispersed nature of institutional shareholdings, and (ii) being short-term return focused. While institutional investors hold a large number of companies, the fraction of shares held for each company is very small in proportion to their total shareholding. This is seen as a consequence of both portfolio diversification and regulatory constraints placed on majority ownership. The portfolio diversification view seems to outweigh the maximization of returns view at the expense of good corporate governance. Another view exists that institutional investors are predominately

concerned with short-term earnings. Institutional investors are represented by managers whose primary objectives are to maximize current returns because of their own reward systems which emphasize quarterly performance (see Starks 1987). Managers receive a percentage of the value of assets and a bonus or penalty based on how their funds perform relative to an index calculated quarterly. This pressure for short-term profitability, coupled with the potential difficulty of selling large blocks of stock without loss, may result in a preference for projects with a high probability of short-term payoff.

The traditional view that the ownership structure of a firm has no influence on the value of the firm has been challenged by Jensen and Meckling (1976) and Berle and Means (1991). Further, Holderness and Sheehan (1988) found a positive relationship between majority block trades and stock return. Accordingly, a higher percentage of institutional ownership could contribute to lower the risk of the firms because stock ownership should be a better incentive mechanism when firm risk is high (Sanders 1999). In addition, Bhojraj and Sengupta (2003) found that due to the monitoring power of the institutional owners on the firm's risk, institutional ownership enjoys lower bond yields and a higher bond rating. Pound (1988) showed that institutional investors can work out the operation of a firm at a lower cost because they have more experience. Oviatt (1988) advocated that monitoring costs are comparatively less where the higher proportion of institutional ownership is due to institutional investors who own specialized talents. They have experience about information channels which allows them higher performance in the work at management level which relate to the monitoring of investment targets.

### ***Empirical findings***

After examining 40 manufacturing industries in the US, Chaganti and Damanpour (1991) found that firms in which outside institutional investors held the highest percent of stock did show higher ROA. Similarly, Han and Suk (1998) also found a positive relationship between institutional ownership and stock returns indicating that institutional owners have skills in monitoring management. Another study also conducted by McConnell and Servaes (1990) with a sample of 1,173 firms for 1976, and 1,093 firms for 1986, found a significant relationship between Tobin's Q and institutional investors.

Some other researchers examined the negative relationship between institutional ownership and performance. A study conducted by Craswell, Taylor et al. (1997) found a negative

relationship between institutional ownership and performance. Loderer and Martin (1997) also examined the influence of outside block holders of financial institutions and firm performance and found no important relationship. Agrawal and Knoeber (1996) and Li and Qian et al. (2006) did not find a significant relationship of institutional ownership on performance. Enobakhare (2010) found institutional ownership has a negative impact on loan quality of Nigerian banks.

#### **4.5.3.3.2 Foreign Ownership**

##### ***Theoretical links***

It is mostly believed that foreign ownership acts as an important role in firm performance in the context of developing and transitional economies (Görg and Greenaway 2004). Numerous studies regarding corporate governance focus on the issue of shareholder identity (Shleifer and Vishny 1997). If 50 percent or more of a bank's capital is held by foreign residents, it is known as foreign (Claessens, Demirgüç-Kunt et al. 2001) and a majority of voting rights or effective management control by foreigners is also taken as a foreign bank. (Crystal, Dages et al. 2002). De Young and Nolle (1996) define a foreign bank as if they hold foreign ownership of more than 10 percent. Foreign ownership is believed to be the best tool for improvement in corporate governance practice and firm performance. These kinds of investors invest in other countries for good returns and need effective monitoring of management to minimize any managerial expropriation. These investors may be from those countries where the best corporate governance is in place and they like to follow the same best practice where they invest. For this, clear disclosure and transparency plays an important role. According to Stulz (1999), lower agency costs always exist if foreign ownership. The process of this strict control improves the firm performance. Superior techniques, organization and financial resources are the main important element which is always involved in foreign ownership companies. For instance, Chhibber and Majumdar (1999) found that the extent of a foreign firm's control over a domestic firm is positively associated with the degree of resource commitment to technology transfer. Djankov and Hoekman (2000) found foreign ownership is linked to generic and specific knowledge.

##### ***Empirical findings***

Several studies give support to the relative importance of foreign ownership versus domestic ownership of banks. De Young and Nolle (1996), Vennet (1996) and Genay, Udell et al. (2000) have studied the relative importance of foreign banks versus domestic banks in the

context of industrial countries where, some research (Bonin, Hasan et al. 2005 and Clarke, Cull et al. 1999) has been done in the context of developing economies. A majority of these studies have concluded that foreign banks are more profitable than domestic banks in developing countries and less profitable in industrial countries. Goldberg, Dages et al. (2000) have conducted a comparative study of performance of foreign and Latin American countries from 1995 to 2000 and found that foreign banks are better than domestic banks in terms of profitability. A similar result found by Jeon, Miller et al. (2006) shows that they are more likely to earn higher ROA and ROE than domestic banks. In the same way, using a sample of 54 firms listed at the Nairobi Stock Exchange, Ongore and K'Obonyo (2011) found a positive relationship between foreign ownership and performance.

#### **4.5.3.4 CEO Remuneration**

##### ***Theoretical links***

Company executives act as agents for shareholders who believe their appointed manager has superior skills in managing the resources of the firm (Murphy 1999). The agency problems associated with this separation of ownership and control have been well documented (Jensen and Meckling 1976). An efficient employment contract is considered the preferred solution to this agency conflict (Beatty and Zajac 1994) and tying some component of managerial compensation to the wealth and performance of the firm allows much of these agency problems to be resolved (Jensen and Murphy 1990). CEO compensation has drawn considerable attention from the media, trade unions, investors and politicians (Murphy 1999). The recent Global Financial Crisis has again brought much attention and scrutiny to CEO remuneration with claims that CEO remuneration was one of the causes of the Global Financial Crisis (Fels 2010). While the level of remuneration has been heavily criticized, Jensen and Murphy (1990) argue that while there are significant issues with CEO pay as a core problem, investors, researchers and politicians are calling on corporate leaders to redesign executive compensation programs to better focus on long-term value creation (PMP 2010). Executive remuneration includes a combination of elements including cash, shares, granting options, and bonus payments. These can be constructed to devise a compensation contract to motivate managers to act in the interest of shareholders (Shleifer and Vishny 1997). Beatty and Zajac (1987) give importance to understand the factors which motivate the CEO to act in the way that the firm can achieve performance. From the organizational point of view, compensation is believed as the best control mechanism to motivate managers. As a result, the firm can achieve the expected profitability. For example, Lawler and Lawlor

(1981) raise equity theory so Adams (1966) argues that individuals satisfied with his/her compensation motivates them to perform better.

Jensen and Meckling (1976) highlighted that the operating decisions which the manager takes in the day to day activities maximizes his utility in the form of pecuniary and non-pecuniary returns. The lack of information to shareholders about the manager's activities makes them difficult to check whether the managers are working in the best of interest of shareholders. It has been hypothesized that equity-based compensation links executives' wealth to the stock price which motivates them to fulfil their own interest with the shareholders' interests (Jensen and Meckling 1976). However, Walker (2010) indicated that stock option based compensation diverts executives' focus from a long-term outlook to short-term gains. Further, Mehran (1995) stated that there is little empirical evidence on whether corporations using more equity-based compensation perform better.

Agency theory seeks to determine the most efficient contract governing the manager-shareholders relationship. Specifically, the question is: is a behavior-oriented contract (e.g. salaries) more efficient than an outcome oriented contract (e.g. ownership, stock option) affecting firm performance (Eisenhardt 1989).

### ***Empirical findings***

Researchers have conducted some studies in the context of developed countries to examine the relationship between CEO compensation and firm performance. Bulan, Sanyal et al. (2005) conducted a study among US manufacturing firms and found CEO equity ownership enhances the firm's productivity. Similarly, Rampling (2011) also found positive relationship between CEO compensation and performance in the US, UK and Australia, whereas Zajac (1990) found CEO compensation is not a significant predictor of firm performance in the largest US corporations. Buck, Liu et al. (2008) conducted a study in China and found the effectiveness of cash executive pay as motivation to achieve improved firm performance at least. In the same way, Lin (2005) examined the CEO and firm performance relationship in Taiwan and found a positive relationship. Based on the literature, executive pay packages are supposed to motivate CEO efforts which lead to performance.

## 4.6 Summary

This chapter described the details and definition of the efficiency, NPL and also various risks applying in banks such as credit risk, liquidity risk, market risk and operational risk.

Thereafter, different theories have been presented in detail which is related with the risk in banks. To check the relationship of macro-economic and bank specific indicators to NPL, previous literature has been presented. This chapter also described the literature about the relationship of corporate governance mechanisms to NPL and performance.

In conclusion, it is found that various theories such as financial intermediaries, agency theory and diversification theory exist in financial intermediation. Financial intermediation theory helps the financial intermediaries to minimize transaction costs and information asymmetry problems, whereas agency theory helps the bank to minimize the problem of agency relationship. It is assumed that the attitude of principal and agent may be different which can occur with the agency relationship. Similarly, to minimize the transaction cost and to gain competitive advantage, diversification theory helps banks to diversify their business in different geographical areas which helps them to cover the market and increase their income.

Due to the nature of their business, banks take risks so as to realize a return. So, different types of risk exist in the banking business which is credit risk, liquidity risk, market risk and operational risk. So in other words, banking is the management of different kinds of risk. On the basis of the previous literature regarding the determinants of NPL, this chapter concludes that the macro-economic conditions of the country are the drivers of NPL. The different literature in different economies concludes that good economic conditions of the nation help banks to improve credit quality as recession periods have an adverse effect on loan quality of banks. Besides the macro-economic conditions, bank specific variables are also an important indicator which defines NPL. This chapter concludes that in the same economic environment some banks are performing better than others due to the bank's internal mechanisms.

Similarly, bank corporate governance is also concluded on the basis of previous literature as a determinant of NPL and performance of the bank. So it is concluded that the corporate governance practice is good in context of developed economies, whereas in the context of developing economies, corporate governance practice is still an ongoing process. In conclusion, it is found that most of the previous research has been conducted in the context of

developed economies. In the context of developing economies, studies are limited. Studies in relation to Nepal, where the banking system is still in the developing stage are very rare. Indeed, there are no studies delving in depth into NPL, bank performance and corporate governance. The study addressed the lack of literature that is reviewed in this field. So the previous literature which discusses developed economies may not be in line with the findings of this study which is analyzing banks in Nepal.

## CHAPTER FIVE

### Hypothesis Development

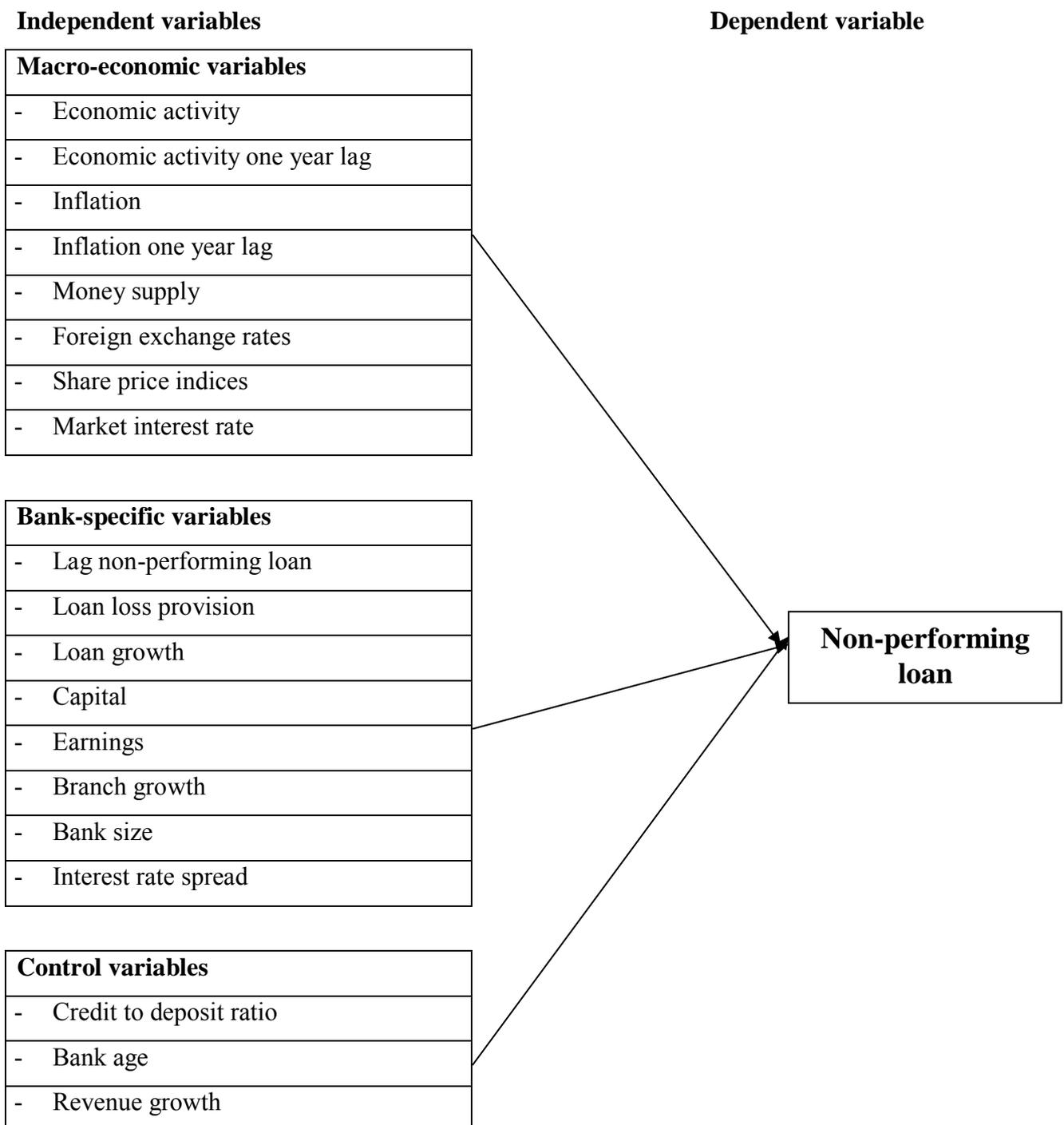
#### 5.1 Introduction

This chapter presents the theoretical framework of this thesis and presents the hypothesis to be tested in relation to the objectives of this thesis. In this regard, the hypothesis has been set for objectives that examine the influence of macro-economic and bank specific variables to Non-performing Loans (NPL) and, in the next stage, to examine the influence of governance variables on NPL and performance. There are three main hypotheses to be tested in relation to the effect of macro-economic, bank specific and governance variables on NPL and bank performance. Section 5.2 presents and discusses the conceptual framework employed in this thesis. Section 5.3 presents the hypothesis according to the independent variables presented in the conceptual framework. Section 5.4 summarizes this chapter.

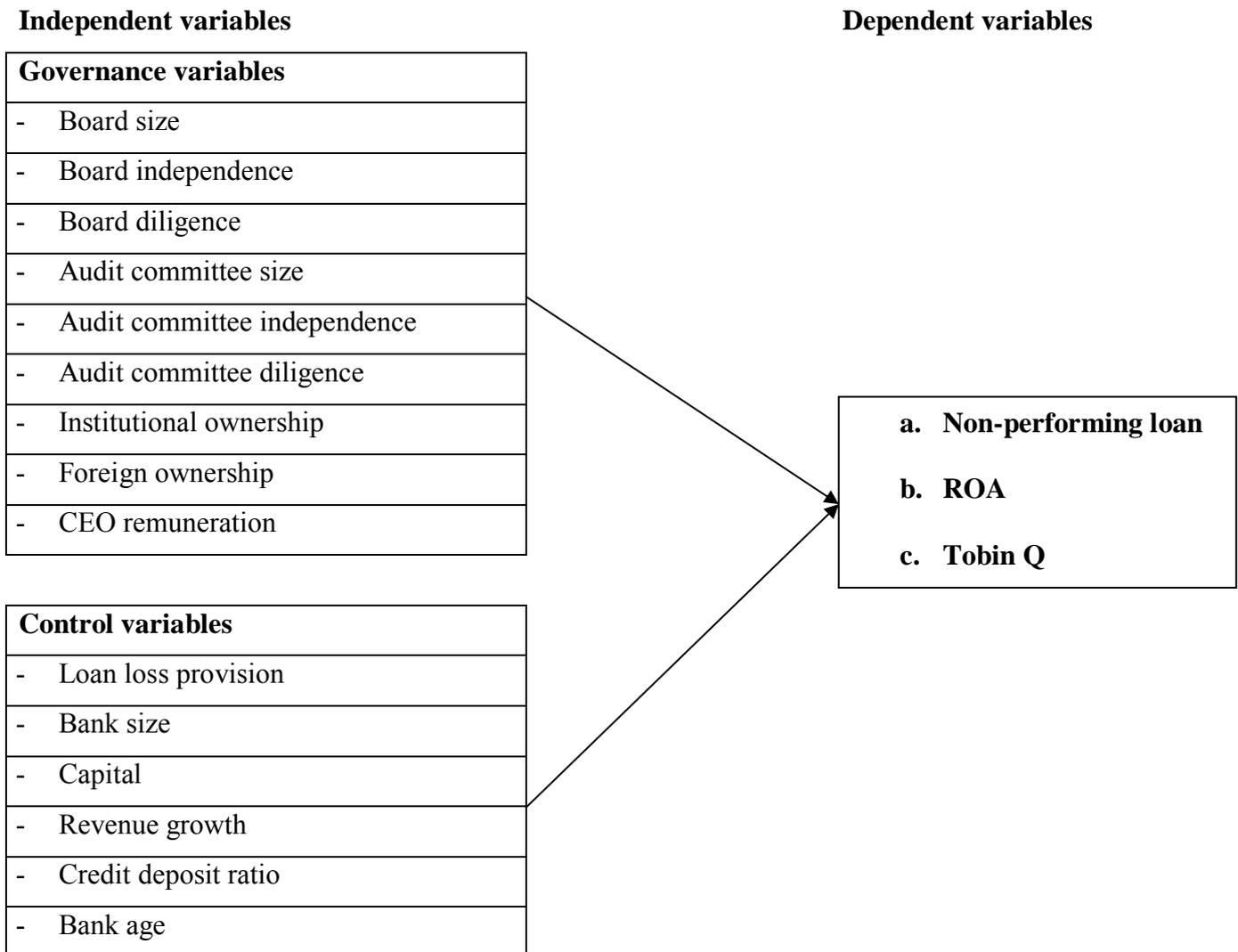
#### 5.2 Conceptual Framework

Figures 5.1 and 5.2 show the conceptual framework of the study where different categories of independent variables are used to check the impact of macro-economic, bank specific and governance variables with NPL and performance of Nepalese commercial banks. The three variables NPL, Return on Assets (ROA) and Tobin's Q have been used as dependent variables and independent variables were classified into three groups i.e. macro-economic, bank specific and governance. Macro-economic variables are included in the first group. These variables are: GDP growth, one year lag of GDP growth, inflation, one year lag of inflation, broad money supply growth, appreciation and depreciation of the foreign exchange rates, growth of share price indices, and the inter-bank rate. The second group contains bank specific variables. These variables are: one year lag of NPL, loan growth, branch growth, and earnings before tax to total assets, equity capital to total assets, interest rate spread, loan loss provisions and total assets. The third and last group contains corporate governance variables. These variables are: board size, board independence, board meeting, audit committee size, audit committee independence, audit meeting, foreign ownership, institutional ownership, and CEO remuneration.

**Figure 5.1: Conceptual Framework: Determinants of Non-performing Loan**



**Figure 5.2: Conceptual Framework: Influence of Corporate Governance of Bank Performance**



### 5.3 Hypothesis Development

This thesis aims to address several issues related to bank NPL exposure in Nepal. The main purpose of this investigation is the identification of the key variables that have a significant impact on NPL and performance of banks, taking into account influences of macro-economic, bank specific variables and corporate governance variables. As a prelude to the hypothesis development, the following research questions are raised:

- Do macro-economic variables change the influence the NPL of the Nepalese banks?
- Do the Nepalese banks' internal bank specific variables influence the NPL of Nepalese banks?

- Do the Nepalese banks' internal corporate governance variables influence the NPL and performance of Nepalese banks?

Under this primary hypothesis, this thesis tests the twenty three sub-hypotheses.

### **5.3.1 Macro-economic Characteristics**

#### **5.3.1.1 Economic Activity**

Economic activities of the country affect the banks' risk exposure. It has been hypothesized that both consumers and firms gain a satisfactory income and revenue to manage their debt in an expansionary phase of the economy which minimizes NPL. Boom periods increase the spending of customers and capital expenditures of firms, As a result, both customer and firm intentions to invest in order to achieve high earnings and benefits in the situation of positive economic conditions. Thus, the high income increases the ability of the borrowers to repay their obligations which reduces the bank NPL exposure. However, during the expansionary phase, loans are granted to lower-quality debtors and NPL increase when the recession sets in. Besides this, cash inflow of businesses and households decrease during recession periods which makes it difficult for the customer to repay their obligations. So the economic activity of the state is an important systematic determinant of loan loss rates (Carey 1998). Thus, it is hypothesized that:

H1 (A): There is a negative relationship between the aggregate economic activity and bank NPL.

H1 (B): There is negative relationship between the lag of aggregate economic activity and bank NPL.

#### **5.3.1.2 Inflation**

Inflation is another factor which directly affects the level of NPL. Inflation is related with devaluation of money which minimizes the performance in general (Boyd, Levine et al. 2001). The bank uses the interest rate for pricing of loans on the basis of inflation. Inflation increases the nominal interest rate or reduces the future value of money which increases the borrower's obligation at the maturity and resulting in non-performance of the loan (Kessel 1956; Kessel and Alchian 1962). In other words, an increase in CPI forces monetary regulators to increase interest rates through contractionary measurement to control inflation. This activity by monetary regulators increases the cost of borrowing and causes NPL to some extent. Thus, an increase in the inflation rate raises interest rates charged on loans and a decrease in the inflation rate decreases the interest rate paid by the borrowers. Hence, high

inflation rates increase costs of borrowed money which would increase the default rate of borrowers and thus increase the NPL (Ahmad and Ariff 2007). Thus, the next hypothesis is stated as follows:

H2 (A): There is positive relationship between the inflation rate and bank NPL.

H2 (B): There is positive relationship between lag of inflation rate and bank NPL.

### **5.3.1.3 Money Supply**

The relationship between money supply and NPL appears through the behavior of borrowers resulting from change in money supply in the economy. The growth of money supply reduces the cost of funds which stimulates credit demand (Eickmeier, Hofmann et al. 2009). Besides this, increasing the money supply accelerates productivity and profitability which in turn stimulates investment and consumption which increases income. Moreover, increasing the money supply will decrease interest rates which motivates the public to hold cheaper funds. This condition increases the ability of borrowers to pay back their obligation and contributes to decreasing the bank exposure to NPL (Ahmad and Ariff 2007). Decreasing the money supply increases interest rates which leads to an increase in the obligations of borrowers. This consequently increases their default rate and the bank NPL. Hence, the third hypothesis is stated as follows:

H3: There is a negative relationship between money supply and bank NPL.

### **5.3.1.4 Foreign Exchange**

Depreciation of the domestic currency becomes more expensive to import foreign products and services and as a result firms require more money to import the same products and services than before. This process forces the firm to demand more credit facilities from bank, to support finances for covering the additional expenditure required as a result of the exchange rates depreciation which minimizes the profitability of firms (Ngerebo 2011). If the firm's profitability decreases, then firms face the problem to service interest and principal of debt. A real depreciation is likely to have positive effects by increasing the operating profit in the export sector but lead to a contraction in the import sector due to opposing reasons (Kalirai and Scheicher 2002). Hence, it is expected that a depreciation in domestic currency due to exchange rate, fluctuations leads to higher loan defaults and losses. Thus, the hypothesis is as follows:

H4: There is positive relationship between the depreciation of the domestic currency and bank NPL, or vice versa.

### **5.3.1.5 Share Price Indices**

Increasing stock markets provides a reasonable benefit to investors which help them to service their debt obligations and consequently lowers the probability of defaults (Hadad, Santoso et al. 2006). Increasing share price indices are the symbol of financial strength of a company which helps to minimize credit defaults. In other words, good share market indices increase the profitability of firms which, as expected, minimizes loan defaults (Bofondi and Ropele 2011). The Nepal Stock Exchange index has been used as the share market index of Nepal. Thus, the hypothesis is stated as follows:

H5: There is negative relationship between the growth of share price indices and bank NPL.

### **5.3.1.6 Market Interest Rate**

Interest rate is another important macro-economic factor of NPL because it affects the debt burden which leads to the debt default (Aver 2008; Ngerebo 2011; Nkusu 2011; Louzis, Vouldis et al. 2012). Higher interest rates also increase the cost of funds to borrowers which creates difficulties to pay their obligations on time (Das and Ghosh 2007). Besides this, higher interest rates discourage good borrowers and pool bad borrowers which lead the bank to take on more risky projects (Stiglitz and Weiss 1981). In contrast, low interest rates stimulate the demand for loans which motivates economic activities that increases business and household earnings. These conditions increase borrowers' ability to repay their loans. The market interest rate in Nepal is the weighted average interbank rate and refers to the central bank benchmark interest rate. Usually, the central bank benchmark interest rate is the overnight rate at which the central banks make loans to the commercial banks under their jurisdiction. Thus, the hypothesis to be tested is as follows:

H6: There is a positive relationship between market interest rate and bank NPL.

## **5.3.2 Bank Specific Characteristics**

### **5.3.2.1 Lag Non-performing Loans**

A NPL is an indicator of the quality of loans (Vogiazas and Nikolaidou 2011). A high proportion of NPL reflects a bad quality of loans and the accumulation of NPL increases bank credit risk. The ratio of problem loans of one period is closely related to that of the previous period since the problem loans are not immediately written down (Salas and Saurina 2002) but are, in fact, carried forward in the balance sheet. This suggests that the current NPL

could be transferred to the next accounting periods and subsequently, to the next financial year. Thus, the next hypothesis is stated as follows:

H7: There is a positive relationship between one year lag NPL and bank current NPL.

#### **5.3.2.2 Loan Loss Provision**

The provision for loan losses is determined according to the past management experience and its expectation about the future conditions. Firms increase their provisions in response to an increase in credit risk (Eng and Nabar 2007). Therefore, banks allocate large portions of their profits for provision of loan losses during the contraction period, and reduce their loan loss provision during the economic expansion period. Banks which assume high default rates in their loan portfolios allocate large provisions for loan losses (Ahmad 2003). Thus, it is hypothesized as follows:

H8: There is a positive relationship between the loan loss provisions and bank NPL.

#### **5.3.2.3 Loan Growth**

Rapid credit growth could be a cause of problem loans (Clair 1992) because it contributes to decreasing the quality of loans. Banks can increase their lending by expanding the volume of granting loans through different ways firstly, by relaxing bank credit standards that reduce the borrower's credibility (Salas and Saurina 2002) and secondly, it requires the bank to engage in a new area in which it does not have experience, and also due to adverse selection (Shaffer 1998). All the previous ways contribute to an increase in bank credit risk exposures. Relaxing credit standards leads them to grant riskier loans which in the final stage could become NPL, and also to enter into new geographic areas which increase the possibility of adverse selection. Thus, the hypothesis is expressed as:

H9: There is positive relationship between loan growth and bank NPL.

#### **5.3.2.4 Capital**

Banks use capital to finance their operations and expansion, and to serve as a cushion to absorb unexpected operating losses (Bichsel and Blum 2004). When a borrower fails to make some or all of their promised interest and principal payments, these defaulted loans result in losses which can eventually reduce the bank's capital. Hence, banks which assume more risks increase their capital (Altunbas et al. 2007). More capital implies a bigger cushion to avoid failure resulting from higher risk (Ahmad and Ariff 2007). The calculation of capital (for use

in capital adequacy ratios) is Tier I (ordinary share) and Tier II (subordinated debt) which generally absorbs losses. Thus, the hypothesis to be tested is as follows:

H10: There is negative relationship between bank capital and bank NPL.

#### **5.3.2.5 Earnings**

Interest income from the loan is the main income of banks and interest expenses on deposits are the main expenses. Besides this, banks also spend income on overhead expenses. So the earnings after deduction of all expenses reflect the net earnings of banks. Inefficient management would not be able to increase earnings of a bank as they have to spend money on monitoring borrowers, and the bank has more problem loans. Higher level of bank earnings minimizes problem loans and inefficient banks are more prone to risk taking (Kwan and Eisenbis 1997). Hence, management is trying to increase income and minimize expenses in order to absorb losses resulting from the bank's risk exposure. Thus, it is hypothesized as follows:

H11: There is a negative relationship between bank earnings and bank NPL.

#### **5.3.2.6 Branch Growth**

The credit risk of loan portfolios can be minimized through a strategy of geographic diversification of its branches (Hughes, Lang et al. 1996). It is argued that a strategy of branch banking helps banks to reduce their vulnerability to local economic shocks and this strategy enables banks to diversify their loans and deposits over a wider geographical area or customer base (Carlson and Mitchener 2005). Restrictions on branching have been linked to the instability of the banking system. Thus, it is hypothesized as follows:

H12: There is a negative relationship between branch growth and bank NPL.

#### **5.3.2.7 Size**

Bank size is usually measured by the total assets or total deposits. It is a key factor in banking studies. This study measures the bank size by total assets. A big balance sheet allows the managers to invest in different geographical or business segments to deal with asymmetric shocks (Salas and Saurina 2002). Large banks with large resources have more risk hedging tools and have more ability to diversify their loans than the smaller banks. In addition, big incentive benefits for the managers of large banks stimulate them to achieve high incomes. Thus, the hypothesis is expressed as:

H13: There is a negative relationship between bank size and bank NPL.

### **5.3.2.8 Interest Rate Spread**

Interest rate spread is a measure of profitability between the cost of short term borrowing and the return on long term lending. These costs are normally transferred to borrowers who might, with time, be in a position of not repaying the loan (Collins and Wanjau 2011). When there is high intermediation cost, reflected in the high interest rate spread, the borrower may be unable to repay his/her loan owing to the cost of such borrowings. This leads to a high risk of loan defaults, hence non-performance. Thus, the hypothesis is expressed as follows:

H14: There is positive relationship between the interest rate spread and bank NPL.

### **5.3.3 Governance Characteristics**

#### **5.3.3.1 Board Size**

Empirical evidence on board size suggests that larger board size in most cases reduces board effectiveness in monitoring management (Yoshikawa and Phan 2003). A larger board creates a free rider problem, slow decision making and members are less likely to criticize the decision of top managers (Jensen 1993). Additionally, a large board is less involved with strategic decision making and leads to coordination problems. Some studies argue the opposite, that a larger board has a broader pool of knowledge and has better monitoring capacity but the risk of having too many members may outweigh the benefits (Dalton and Dalton 2005). Thus, the hypothesis is expressed as:

H15 (A): There is a negative relationship between board size and bank NPL.

H15 (B): There is negative relationship between board size and bank performance in terms of accounting measurement.

H15 (C): There is negative relationship between board size and bank performance in terms of market measurement.

#### **5.3.3.2 Board Independence**

The characteristic of a strong board of directors relates to representation by independent directors. It has been suggested in the literature that independent directors may be credited for being more experienced and for giving independent judgment over the board's decisions (Weir 1997; Firth, Fung et al. 2002; Choe and Lee 2003). The involvement of independent directors on boards reduces fraud on financial statements. The composition of a board is designed for better monitoring which minimizes the agency conflict. This activity provides

early warning of any possible future losses and also assists the board to control any opportunistic behavior by managers. Thus, the hypothesis is expressed as:

H16 (A): There is negative relationship between board independence and bank NPL.

H16 (B): There is positive relationship between board independence and bank performance in terms of accounting measurement.

H16(C): There is positive relationship between board independence and bank performance in terms of market measurement.

### **5.3.3.3 Board Diligence**

One view is that board meetings are beneficial to shareholders. A more diligent board is concerned with devoting more time for supervision of management activity to achieve shareholders' expectations (Conger, Finegold et al. 1998). Moreover, regular board meetings helps the board keep informed and knowledgeable about the relevant performance of the company, and also leads them to take or influence and direct appropriate action to address any issues (Abbott, Parker et al. 2003). Thus, the hypothesis is expressed as:

H17 (A): There is negative relationship between board diligence and bank NPL.

H17 (B): There is positive relationship between board diligence and bank performance in terms of accounting measurement.

H17 (C): There is positive relationship between board diligence and bank performance in terms of market measurement.

### **5.3.3.4 Audit Committee Size**

The literature suggests that audit committee size measured as the number of committee members has a positive impact on the audit committee's effectiveness. Audit committee size is measured by the number of members on the audit committee. It is likely to be accepted that larger audit committees have better resources than smaller audit committees. (De Zoort, Hermanson et al. 2002). The decision making literature has argued that increasing the number of people involved in an activity substantially increases group performance and mitigates the chance of wrongdoing because collusion becomes more difficult (Cummings, Huber et al. 1974; Burton, Pathak et al. 1977). Hence it is hypothesized that:

H18 (A): There is negative relationship between audit committee size and bank NPL.

H18 (B): There is positive relationship between audit committee size and bank performance in terms of accounting measurement.

H18 (C): There is positive relationship between audit committee size and bank performance in terms of market measurement.

#### **5.3.3.5 Audit Committee Independence**

Previous studies argued that independent directors on the audit committee improve governance because they can resolve disagreement among internal managers (Fama and Jensen 1983). In addition, the literature suggests that they may also be experts in decision making and control (Abbott, Parker et al. 2004). Independent directors on the audit committee provide fair decisions over a firm's financial outcome and always disagree with any mismanagement that is directly related to firm performance (Beasley, Carcello et al. 2000). For instance, independent audit committees focus on in-depth audit coverage when the firm faces issues of financial reporting, and also concerns on a variety of management issues (Baysinger and Butler 1985). Evidence indicates that agency conflict can be reduced through the involvement of independent directors on the audit committee; this is beneficial for firms in terms of monitoring and financial reporting. Thus, the hypothesis is expressed as:

H19 (A): There is negative relationship between audit committee independence and bank NPL.

H19 (B): There is positive relationship between audit committee independence and bank performance in terms of accounting measurement.

H19 (C): There is positive relationship between audit committee independence and bank performance in terms of market measurement.

#### **5.3.3.6 Audit Committee Diligence**

The frequency of audit committee meetings is an indication of the diligence of the audit committee members as they would normally resolve issues with the auditors in a formal meeting. Frequent meetings reflect active committee members (Raghunandan, Rama et al. 1998). Frequent audit committee meetings lead to lower cost of debt and reduce the possibility of restatement and lower fraud occurrence. Accordingly, it is perceived that audit committees who hold meetings frequently are concerned with the quality of the financial reports which minimize the manipulation in the reports. Thus, the hypothesis is expressed as:

H20 (A): There is negative relationship between audit committee diligence and bank NPL.

H20 (B): There is positive relationship between audit committee diligence and bank performance in terms of accounting measurement.

H20 (C): There is positive relationship between audit committee diligence and bank performance in terms of market measurement.

### **5.3.3.7 Institutional Ownership**

Previous researchers argue that a firm's risk can be minimized through stock ownership because it is a better mechanism when the firm faces high risks (Sanders 1999). As institutional owners have better monitoring power, the firm can enjoy lower bond yields and a higher bond rating (Bhojraj and Sengupta 2003). Institutional investors can work out the operations of firm at a lower cost because the literature suggests that they have more experience (Pound 1988). Hence, the hypothesis is expressed as:

H22 (A): There is negative relationship between institutional ownership and bank NPL.

H22 (B): There is positive relationship between institutional ownership and bank performance in terms of accounting measurement.

H22 (C): There is positive relationship between institutional ownership and bank performance in terms of market measurement.

### **5.3.3.8 Foreign Ownership**

Foreign investors bring financial resources to promote the capital base of the local companies which support them to gain the required assets and the human resources required to boost their performance. The previous literature suggested that companies with foreign corporate shareholdings are expected to offer superior technical, organizational and financial resources (Stulz 1999). For instance, the degree of a foreign firm's control over a domestic firm is positively related with the degree of resource commitment to technology transfer (Chhibber and Majumdar 1999). Foreign investment can be inferred to be related to the provision of generic knowledge (management skills and quality systems) and specific knowledge (which cannot be transferred at arm's length) (Djankov and Hoekman 2000). Thus, the hypothesis is expressed as:

H21 (A): There is negative relationship between foreign ownership and bank NPL.

H21 (B): There is positive relationship between foreign ownership and bank performance in terms of accounting measurement.

H21 (C): There is positive relationship between foreign ownership and bank performance in terms of market measurement.

### **5.3.3.9 CEO Remuneration**

Shareholders believe a company's executive as their agent who holds superior skills to manage the resource of the company in an effective way (Murphy 1999). The organizational argument generally views compensation as a control mechanism for increasing individual motivation and achievement (Lawler and Lawlor 1981). For example, an individual who is satisfied with his/her compensation is motivated to perform better. Thus, the hypothesis is expressed as:

H23 (A): There is negative relationship between CEO remuneration and bank NPL.

H23 (B): There is positive relationship between CEO remuneration and bank performance in terms of accounting measurement.

H23 (C): There is positive relationship between CEO remuneration and bank performance in terms of market measurement.

### **5.4 Summary**

The first part of this chapter presented the conceptual framework in this thesis. Three main independent variables were identified which are the macro-economic, bank specific, and governance characteristics. The predicted effect of macro-economic and bank specific variables on NPL, and next the governance effect on NPL and performance, was explained under the hypothesis development. There are twenty three hypotheses altogether. The first six hypotheses test the relationship between macro-economic variables and NPL. The second eight hypotheses test the relationship between bank specific variables and NPL. The last nine hypotheses test the relationship of corporate governance variables and NPL and performance.

The chapter concludes with three primary hypotheses on the basis of the previous literature that good macro-economic conditions of the country improve the loan quality, whereas poor economic conditions of the country have a negative impact on loan quality. Similarly, even the macro-economic conditions of the country are important indicators of loan quality. Bank internal variables are also one of the drivers of bank NPL which have a significant impact on loan quality. It is also concluded on the basis of previous studies that good corporate governance practices also define the NPL, and poor corporate governance has a negative impact on NPL and bank performance.

## CHAPTER SIX

### Research Methodology

#### 6.1 Introduction

This thesis explored macro-economic, bank specific determinants of Non-performing Loans (NPL) in Nepalese banks. Besides this, this thesis also tried to find out the influence of corporate governance on bank NPL and performance. In this process, this chapter presents the methodology developed to identify the influence of macro-economic and bank specific variables on NPL. The methodology is also developed to identify the influence of governance on NPL and performance of Nepalese commercial banks. To examine the stated objectives, this thesis used secondary data. Firstly, it explains the sampling method and sources of data. Next, it describes proxies and the measurement of the variables. Lastly, this thesis employed a panel data methodology; hence, a procedure to examine the panel data is also presented.

#### 6.2 Sampling

The sample banks were extracted from the population of all banks licensed by the Central Bank of Nepal and listed on Nepal Stock Exchange. The sample of the study consists of 29 banks out of 31 banks in Nepal, seven of which are joint ventures with foreign banks. The two state owned banks were excluded because of the unavailability of their data. Thus, as shown below, twenty nine commercial banks were selected as a sample of the study.

<b>Name of Bank</b>	<b>Commencement Date</b>
Nabil Bank Limited	16/07/1984
Nepal Investment Bank Limited	27/02/1986
Standard Chartered Bank Nepal Limited	30/01/1987
Himalayan Bank Limited	18/01/1993
Nepal SBI Bank Limited	07/07/1993
Nepal Bangladesh Bank Limited	05/06/1993
Everest Bank Limited	18/10/1994
Bank of Kathmandu Limited	12/03/1995
Nepal Credit and Commerce Bank Limited	14/10/1996
Lumbini Bank Limited	17/07/1998

Nepal Industrial and Commerce Bank Limited	21/07/1998
Machhapuchhre Bank Limited	03/10/2000
Kumari Bank Limited	03/04/2001
Laxmi Bank Limited	03/04/2002
Siddharth Bank Limited	24/12/2002
Agriculture Development Bank Limited	16/03/2006
Global Bank Limited	02/01/2007
Citizen International Bank Limited	21/06/2007
Prime Commercial Bank Limited	24/09/2007
Sunrise Bank Limited	12/10/2007
Bank of Asia Nepal Limited	12/10/2007
DCBL Bank Limited	25/05/2008
NMB Bank Limited	02/06/2008
Kist Bank Limited	07/05/2009
Janata Bank Limited	05/04/2010
Mega Bank Nepal Limited	23/07/2010
Commerz & Trust Bank Nepal Limited	20/09/2010
Civil Bank Limited	26/11/2010
Century Commercial Bank Limited	10/03/2011

*Source: Nepal Rastra Bank (2011)*

### **6.3 Data Collection Procedure**

The financial reports of the twenty nine banks and the annual report of the Central Bank of Nepal are the main sources of data for this study. The financial items which were computed into the relevant ratios were extracted from the balance sheet and income statement of the banks. The macro-economic data which were used in this study were obtained from the related publication of the Central Bank of Nepal during 2001-2011 and the World Bank data base. In the case of the corporate governance data, most of data were collected from the annual reports of the individual banks. In the case of some data which is not published in the bank annual report, this was hand collected through the help of NRB.

The data of the study covered eleven annual financial years, 2001-2011. The reason behind selecting this period is firstly, the long period covers more than one economic cycle which helps to explain the relationship between variables in different economic conditions.

Secondly, the Global Financial Crisis (GFC) which started in July 2007, created a lagged impact which has been felt in the Nepalese economy since the beginning of 2009/10. Thirdly, the central bank compelled the Nepalese banks to adopt the guidelines provided by Basel in 2007 at the time of the GFC. Fourthly, the central bank issued various regulation and directives regarding good corporate governance in 2006 for financial stability. Lastly, the financial statements of the different banks were not available before 2001 to measure the variables to study. Thus, the data of the study is a combination of time-series and cross section.

## **6.4 Measurement of Dependent Variables**

This thesis has used two dependent variables. This section provides the operational definition of each dependent variable examined in this thesis. The dependent variables are categorized as NPL and performance.

### **6.4.1 Non-performing Loan**

Since the definition of NPL varies across countries, comparison of the levels of NPL across countries and regions should be interpreted with caution. Generally speaking, a loan is classified as a NPL only after it has been in arrears at least three months. The details and classification standards of NPL may vary from country to country according to the requirements of their own banking system. In the case of Nepalese banks, the three month overdue rule has been adopted. The study carried out by the World Bank 2006 highlights that all the commercial banks in the South-Asia region (Bangladesh, India, Pakistan) consider advances that are in arrears for six months or more as non-performing, except in Nepal and Sri Lanka. Most of the countries have now classified the loan into four categories: good, sub-standard, doubtful and a loss. Based on Basel (2006), a loan which is overdue more than 90 days is categorized as a NPL.

Similarly, different countries define the NPL in a different way, such as sub-standard, doubtful and bad. The past directives issued by NRB had categorized the loan into six categories as: pass, indication of sub-standard, special mention, sub-standard, doubtful, and loss. Under this criteria too, except for the pass categories all, the other types of loans were considered as NPL. At present, NRB has categorized the loan in only four categories as guidelines of BIS. The loan which is overdue more than 90 days is categorized as NPL. So the ratio of NPL to total loan is taken as NPL as the dependent variable.

### 6.4.2 Performance

Another dependent variable in this study is bank financial performance. In line with Klapper and Love (2004), Haniffa and Hudaib (2006) and Guest (2009), two measurements, namely ROA and Tobin's Q (TQ) are used as proxies for accounting and market based measures of financial performance respectively. An accounting-based performance measure, ROA, has been used by Fich and Shivdasani (2006) and Adams and Mehran (2012). Tobin's Q as the financial performance measure is commonly used as a dependent variable by Agrawal and Knoeber (1996) and Adams and Mehran (2012).

The decision to use the two measures of financial performance is underpinned by two main reasons. Firstly, prior evidence suggests that insiders and outsiders value corporate governance differently (Black, Jang et al. 2006). As such, the accounting based measure of performance, ROA attempts to capture the wealth effects of corporate governance mechanisms from the perspective of company management (insiders), while the market based measure, Tobin's Q represents financial valuation of corporate governance structure by investors (outsiders). Secondly, each measure has its own strength and weaknesses with no consensus within the literature on a particular measure as being the 'best' proxy for financial performance (Haniffa and Hudaib 2006). Hence, using the two measures represents an attempt to examine the robustness of the results against both accounting and market based measures of financial performance.

This thesis has calculated ROA as the ratio of net income to book value of assets at the end of the financial year (Yermack 1996; Fich and Shivdasani 2006). It measures how efficiently and effectively a firm manages its operations and uses its assets to generate profits (Ross, Westerfield et al. 1998). On average, higher ROA suggests effective and efficient use of a firm's assets in maximizing the value of its shareholders' investment by management (i.e. internal corporate governance structure). ROA is an effective measure of performance because it eliminates the problem of size which makes it easier for comparisons to be drawn across firms (Lev and Saunder 1979). Demsetz and Lehn (1985) and suggests that as accounting profit, ROA may reflect year to year fluctuations in underlying business conditions better than stock market rates of return. This is because stock market rates of return reflect expected future development that may mask current fluctuations in business

conditions. It has also been used widely by prior corporate governance studies (Klapper and Love 2004; Haniffa and Hudaib 2006).

Tobin's Q is usually used as the primary measure of financial performance as a proxy for the market valuation of the quality of a firm's internal corporate governance structures.

Generally, the Tobin's Q ratio measures the effectiveness with which a firm's management is able to use its assets to generate value for shareholders. Like ROA, a higher Tobin's Q ratio suggests greater effectiveness of a firm's internal corporate governance structure, as well as a better perception of a company's financial performance by the market (Haniffa and Hudaib 2006).

The concept of Tobin's Q has great intuitive appeal and it is of immense theoretical and practical relevance (Chung and Pruitt 1994). As such, it has been used extensively as a proxy for financial performance not only in the corporate governance literature but also within the large corporate finance literature. This thesis has calculated Tobin's Q as a ratio of bank market value to its book value of assets. The bank market value is calculated as book value of assets minus book value of equity plus market value of equity, as used by (Adams and Mehran 2012).

## **6.5 Measurement of Independent Variables**

This section provides the operational definition of each independent variable examined in this thesis. The independent variables are categorized as macro-economic, bank specific, governance, and control variables. Table 6.1 provides a summary of measurements used in this thesis.

**Table 6.1: Summary of the Measurement of the Variables**

<b>Variables</b>	<b>Acronym</b>	<b>Measurement</b>
<b>Dependent Variables</b>		
Non-performing loan	NPL	NPL divided by total loan
Return on Assets	ROA	Ratio of net income to book value of assets
Tobin's Q	TQ	Book value of assets minus book value of equity plus market value of equity divided by book value of assets.
<b>Independent Variables</b>		
<b>Macro-economic Variables</b>		
Economic activity	GDP_G	GDP Growth
Lag of economic activity	GDP_G <sub>t-1</sub>	GDP Growth of previous year.
Inflation	CPI	Consumer price index
Lag of Inflation	CPI <sub>t-1</sub>	Consumer price index from previous year
Money Supply	M2	Broad money supply (M2) growth
Exchange rate	EXCG	Appreciation (+) or depreciation (-) of domestic currency with US dollar.
Share prices index growth	SPI_G	Percentage change of share prices index compared to previous year.
Market interest rate	MIR	Weighted average interbank interest rate.
<b>Bank-specific variables</b>		
Lag non-performing loan	NPL <sub>t-1</sub>	NPL of previous year.
Loan loss provision	LLP	Loan loss provision to total loan.
Loan growth	LG	Percentage change of total loan from previous year.
Capital	ECTA	Equity capital to total assets.
Earnings	EBIT	Earnings before interest and tax to total assets.
Branch growth	BG	Percentage change of number of branches from previous year.
Bank size	TA	Natural logarithm of total assets.
Interest rate spread	IRS	Lending rate minus deposit rate.
<b>Governance variables</b>		
Board size	BS	Number of members in board.
Board independence	BI	Proportion of professional directors on board.
Board diligence	BD	Number of board meetings held per year.
Audit committee size	ACS	Number of members in audit committee.
Audit committee Independence	ACI	Proportion of professional directors on audit committee.
Audit committee diligence	ACD	Number of audit committee meetings held per year.
Institutional ownership	IO	Proportion of ownership owned by financial corporate and other institutions to total ownership.
Foreign ownership	FO	10 percent or more ownership held by foreigners.
CEO remuneration	CEO_R	Salary and allowance of CEO per year.
<b>Control variables</b>		
Revenue growth	RG	Annual percentage change in revenue.
Credit to Deposit Ratio	CDR	Ratio of credits to total deposits.
Bank age	BA	Bank's age.

### 6.5.1 Measurement of Macro-economic Variables

This section provides the definition of macro-economic variables as the previous literature suggested. Different researchers have followed different measurements of different macro-economic variables which this section has followed.

### **6.5.1.1 Economic Activity**

It is widely accepted that GDP is the better indicator of aggregate economic activity. Various authors Salas and Saurina (2002), Bhattacharya and Roy (2008), Jiménez and Saurina (2006) and Das and Ghosh (2007) used growth of GDP as a proxy of aggregate economic activity. In addition, GDP is highly informative about changes in unemployment, real wages and real interest rates (Salas and Saurina 2002). Annual percentage growth rates of GDP at market prices based on constant local currency, is the aggregate economic activity of the country.

This thesis measures GDP as the sum of gross value added by all resident producers in the economy plus any product taxes, minus any subsidies not included in the value of the products. It is calculated without making a deduction for depreciation of fabricated assets or for depletion and degradation of natural resources. This study includes the current GDP growth rate as well as a one year lag of GDP growth to gauge the timing.

### **6.5.1.2 Inflation**

In the economy, the purchasing power of the currency is reduced when general price levels of goods and services increases. Some economists say inflation denotes the increase in the amount of money in circulation. Inflation can be measured through the rate of change of the consumer price index (Boyd, Levine et al. 2001). The consumer price index reflects the annual percentage change in costs to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. This provides a relatively accurate indication of the average level of prices in the economy.

The consumer price index is used in this study as the proxy for inflation. Also, it is the most comprehensive measure of inflation defined as a change in the price of consumer goods and services purchased by households. This study used the consumer price index to measure the inflation rate with a base year 2000/01 published by the World Bank.

### **6.5.1.3 Money Supply**

Money supply is the total stock of money available in any economy during a specified time. Money supply is in three forms: Reserve Money, Narrow Money and Broad Money. Two measures of money supply are available in Nepal: these are narrow money and broad money. Narrow money includes currency held by banks and demand deposits held at the monetary sector. Broad money consists of narrow money and time deposits held by commercial banks.

In Nepal, an issue of selecting a suitable intermediate monetary target variable has come up. not very long dates back. The selection is to be made from the two available monetary measures: narrow money and broad money. Past empirical studies support the narrow money as a better intermediate monetary target variable because it has a relatively stronger relationship with other economic variables including price. However, people are more interested to be a used to banking habit. This shows that deposits held by banks are available for and easily withdrawn on demand. In this context, both measures of money supply are used for this study. The change in the money supply is measured as the difference in end-of-year totals relative to the level of M2 in the preceding year.

#### **6.5.1.4 Foreign Exchange**

The rate which is used to exchange one currency with another is known as the exchange rate. Continuous foreign exchange markets are the vehicle of determination of exchange rates. These markets are open for 24 hours a day except weekends and comprise of wide range of different types of currency traders. This exchange currency is largely influenced by the exchange of capital goods and services across borders called international trade. At the present time, Nepal is following the dual exchange rate system because its currency is pegged with the Indian currency whereas it floats with other major convertible currencies such as the US dollar, UK pound etc. However, Nepal trades with other countries except India in US dollars. So this study took exchange rates with the US dollar as a proxy of exchange rates as published by NRB.

#### **6.5.1.5 Share Prices Index**

It is expected that good share market performance will contribute to reduce the credit risk. Hadad, Santoso et al. (2006), Aver (2008), Bofondi & Ropele, (2011) and Castro (2012) have used growth of the share prices index as an indicator of stock market performance which tries to mitigate the credit risk in banks. The Nepal Stock Exchange (NEPSE) has been operating as the main controller of the stock market in Nepal. The data of wholesale share prices index is gathered from the annual reports of the NEPSE. Hence, the growth of the share prices index as used by past scholars is the change in wholesale market share prices index compared to previous years and is used as the growth of share prices index in Nepal which this thesis used.

### **6.5.1.6 Market Interest Rate**

The market interest rate was measured by different measurements by past scholars. Quagliariello (2007) used the interest on ten year Treasury bonds as a proxy of market interest rate. The interbank interest rate was used to measure interest rates by Ahmad (2003) and Das and Ghosh (2007). Cebula (2001) used the difference between three year Treasury notes and inflation rates to measure the market interest rate.

This thesis used weighted average interbank interest rates as a proxy of the market interest rate. The reason behind selecting this proxy is that this study is concerned with studying the impact of the market interest rate on bank credit risk exposure. However, banks use the interbank interest rate as a primary factor in pricing their loans. This means that this factor has a direct impact on the interest rate that will be paid by the borrower. Hence, using the weighted average interbank interest rate is the appropriate proxy to capture the impact of the market interest rate on credit risk.

### **6.5.2 Measurement of Bank Specific Variables**

This section provides the definition of bank specific variables as the previous literature suggested. Different researchers have followed different measurements of different proxies of bank specific variables, which are explained in this section.

#### **6.5.2.1 Lag Non-performing Loans**

The ratio of problem loans of one period is closely related to that of the previous period since problem loans are not immediately written down (Salas and Saurina 2002) but are, in fact, carried forward in the balance sheet. The empirical results of previous studies show that the impact of current NPL needs to be carried forward to the next accounting year. The NPL ratio with lag ( $NPL_{t-1}$ ) was used to measure the impact of previous years of NPL as in Das and Ghosh (2007) and Jimenez and Saurina (2006) which this thesis has also used.

#### **6.5.2.2 Loan Loss Provision**

The estimated provision of loan losses reflects a perception of a bank's management of loan quality. The higher quality of loans reduces the provision of loan losses, and low quality of loans increases provision of loan losses (Eng and Nabar 2007). The ratio of provision of loan losses to the total loans was used to measure the impact of provision for loan losses on bank NPL in this study.

### **6.5.2.3 Loan Growth**

Excessive lending by commercial banks is often identified as an important determinant of NPL (Salas and Saurina 2002; Jimenez and Saurina 2005; Sinkey and Greenwalt 1991; Keeton 1999). The rapid growth of loans has an impact on the quality of loans; the bank with high loan growth assumes more NPL (Das and Ghosh 2007). The credit growth in one year can have an influence on the loan defaults in the subsequent years since credit appetite of banks during boom periods over-looks strict credit criteria. The variable to capture loan growth is constructed by the previous literature as the annual percentage change in the loan portfolio of each bank.

### **6.5.2.4 Capital**

Since the bank has applied Basel agreement standards, the capital is divided into primary or core capital, and supplementary capital. Both core and supplementary capital are used as a cushion against risk. Hence, the ratio of total equity capital to total assets was used to measure the relationship between the level of capital and NPL by Altunbas et al., (2007), Bichsel and Blum (2004) and Godlewski (2005). This thesis also applied the same measurement as a proxy of capital.

### **6.5.2.5 Earnings**

Many studies use different proxies for earnings. Some studies are based on income and some are based on net income. Salas and Saurina (2002) and Louzis (2010) measured the earnings of banks as operating income. Some researchers also used net interest income as a proxy of earnings of banks, for example Das and Ghosh (2007). The net interest income ratio is a rough measure for a risk taking measure. The main income of the bank comes from interest where the bank manages the other operating expenses (Koch and McDonald 2003). This thesis has used the earnings before income and tax as a proxy of earnings of banks where all other operating expenses have been deducted.

### **6.5.2.6 Branch Growth**

To check the relationship between branch growth and NPL, different authors have applied different ways to measure branch growth. Salas and Saurina (2002) used the branch growth rate as the change in number of branches compared to the previous year. He used the branch growth with three year lag. Similarly, Das and Ghosh (2007) and Thiagarajan, Auuapan et al.

(2011) also follow the same measurement for branch growth. So in the same way, this thesis has used the change in the number of branches compared to the previous year.

#### **6.5.2.7 Bank Size**

Size is a key factor that was used in many banking studies. Some researchers including Altunbas et al., (2007) and Cannata and Quagliariello (2006) have used the natural log of total assets as a proxy for size of bank. Similarly, this study used the natural log of the NPR value of the total assets as a proxy of bank size.

#### **6.5.2.8 Interest Rate Spread**

Many studies adopted different proxies of interest rate spread. Because of a dearth of actual loan and deposit interest data from individual commercial banks, Demirguc-Kunt and Huizinga (1998) resorted to using bank net interest margins as the proxy for the interest rate spread. Similarly, Das and Ghosh (2007) and Ahmad and Ariff (2007) also used net interest margin as a proxy for interest rate spread. Brock and Franken (2003), however, caution against the use of such proxies in making conclusive statements and, therefore, suggest the use of the difference between loan and deposit rates as the interest rate spread. Therefore, this study used the difference between lending and deposit rates as the proxy of interest rate spread.

### **6.5.3 Corporate Governance Variables**

This section provides the definition of corporate governance variables as the previous literature suggested. Various researchers have followed different proxies of different corporate governance variables which this section has explained in detail.

#### **6.5.3.1 Board Size**

Board size is the number of directors on the board. A similar measure was employed by previous studies, Yermack (1996), Beiner, Drobetz et al. (2004) and Adams and Mehran (2012). In the same way, this study also used the number of directors on the board as the proxy for board size.

#### **6.5.3.2 Board Independence**

Board independence is the total number of outsider or independent non-executive directors on the board divided by the total number of board members. Adams and Mehran (2008)

measured the outside directors who are not former officers of the firm, generally the CEO or Chairman. Other researchers, Baysinger and Butler (1985) and Ezzamel and Watson (1993), measure the board independence as the proportion of independent directors to total directors. The Central bank of Nepal defines independent directors as the professional director who is independent from the management, and free from any business or other relationship which could interfere with the exercise of independent judgment, or the ability to act in the best interest of stakeholders. So, this thesis uses the proportion of the number of professional directors as nominated by the Central bank of Nepal to total directors on board as a proxy for board independence.

#### **6.5.3.3 Board Diligence**

Board diligence is an important determinant of board effectiveness (Vafeas 1999). Board diligence is related to factors that include the number of board meetings (Carcello et al. 2002) and De Zoort et al. (2002). They suggest that frequency of meetings can be a proxy of diligence. So this thesis used the number of board meetings in year as a proxy for board diligence.

#### **6.5.3.4 Audit Committee Size**

Audit committee size is measured by the number of members on the audit committee. The same measure was followed by various researchers Klein (2002), Coleman-Kyereboah (2007) and Hardwick, Adams et al. (2003). So, this study measures audit committee size as the number of members involved in the audit committee.

#### **6.5.3.5 Audit Committee Independence**

Audit committee composition is the proportion of independent directors on the audit committee. Audit Committee independence was computed by Klein (2002), Weiss (2005), Kyereboah-Coleman (2007) and Erickson, Park et al. (2005) as the total number of independent directors on the audit committee divided by the total number of audit committee members This thesis has used the proportion of professional directors on the audit committee.

#### **6.5.3.6 Audit Committee Diligence**

Audit committee diligence is measured as the number of audit committee meetings held during the year. Audit committee meetings was measured as the number of meetings held by the audit committee per year. The same measure had been used by previous studies as a

proxy for the diligence of the audit committee e.g. Huang, Lai et al. (2008) and Kyereboah-Coleman (2007). So, in the same way, this thesis uses the number of audit committee meetings per year as the proxy for audit committee diligence.

### **6.5.3.7 Ownership Structure**

This section provides the definition of ownership variables examined in this study. The ownership variables are categorized: institutional and foreign. Previous researchers mentioned the different proxies for ownership variables which this thesis has also followed.

#### **6.5.3.7.1 Institutional Ownership**

Various researchers have measured the institutional ownership as shares held by institutions Chaganti and Damanpour (1991) and Han and Suk (1998). An institution consists of financial institutions and organized institutions. Similarly, this thesis measures the institutional ownership as shareholding by financial institute, commercial bank and organized institutions.

#### **6.5.3.7.2 Foreign Ownership**

Various researchers have defined the bank as foreign in different ways. Claessens, Demirguc-Kunt et al. (2001) defined the bank as foreign if the bank held 50 percent of its capital by foreign residents. Similarly, DeYong and Nolle (1996) defined the bank as foreign if the bank held only 10 percent of its capital by foreign ownership. So, this study followed DeYong and Nolle (1996) and measured the foreign ownership as if the bank held 10 percent of its capital with foreign ownership.

### **6.5.3.8 CEO Remuneration**

CEO compensation is usually composed of multiple types of pay including salary, cash bonus, stock bonuses, and stock options, among others (Zajac 1990). Empirical studies about the relationship between CEO compensation and firm performance has usually attempted to gauge this linkage by measuring the dollar value levels of a CEO yearly compensation in terms of salary and bonus, including stock option (Benston 1985; Coughlan and Schmidt 1985). While this approach has well-known measurement difficulties (Kerr and Bettis 1987), this study measured the CEO remuneration in terms of salary and allowances, and bonuses excluding a stock option which is hand collected from the Central bank of Nepal.

## 6.6 Data Analysis

This section provides the test models of the statistical techniques which this thesis employs for data analysis to investigate the macro-economic and bank specific determinants of NPL and influence of corporate governance on bank NPL and performance.

### 6.6.1 Statistical Techniques

The first issue with which this study is concerned is to explore how a set of variables influence bank NPL and performance. To examine this relationship, this study first employed Ordinary Least Square (OLS) and then considered panel data methods. These are: Fixed Effect (FE), Random Effect (RE) and Generalized Method of Moments (GMM). The entire model set in the thesis is examined through these four statistical techniques.

### 6.6.2 Test Models

Based on the literature, multiple regression models were developed as per the objectives of the study.

The models are mathematically expressed as:

Three separate models are estimated to examine the macro-economic determinants of NPL.

$$\text{NPL} = \beta_0 + \beta_1 \text{GDP\_G} + \beta_2 \text{CPI} + \beta_3 \text{M2} + \beta_4 \text{EXCG} + \beta_5 \text{SPI\_G} + \beta_6 \text{MIR} + e_{it} \dots \dots \dots (1)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{GDP\_G}_{t-1} + \beta_2 \text{CPI}_{t-1} + \beta_3 \text{M2} + \beta_4 \text{EXCG} + \beta_5 \text{SPI\_G} + \beta_6 \text{MIR} + e_{it} \dots \dots \dots (2)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{GDP\_G} + \beta_2 \text{GDP\_G}_{t-1} + \beta_3 \text{CPI} + \beta_4 \text{CPI}_{t-1} + \beta_5 \text{M2} + \beta_6 \text{EXCG} + \beta_7 \text{SPI\_G} + \beta_7 \text{MIR} + e_{it} \dots \dots \dots (3)$$

Three separate models are estimated to examine the bank-specific determinants of NPL.

$$\text{NPL} = \beta_0 + \beta_1 \text{NPL}_{t-1} + \beta_2 \text{LG} + \beta_3 \text{BG} + \beta_4 \text{LLP} + \beta_5 \text{TA} + e_{it} \dots \dots \dots (1)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{NPL}_{t-1} + \beta_2 \text{EBIT} + \beta_3 \text{ECTA} + \beta_4 \text{IRS} + \beta_5 \text{RG} + \beta_6 \text{CDR} + \beta_7 \text{BA} + e_{it} \dots \dots \dots (2)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{NPL}_{t-1} + \beta_2 \text{LG} + \beta_3 \text{BG} + \beta_4 \text{LLP} + \beta_5 \text{TA} + \beta_6 \text{EBIT} + \beta_7 \text{ECTA} + \beta_8 \text{IRS} + \beta_9 \text{RG} + \beta_{10} \text{CDR} + \beta_{11} \text{BA} + e_{it} \dots \dots \dots (3)$$

Three separate models are estimated to examine the combined bank specific and macro-economic determinants of NPL.

$$\text{NPL} = \beta_0 + \beta_1 \text{NPL}_{t-1} + \beta_2 \text{LG} + \beta_3 \text{BG} + \beta_4 \text{LLP} + \beta_5 \text{TA} + \beta_6 \text{GDP\_G} + \beta_7 \text{GDP\_G}_{t-1} + \beta_8 \text{CPI} + \beta_9 \text{CPI}_{t-1} + \beta_{10} \text{M2} + \beta_{11} \text{EXCG} + \beta_{12} \text{SPI\_G} + \beta_{13} \text{MIR} + e_{it} \dots \dots \dots (1)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{NPL}_{t-1} + \beta_2 \text{EBIT} + \beta_3 \text{ECTA} + \beta_4 \text{IRS} + \beta_5 \text{RG} + \beta_6 \text{CDR} + \beta_7 \text{BA} + \beta_8 \text{GDP\_G} + \beta_9 \text{GDP\_G}_{t-1} + \beta_{10} \text{CPI} + \beta_{11} \text{CPI}_{t-1} + \beta_{12} \text{M2} + \beta_{13} \text{EXCG} + \beta_{14} \text{SPI\_G} + \beta_{15} \text{MIR} + e_{it} \dots \dots \dots (2)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{NPL}_{t-1} + \beta_2 \text{LG} + \beta_3 \text{BG} + \beta_4 \text{LLP} + \beta_5 \text{TA} + \beta_6 \text{EBIT} + \beta_7 \text{ECTA} + \beta_8 \text{IRS} + \beta_9 \text{RG} + \beta_{10} \text{CDR} + \beta_{11} \text{BA} + \beta_{12} \text{GDP\_G} + \beta_{13} \text{GDP\_G}_{t-1} + \beta_{14} \text{CPI} + \beta_{15} \text{CPI}_{t-1} + \beta_{16} \text{M2} + \beta_{17} \text{EXCG} + \beta_{18} \text{SPI\_G} + \beta_{19} \text{MIR} + e_{it} \dots \dots \dots (3)$$

Four separate models are estimated to examine the corporate governance determinants of NPL.

$$\text{NPL} = \beta_0 + \beta_1 \text{BS} + \beta_2 \text{BI} + \beta_3 \text{BD} + \beta_4 \text{NPL}_{t-1} + \beta_5 \text{LLP} + \beta_6 \text{LG} + \beta_7 \text{ECTA} + \beta_8 \text{EBIT} + \beta_9 \text{BG} + \beta_{10} \text{TA} + \beta_{11} \text{IRS} + \beta_{12} \text{RG} + \beta_{13} \text{CDR} + \beta_{14} \text{BA} + e_{it} \dots \dots \dots (1)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{ACS} + \beta_2 \text{ACI} + \beta_3 \text{ACD} + \beta_4 \text{NPL}_{t-1} + \beta_5 \text{LLP} + \beta_6 \text{LG} + \beta_7 \text{ECTA} + \beta_8 \text{EBIT} + \beta_9 \text{BG} + \beta_{10} \text{TA} + \beta_{11} \text{IRS} + \beta_{12} \text{RG} + \beta_{13} \text{CDR} + \beta_{14} \text{BA} + e_{it} \dots \dots \dots (2)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{IO} + \beta_2 \text{FO} + \beta_3 \text{CEO\_R} + \beta_4 \text{NPL}_{t-1} + \beta_5 \text{LLP} + \beta_6 \text{LG} + \beta_7 \text{ECTA} + \beta_8 \text{EBIT} + \beta_9 \text{BG} + \beta_{10} \text{TA} + \beta_{11} \text{IRS} + \beta_{12} \text{RG} + \beta_{13} \text{CDR} + \beta_{14} \text{BA} + e_{it} \dots \dots \dots (3)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{BS} + \beta_2 \text{BI} + \beta_3 \text{BD} + \beta_4 \text{ACS} + \beta_5 \text{ACI} + \beta_6 \text{ACD} + \beta_7 \text{IO} + \beta_8 \text{FO} + \beta_9 \text{CEO\_R} + \beta_{10} \text{NPL}_{t-1} + \beta_{11} \text{LLP} + \beta_{12} \text{LG} + \beta_{13} \text{ECTA} + \beta_{14} \text{EBIT} + \beta_{15} \text{BG} + \beta_{16} \text{TA} + \beta_{17} \text{IRS} + \beta_{18} \text{RG} + \beta_{19} \text{CDR} + \beta_{20} \text{BA} + \beta_{21} \text{GDP\_G} + \beta_{22} \text{CPI} + \beta_{23} \text{M2} + \beta_{24} \text{EXCG} + \beta_{25} \text{SPI\_G} + \beta_{26} \text{MIR} + e_{it} \dots \dots \dots (4)$$

Where NPL= Non-performing loan, NPL<sub>t-1</sub>= Lag non-performing loan, LLP= Loan loss provision, LG= Loan growth, ECTA= Equity capital to total assets, EBIT = Earnings before interest & tax to total assets, BG= Branch growth, TA= Total assets in NPR, IRS= Interest rate spread, RG= Revenue growth, CDR= Credit deposit ratio, BA= Bank age, GDP\_G= GDP growth, GDP\_G<sub>t-1</sub>= lag GDP growth, CPI= Inflation rate, CPI<sub>t-1</sub>= lag inflation rate, M2= Broad money supply growth, EXCG= Exchange rate, SPI\_G= Share prices index - growth, MIR= Market interest rate.

Four separate models are estimated to examine the corporate governance determinants of performance.

$${}^2\text{Performance} = \beta_0 + \beta_1\text{BS} + \beta_2\text{BI} + \beta_3\text{BD} + \beta_4\text{LLP} + \beta_5\text{TA} + \beta_6\text{ECTA} + \beta_7\text{GDP\_G} + \beta_8\text{CPI} + \beta_9\text{M2} + e_{it} \dots \dots \dots (1)$$

$$\text{Performance} = \beta_0 + \beta_1\text{ACS} + \beta_2\text{ACI} + \beta_3\text{ACD} + \beta_4\text{LLP} + \beta_5\text{TA} + \beta_6\text{ECTA} + \beta_7\text{GDP\_G} + \beta_8\text{CPI} + \beta_9\text{M2} + e_{it} \dots \dots \dots (2)$$

$$\text{Performance} = \beta_0 + \beta_1\text{IO} + \beta_2\text{FO} + \beta_3\text{CEO\_R} + \beta_4\text{LLP} + \beta_5\text{TA} + \beta_6\text{ECTA} + \beta_7\text{GDP\_G} + \beta_8\text{CPI} + \beta_9\text{M2} + e_{it} \dots \dots \dots (3)$$

$$\text{Performance} = \beta_0 + \beta_1\text{BS} + \beta_2\text{BI} + \beta_3\text{BD} + \beta_4\text{ACS} + \beta_5\text{ACI} + \beta_6\text{ACD} + \beta_7\text{IO} + \beta_8\text{FO} + \beta_9\text{CEO\_R} + \beta_9\text{LLP} + \beta_9\text{TA} + \beta_9\text{ECTA} + \beta_9\text{GDP\_G} + \beta_9\text{CPI} + \beta_9\text{M2} + e_{it} \dots \dots \dots (4)$$

Where BS= Board size, BI= Board independence, BD= Board diligence, ACS= Audit committee size, ACI= Audit committee independence, ACD= Audit committee diligence, IO= Institutional ownership, FO= Foreign ownership, CEO\_R= CEO remuneration, GDP\_G= GDP growth, CPI= Inflation rate, M2= Broad money supply growth, LLP= Loan loss provision, TA= Total assets in NPR, ECTA= Equity capital to total assets

## 6.7 Research Design

This section discusses the research design. First, it attempts to provide a comprehensive description of the data analysis and the research model used in this study. The next step in this section is to explain clearly the rationale for the various data and model choices made at every step of the study. Further, the next step of this section is about the diagnosis testing which is significant for the data analysis.

### 6.7.1 Panel Data Analysis

Panel data methodology has been used to examine the relationship of independent variables on NPL, ROA and TQ. Many researchers, for example Banker, Devaraj et al. (2002), Bhattacharya, Daouk et al. (2003), Leng (2004), Schiehl (2006), Sanchez-Ballesta and Garcia-Meca (2007), and Ming and Gee (2008) used this methodology in previous accounting studies. STATA statistical software has been used to analyze the data as it is suitable for panel data regression.

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<sup>2</sup>Performance is measured by accounting and market measurement i.e. ROA and Tobin's Q.

Panel data, which is also known as longitudinal data, consist of a time-series for each cross-sectional member in the data set (Wooldridge 2009 pp 10). Panel data recommend that the subject such as countries, states, firms or individuals under study is heterogeneous. Even the nature of some variables change with subject and time and there may be some other variables that may be subject-invariant or time-invariant. Time-invariant variables are those variables which are unique to the subject. So it is important to include such variables in the model equation otherwise the result estimates may be biased. The panel data methodology supplies a resolution to manage these invariant factors which are not controlled either in cross-sectional or time-series studies. Another motivational factor to use panel data is to solve the omitted variables problem (Wooldridge 2002 p.247).

### **Advantage of Panel Data**

Hsiao (2003) and Baltagi (2008) have discussed the advantage of panel data over pure cross-sectional and pure time-series data as mentioned below:

- a. Panel data check the multiple observations on cross-sectional units which give the proper information. Thus, panel data give estimations of parameters efficiently and also gives more variability. The informative data also provides more consistent estimates and checks a more difficult behavioral model with less limiting assumptions.
- b. Panel data is useful to reduce the multicollinearity problem. In pure time-series data, there is the existence of serious multicollinearity among the independent variables mainly when current period independent variables are highly correlated with those in the previous year. To minimize the problem of collinearity, differences in the dependent variables across cross-sectional units can be used.
- c. Panel data controls the individual heterogeneity problem. The impact of omitted variables is controlled by this method. Panel data contains information on both the inter-temporal dynamics and the individuality of the entities and may help researchers to control the effects of missing or unobserved variables.
- d. Panel data enables the researcher to identify an otherwise unidentified model which under usual circumstances may be undetectable due to measurement errors.

#### **6.7.1.2 Ordinary Least Square**

The ordinary least squares (OLS) approach to multiple linear regressions was introduced by Gauss in 1794 (Brand 2003). The OLS procedure is the simplest type of estimation procedure

used in statistical analysis. However, in order to benefit from the well-behaved properties of an OLS estimate, a number of assumptions must be satisfied. The simple OLS regression does not account for heterogeneity and assumes that the sample firms were homogeneous. Jager (2008) investigated panel data analysis through OLS regression techniques and found two different results which imply that OLS techniques on panel data lead to incorrect inferences. As the result of individual unique factors which remain constant over time, panel data observation cannot be assumed as independently distributed across time (Wooldridge 2002; Baddeley and Barrowclough 2009).

Therefore, pooled OLS assumes homogeneity in pure cross-sectional or times series analysis, if estimates on panel data may lead to misleading inferences (Baddeley and Barrowclough 2009). In simple pooling on panel data, no adjustment is made for firm specific factors, resulting in autocorrelation because, in each year under study, the firm unique factor was left in the residual. Additionally, it also results in heterogeneity bias in terms of omitted variables bias because the firm unique factor is not included in the deterministic part of the model (Baddeley and Barrowclough 2009).

Panel regression models control for the heterogeneity effect in panel data using either a FE model or RE model. The main difference between the two methods is that the unobserved effects (the error terms) are correlated with included independent variables (Wooldridge 2002).

### **6.7.1.3 Fixed Effects Model**

Each firm bears its own individual characteristics which are constant across time. Dependent variables may or may not be affected by that individual characteristic. In the process of investigation of relationships between dependent and independent variables within an entity, fixed effect control and unobserved individual characteristics of each firm may affect or bias the dependent variables. Following the assumption underlying the use of a fixed effects (FE) method that the error term is correlated with the independent variables, this method removes the effect of unobserved time-invariant characteristics from the independent variables, so that the net effect of independent variables is assessable. Therefore, the FE method is unbiased as it controls for unobserved time-invariant factors but it may be inefficient if the correlation that it assumes is really zero (Allison 2009).

The Hausmann Test is carried out to choose the FE model. The FE method can be implemented either by dummy variables or through the mean deviation method. The dummy variables method is implemented by creating a set of dummy variables for each entity in the data set. The coefficient of the entity's dummy variables produced upon analysis represents an estimate of the unobserved time-invariant factors. However, Wooldridge (2002) suggested that this method is not practical for data sets with many cross-sectional observations. Allison (2009) pointed out that this method imposes difficulties as it may be beyond the capacity of the accounting software. The mean deviation method is an alternative to estimate FE regression which is simple to perform using accounting software. The mean deviation method implies that mean values for all time-varying variables are identified for each entity.

Subsequently, the entity's specific mean is subtracted from the observed value for each variable. In this method, estimated coefficients for the time-invariant independent variables are not given, since their values are constant for each entity; subtracting the entity-specific mean of time-invariant variables from the individual values yields a value of zero for all entities. Accordingly, the time-invariant independent variables are dropped out of the equation; nevertheless their effect has been controlled (Allison 2009).

#### **6.7.1.3 Random Effects Model**

This technique which is equally known as the Error Component Model is an alternative to the FE technique (Nickell 1981). The advantage of random effect (RE) is that it is economical in degrees of freedom than FE. The RE technique is suitable in cases where the (random) intercept of each cross-sectional unit is uncorrelated with the regressors. Basically, the RE estimator assumes that the intercept of an individual unit is a random component that is drawn from a larger population with a constant mean value. The individual intercept is then expressed as a deviation from this constant mean value. This is because the analyst does not have to estimate N cross-sectional intercepts but just only the mean value of the intercept and its variance. Since there is no significant correlation between the unobserved units of observation, specific random effects and the regressors mean the RE model may be more appropriate. However, based on variation in the capital base and share capital of the bank under review, the intercept of each bank is said to be a random component. Therefore, this study adopted the RE method of the panel data regression analysis. The advantage of a RE model over the FE model is that time-constant independent variables are allowed and can be

examined in a regression model. These results from the assumption that the unobserved effect is not correlated with the independent variables, whether or not they are fixed over time.

Similarly, as with the FE model, the Hausmann Test is carried out to choose the RE model. Accordingly, a RE model allows time-constant independent variables and does not drop them out of the regression model. However, if it violates the assumption that FE are not correlated with the disturbance reflected in the between effects, it may produce biased results.

#### **6.7.1.4 Generalized Method of Moments**

In the banking literature, it is generally preferable to employ FE and/or RE for panel data. However, if the lag dependent variables or possibly other regressors are important, these models face the problem particularly in the case of short time periods and large observation (Nickell 1981). If the regressors are correlated with the lagged dependent variables to some extent, their coefficient may also be seriously biased.

To minimize this problem, Arellano and Bond (1991) developed the difference generalized method of moment (GMM) model by differentiating all regressors. Arellano and Bover (1995) and Blundell and Bond (1998) augment the difference GMM model by developing the system GMM estimator which includes lagged levels as well as lagged differences. The system GMM estimator assumes that first differences of instrumental variables are uncorrelated with the FE. It allows the introduction of more instruments, and can substantially improve efficiency.

Roodman (2006) argues that both difference and system GMM estimators are suitable for situations with “small T, large N” panels; independent variables that are not strictly exogenous, fixed individual effects, heteroskedasticity and autocorrelation. One of the main advantages of GMM is that it controls for endogeneity in the model.

We run models using several specifications. First, we fit an OLS model with lags of the dependent variable as explanatory variables. Arellano and Bond (1991) indicated that with the lagged dependent variable included in the set of explanatory variables, the least squares estimator becomes biased for small values of T. We try alternative specifications of the FE model. We also use the one-step GMM developed by Arellano and Bond (1991) in model.

Since the panel data cover many heterogeneous bank and time period, the possible correlation between the regressors and bank specific effect, the endogeneity of regressors with respect to idiosyncratic shock and the heteroscedasticity of the disturbance term (idiosyncratic shock) would result in a biased and inconsistent estimation with the OLS estimation technique.

### **6.7.2 Diagnostic Test**

This section explains the diagnostic test performed on the data employed in this thesis. First, the diagnostic tests on the data distribution in terms of normality, extreme outliers and multicollinearity are discussed. Secondly, diagnostic tests specifically for the panel data are presented, namely heteroskedasticity and autocorrelation.

#### **6.7.2.1 Normality**

Normality shows the shape of the distribution of data of individual quantitative data variables and its correspondence to the normal distribution. Multivariate analysis is based on the assumption that large deviations from normality will lead to biased statistical results (Hair, Black et al. 2006). It is an assumption in multivariate analysis that the residual, which is the difference between the observed and predicated value, is to be independent and normally distributed. It is unnecessary to check normality of individual variables if the residual is normally distributed (Tabachnick and Fidell 2007).

Normality can be tested with skewness and kurtosis which is a common statistical test. Skewness reflects the balance of the distribution. Skewness of non-normal distributed variables shifts to one side, either left or right. Kurtosis refers to “peakedness” or “flatness” of the distribution compared to the normal distribution. Significant values of skewness or kurtosis reflect that the analysis does not deviate from normality.

#### **6.7.2.2 Outliers**

Transformation is one of the choices to minimize normality problems cause by the outliers. However, some authors do not support this choice. Grissom (2000) argued that the means of transformed data can sometimes inverse the difference of means of the original data. Tabachnick and Fidell (2007) do not recommended data transformation, although there is a possibility of minimization of outliers and failures of normality. This thesis detected some multivariate outliers. Extreme points were deleted from the data set. Upon deletion of the

outliers, the initial sample of 29 banks observed from 2001 to 2011 (207 bank-year observations) was reduced to 168 bank-year observations.

### **6.7.2.3 Multicollinearity**

According to Tabachnick and Fidell (2007) and Hair et al. (2006), correlation values more than 0.9 indicate a multicollinearity problem between independent variables. The Pearson correlation shown in the correlation matrix table in chapters 7 and 8 indicates that the correlation among independent variables is less than 0.90 which shows no multicollinearity problem between independent variables.

Hamilton (2009) suggested that the matrix of correlations between variables cannot necessarily detect multicollinearity so the Variance Inflation Factor (VIF) is preferred to check this issue. VIF is an indicator of the effect that the other independent variables have on the standard errors of a regression coefficient. A VIF which exceeds 10 suggests collinearity problems. The VIF test ran on the independent variables used in this thesis showed that the highest VIF was 9.172 for inflation. The above correlation and VIF values suggest that there is no multicollinearity problem between the independent variables; hence these variables can be fitted into one regression model.

### **6.7.2.4 Heteroskedasticity**

Homoskedasticity exists in such situations where the error process is independently and identically distributed and its variance may differ across units (Baum 2001). Baltagi (2008) stated that every unit has its own individual characteristics or heterogeneity which remains constant overtime, so assuming homoskedasticity in regression disturbance of panel data is a restrictive assumption.

Baltagi (2008) further indicated that overlooking the existence of heteroskedasticity made a consistent but inefficient estimate of the regression coefficients, and the standard errors of these estimates would be biased. To solve this problem, system GMM estimators are used which is suitable for situations with independent variables that are not strictly exogenous, fixed individual effects, heteroskedasticity (Roodman 2006).

### **6.7.2.5 Autocorrelation**

Autocorrelation, also known as serial correlation, refers to the correlation of error components across time periods. This condition violates the classical assumption of regression analysis but it is a reasonable characteristic of error terms in time-series analysis (Wooldridge 2003). Autocorrelation is likely to have more substantial influences on the estimated covariance matrix of the least squares estimator than is heteroskedasticity (Greene 2008). To solve this problem, as for the heteroskedasticity problem, GMM estimators are used.

## **6.8 Summary**

This chapter discussed the research method employed in this thesis. In order to meet the objectives of this thesis, macro-economic, bank specific and corporate governance data were obtained from different sources i.e. World Bank, annual reports of individual banks, and various publications of the Central Bank of Nepal. NPL and performance have been chosen as dependent variables. The attributes of performance in this thesis were ROA and Tobin's Q. In respect of independent variables, macro-economic variables, bank specific and corporate governance variables were used. The attributes of macro-economic variables examined in this thesis were gross domestic growth, inflation, broad money supply growth, foreign exchange, share prices index growth, indebtedness and market interest rates. In the case of bank specific variables, this thesis has used non-performing one year lag, loan growth, branch growth, loan loss provision, size, earnings, capital, and interest rate spread. In respect of corporate governance variables, the attributes of the board of directors examined in this thesis were covering board size, board independence and board diligence. Three attributes of the audit committee explored in this thesis were audit committee size, independence, and diligence. Another three variables, foreign ownership, institutional ownership, and CEO remuneration were also used as corporate governance variables.

This thesis used first, OLS and then, considered the panel data method i.e. FE, RE, and GMM. Diagnostic tests on the data in respect to normality, outliers and multicollinearity were run. Additionally, diagnostic tests specifically on panel data were carried out to determine an appropriate panel regression model that will produce robust standard errors.

## **CHAPTER SEVEN**

### **Results and Discussion**

#### **7.1 Introduction**

This chapter discusses the empirical results and seeks to achieve three main objectives of this study. The main findings of macro-economic and bank specific determinants of NPL are discussed. In the second stage, this chapter also discusses the findings of the influence of corporate governance on bank NPL and bank performance. In this regard, this chapter first presents the OLS results. In a further step, the chapter presents the RE regression results. RE are chosen on the basis of the Hausmann test. To examine the relationship of independent variables on NPL, this chapter discusses the results on the basis of the RE which is used to check the influence of independent variables on bank performance which this chapter has discussed. This chapter has also presented the GMM result which is just compared with other results derived from OLS and RE.

The rest of the section is as follows: Section 7.2 presents the descriptive and correlation results. Section 7.3 presents the regression results and discussion of macro-economic, bank specific and corporate governance determinants of NPL. Section 7.4 summarizes the overall findings and discussion of this study.

#### **7.2 Descriptive and Correlation Results of Bank Specific and Macro-economic Variables**

Table 7.1 presents the descriptive statistics of the dependent and independent variables (macro-economic and bank specific). The mean value of NPL and NPL one year lag is 4.2 percent and 4.8 percent respectively which range from 0 percent to 40.1 percent. The maximum NPL is 40.1 percent which is for the Nepal Bangladesh Bank Limited which has remained under NRB control since 2006 to 2009 while the bank was in financial trouble as a result of mismanagement at the hands of its key promoter (Dhungana 2008). The mean value of loan loss provision is 4.9 percent which is almost the same as NPL. The maximum loan loss provision is 38.2 percent which is the same for the problematic bank Nepal Credit and Commerce Bank Limited which reported a very high NPL i.e. 40 percent in 2002. The mean value of loan growth is 26.3 percent which is widely ranged from -59.7 percent to 180

percent. The maximum loan growth is almost five times the mean value as a result of increases in loans of some banks following the year of establishment. The mean value of capital ratio is 9.5 percent. This result is consistent with the commitment of Nepalese banks to Basel I Accord for the capital adequacy ratio, which requires banks to have a minimum capital adequacy ratio by 8 percent. The mean value of earnings before interest and tax to total assets is 1.9 percent, which is ranged from -8.6 percent to 9.0 percent. The negative highest value of earnings before tax to total assets is only due to some problematic banks such as Nepal Bangladesh Bank Limited, Nepal Credit Commerce Bank Limited and Lumbini Bank Limited in the observation years. The growth of bank branches is a maximum of 250 percent which is reported with a minimum of 57 percent. The result shows that banks in Nepal followed the expansionary policy during the study period. The mean value of total assets is NPR 16780.34 (USD 234.16) million whereas the minimum and maximum is NPR.384.30 (USD 5.36) and NPR.59322.20 (USD 827.82) million respectively. The minimum value of total assets is very low due to the first year of establishment of some banks. The mean value of interest rate spread is 3.8 percent which is ranged from 1.8 percent to 6.5 percent. The results show that due to high growth of banks and competition after 2007, the banks are following a much lower interest rate spread.

The mean value of revenue growth is 23.9 percent which is ranged from a minimum -22.5 percent to a maximum 139.5 percent. The negative revenue growth is present in the observation year due to some banks being declared problematic. The maximum value of credit to deposit ratio of banks during the observation year is 160 percent whereas the minimum value is 31.6 percent with a mean value of 80.4 percent. The minimum value of this ratio is less than 50 percent due to some banks following just a deposit collection strategy in the establishment year rather than to extend credit. The mean value of the age of banks is 9.30 years which indicates that the development of the banking industry is not very long.

The mean GDP growth over 11 years is 4.1 percent, with the highest growth in 2008 of 6.1 percent and the lowest growth of 0.1 percent in 2002. The high performance during the year 2008 was a result of expansion in the agriculture sector. The mean of inflation measured by the consumer price index is 7.7 percent, which is recorded highest at 11.6 percent in 2009. The inflation rate in 2009 soared up to a record high in 2009 for 11 years. The pressure on food prices continued to rise despite a sharp decline of international commodity prices. The decline in agriculture products, poor distribution and supply channels, transport syndication,

increases in salary and wage rates created pressures in the overall price levels in Nepal. All these factors have posed challenges to the banks to achieve primary objectives of maintaining price stability. Broad money supply reflects the domestic liquidity in the economy. The mean growth of broad money supply is 18.1 percent which recorded a minimum 2.7 percent in 2002 and a maximum 38.8 percent in 2008. The highest money supply growth in 2008 was due to the effect of domestic credit expansion on net foreign assets. The mean value of foreign exchange fluctuation is -0.3 percent. The depreciation of the Nepalese currency against the US dollar of -14 percent is highest in 2009. The pegged exchange rate system of the Nepalese currency with the Indian currency was responsible for the depreciation of the Nepalese currency against the US dollar. The minimum decline in share prices index is -36.2 percent in 2010. The Nepalese economy is facing a decline in the NEPSE index from 2008 which can be attributed to a weakening of investor confidence, increasing investment in real estate, increase in supply of shares through the issuance of rights and bonus shares to meet the specific levels of paid up capital, tightening in margin lending, and the decreasing possibility of capital gain. The maximum market interest rate is 8.2 percent which is recorded in 2011 as a result of liquidity contraction in the country, which was 0.7 percent in 2004.

**Table 7.1: Descriptive Statistics of Macro-economic and Bank Specific Variables**

Variables	Observation	Mean	Median	Minimum	Maximum	Skewness	Kurtosis
NPL	207	0.042	0.016	0.000	0.401	2.666	8.797
NPLt-1	188	0.048	0.021	0.000	0.401	2.325	6.688
LLP	204	0.049	0.028	0.010	0.382	2.822	9.072
LG	203	0.263	0.193	-0.597	1.800	1.744	4.792
ECTA	204	0.095	0.082	-0.170	0.429	1.433	6.967
EBIT	205	0.019	0.018	-0.086	0.090	-0.378	6.032
BG	200	0.253	0.106	-0.571	2.500	2.646	9.135
TA	207	16780.34	13035.80	384.30	59322.20	1.298	1.119
IRS	207	0.038	0.038	0.018	0.065	0.543	0.773
RG	179	0.246	0.207	-0.225	1.574	1.549	4.647
CDR	207	0.804	0.806	0.316	1.606	0.208	2.560
BA	207	9.333	8.000	0.000	27.000	0.541	-0.603
GDP_G	207	0.041	0.039	0.001	0.061	-1.367	2.913
GDP_Gt-1	207	0.042	0.045	0.001	0.062	-1.203	1.957
CPI	207	0.077	0.076	0.027	0.116	-0.406	-1.199
CPIt-1	207	0.071	0.068	0.025	0.116	-0.064	-1.432
M2	207	0.181	0.170	0.027	0.388	0.773	-0.180
EXCG	207	-0.003	0.010	-0.140	0.120	-0.336	-0.720
SPI_G	207	0.030	-0.100	-0.362	0.760	0.660	-0.750
MIR	207	0.044	0.037	0.007	0.082	0.422	0.444

NPL= Non-performing loan, NPLt-1= Lag non-performing loan, LLP= Loan loss provision, LG= Loan growth, ECTA= Equity capital to total assets, EBIT = Earnings before interest & tax to total assets, BG= Branch growth, TA= Total assets in NPR, IRS= Interest rate spread, RG= Revenue growth, CDR= Credit deposit ratio, BA= Bank age, GDP\_G= GDP growth, GDP\_Gt-1= lag GDP growth, CPI= Inflation rate, CPIt-1= lag inflation rate, M2= Broad money supply growth, EXCG= Exchange rate, SPI\_G= Share prices index - growth, MIR= Market interest rate.

Table 7.2 presents the descriptive statistics of governance variables. The average board size was found in this thesis to be seven directors. As per the Bank and Financial Act (BAFIA) 2006, every bank or financial institution shall have a board of directors which shall consist of not less than five and not more than nine directors. The results show that minimum board size is four in the observation period which is for the Nepal Bangladesh Bank Limited. The central bank had taken over the management of this bank from 2006 to 2009 and established the board with four members to handle the management. The mean value of board independence indicated that banks had complied with recommendations of the BAFIA 2006 to have at least one director who should be appointed to the bank board from the professional list issued by Central bank of Nepal. The mean value of board independence of 12.5 percent, however, indicated that 87.5 percent of the board composition in Nepalese banks was dominated by the insiders. The minimum value of board independence is 0 percent which shows that Nepalese commercial banks started to follow the corporate governance and involvement of professional directors on boards after 2006 when the Central bank of Nepal

issued NRB directives No.6 The average board meeting is twenty times per year indicating that banks had complied with the recommendation of BAFIA to hold board meetings at least 12 times in a year.

The average audit committee size and independence indicated that the bank has established audit committees chaired by a non-executive director as per the recommendation of the NRB Act 2002 (first amendment in 2006) and BAFIA 2006. The average number of audit committee meetings held per year was four times. The statistics showed that the majority of Nepalese banks have active members in the audit committee. The minimum zero value of board and audit committee independence, meeting and audit committee size indicated that some banks have not complied with the recommendation of BAFIA 2006 and the Company Act. Examination on a yearly basis revealed that the minimum value of board and audit committee independence occurred from 2005-2007, which were the transition periods before banks fully complied with the code of corporate governance which was implemented in 2005 (now known as Unified Directives). Similarly, zero value of audit committee size and meetings is from the Nepal Bangladesh Bank Limited which was declared as chronic. The central bank took over the management from 2006 to 2009 (Dhungana 2008). The mean value of institutional ownership indicated that the bank is not highly concentrated on institutional ownership. The zero minimum value of institutional ownership indicated that some banks in the observation period have concentrated into general public ownership. The mean value of foreign ownership is 11.6 percent, indicating that Nepalese banks have concentrated institutional ownership compared to foreign ownership. There is a zero minimum value of foreign ownership. As a result of this, there are only seven foreign ownership banks operating in Nepal. The average CEO remuneration is NPR.1.82 (USD 003) million per year which ranged from a minimum NPR.1.40 (USD 0.02) million to a maximum NPR.23.30 (USD 0.33) million.

**Table 7.2: Descriptive Statistics of Governance Variables**

Variables	Observation	Mean	Median	Minimum	Maximum	Skewness	Kurtosis
BS	150	7.000	7.000	4.000	9.000	-0.310	-0.44
BI	150	0.125	0.145	0.000	0.250	-1.022	0.647
BD	150	20.413	16.000	0.000	87.000	2.185	6.398
ACS	150	3.447	3.000	0.000	6.000	-0.893	2.294
ACI	150	0.164	0.200	0.000	0.500	0.129	-1.442
ACD	150	8.487	7.500	0.000	24.000	0.545	0.119
IO	150	0.207	0.118	0.000	0.800	1.135	0.041
FO	150	0.116	0.000	0.000	0.750	1.822	2.224
CEO_R	150	1.822	7.000	1.400	23.300	1.315	2.232

BS= Board size, BI= Board independence, BD= Board diligence, ACS= Audit committee size, ACI= Audit committee independence, ACD= Audit committee diligence, IO= Institutional ownership, FO= Foreign ownership, CEO\_R= CEO remuneration

In this section, a Pearson r was calculated to determine whether a statistically significant correlation was present between macro-economic, bank specific and corporate governance variables with the NPL. Using Cohen's (1998) values, the r value was reflective of a large relationship. In the observations, the findings indicated that among the macro-economic variables, GDP growth, inflation, broad money supply growth and interbank rates have a negatively significant correlation with NPL, whereas growth of share prices index has a positive correlation with NPL. However, it is not statistically significant. The results also show that foreign exchange rate fluctuations are positively correlated with NPL but not statistically significant.

Table 7.3 shows that inflation, broad money supply growth, and growth of share prices index has only a moderately positively significant correlation with gross domestic growth. In contrast, it is found that foreign exchange and market interest rates are negatively correlated with GDP growth. However, markets interest rates are were not found to be statistically significantly correlated with GDP growth. The result shows that broad money supply growth and market interest rates are positively significantly correlated with inflation. In contrast, foreign exchange and inflation have a negative significant correlation. However, there is no significant correlation found between growth of share prices index and inflation. The result indicates the positive significant correlation of broad money supply growth with growth of share prices index, has a negative significant correlation with foreign exchange. However, the result shows no significant correlation between market interest rates and broad money supply growth. Foreign exchange is found positively significantly correlated with growth of share

prices index and market interest. The results show that market interest rate is significantly negatively correlated with growth of share prices index.

**Table 7.3: Correlation Matrix of Macro-economic Variables**

Variables	NPL	GDP_G	CPI	M2	EXCG	SPI_G
GDP_G	-0.241**					
CPI	-0.347**	0.502**				
M2	-0.181**	0.675**	0.624**			
EXCG	-0.017	-0.187**	-0.243**	-0.510**		
SPI_G	0.106	0.164**	-0.132	0.345**	0.216**	
MIR	-0.203**	-0.035	0.413**	-0.135	0.313**	-0.547**

\*\* significant at 5% level.

The correlation matrix of bank specific variables is presented in Table 7.4. The correlation matrix of bank specific (dependent and independent) variables shows that loan growth, branch growth, equity capital to total assets, total assets and revenue growth are significantly negatively correlated with NPL, whereas interest rate spread and loan loss provision are significantly positively correlated. It is found that even other variables such as earnings before interest and tax, credit deposit ratio, and bank age are negatively correlated with NPL. However, it is not statistically significant.

The results show that loan growth is significantly negatively correlated with loan loss provision, number of employee and bank age, whereas it is significantly positively correlated with branch and revenue growth. There is no significant correlation between loan growth and of the rest of the variables. It is found that branch growth is significantly negatively correlated with bank age and positively correlated with revenue growth. However, branch growth is not statistically significantly correlated with other variables except bank age and revenue growth. Earnings before interest and tax to total assets is found to be significantly negatively correlated with credit deposit ratio and revenue growth, and positively correlated with interest rate spread, total assets and bank age. However, there was no significant correlation found with equity capital to total assets and loan loss provision. Equity capital to total assets is found significantly positively correlated with credit deposit ratio and revenue growth, whereas, by contrast, it is found negatively correlated with loan loss provision, total assets and bank age. However, there is no significant relation found between equity capital to total assets, and interest rate spread. The results show loan loss provision is significantly negatively correlated with revenue growth. It is also found that total assets are significantly positively correlated with bank age, but negatively correlated with credit deposit ratio and

revenue growth. The results show that revenue growth is significantly positively correlated with credit deposit ratio, and negatively correlated with bank age.

**Table 7.4: Correlation Matrix of Bank Specific Variables**

Variables	NPL	LLP	LG	EC_TA	EBIT_TA	BG	TA	IRS	RG	CDR
LLP	0.754**									
LG	-0.229**	-0.248**								
EC_TA	-0.470**	-0.363**	0.057							
EBIT_TA	-0.177	-0.073	-0.068	-0.002						
BG	-0.176*	-0.137	0.280**	0.104	0.006					
TA	-0.139*	0.050	-0.085	-0.321**	0.352**	0.078				
IRS	0.179**	0.201**	0.090	-0.069	0.157*	0.083	0.169*			
RG	-0.351**	-0.399**	0.552**	0.385**	-0.223**	0.362**	-0.294**	0.010		
CDR	-0.027	0.096	0.082	0.485**	-0.239**	0.113	-0.344**	0.057	0.234**	
BA	-0.019	0.042	-0.219**	-0.406**	0.389**	-0.205**	0.607**	0.163*	-0.434**	-0.588**

\*\* Significant at 5% level, \* significant at 10% level.

Table 7.5 shows the correlation matrix of corporate governance variables. The results show that among governance variables, only audit committee size, institutional ownership and CEO remuneration are statistically significantly correlated with NPL, whereas institutional ownership is positively correlated, and audit committee size and CEO remuneration are negatively correlated with NPL. The rest of the governance variables have no significant correlation with NPL.

The correlation matrix among independent variables shows that board size is significantly positively correlated with audit committee size, audit committee diligence, institutional ownership, and CEO remuneration whereas it is significantly negatively correlated with board independence, audit committee independence, and foreign ownership. The results show that there is no significant correlation between board size and board diligence. The results found that there is a significantly positive correlation of board independence with audit committee size and audit committee independence, and there is a significantly positive correlation of audit committee size with audit committee diligence, foreign ownership, and CEO remuneration. Foreign ownership is also significantly negatively correlated with audit committee diligence, whereas there is no significant correlation of institutional ownership with audit committee diligence, as well as CEO remuneration. The results show that institutional ownership has no significant correlation with the other independent governance variables except board size. The correlation among governance variables is low which confirms the absence of the multicollinearity problem.

**Table 7.5: Correlation Matrix of Corporate Governance Variables**

Variables	NPL	BS	BI	BD	ACS	ACI	ACD	IO	FO
BS	-0.055								
BI	-0.125	-0.270**							
BD	0.032	-0.130	-0.053						
ACS	-0.207*	0.219**	0.241**	0.020					
ACI	-0.093	-0.167*	0.505**	0.022	0.042				
ACD	-0.100	0.320**	0.103	0.090	0.246**	0.039			
IO	0.208*	0.220**	-0.013	-0.094	0.129	-0.004	0.110		
FO	-0.062	-0.177**	0.100	-0.174*	0.209*	0.005	-0.238**	-0.137	
CEO_R	-0.312	0.215	-0.116	-0.219	0.223	-0.128	-0.145	0.145	0.044

\*\*Significant at 5% level, \*significant at 10% level.

In the above section, the descriptive and correlation results of macro-economic, bank specific and corporate governance variables are presented. The descriptive result of bank specific variables concludes that due to the bad performance of some commercial banks, the maximum value of NPL and loan loss provision is very high. Besides this, it is also concluded that due to the unstable political environment, the macro-economic indicators of the country are also not satisfactory. In the case of the corporate governance indicator, the descriptive result shows that during the observation years, the minimum value of some of the corporate governance indicators is zero. This result concludes that some of the banks are not following the practice of good corporate governance due to the transition period of corporate governance practice in country.

The above correlation results also concluded that among the macro-economic variables, gross domestic product growth, inflation, broad money supply growth and market interest rates have a significantly negative correlation with NPL of Nepalese banks, whereas exchange rates and growth of share prices index are not significantly correlated with NPL. The correlation matrix results of bank specific variables concludes that among bank specific variables used in this study, loan loss provision, loan growth, capital, branch growth, bank size, interest rate spread and revenue growth are found to be significantly correlated with bank NPL in Nepal. The rest of the variables are not significantly correlated with NPL. To examine the correlation of corporate governance variables with NPL, this section concluded that only audit committee size, institutional ownership and CEO remuneration is correlated with bank NPL in Nepal, whereas the rest of the corporate governance variables used in this study are not significantly correlated with NPL.

### **7.3 Regression Results and Discussion**

This thesis started the empirical analysis emphasizing the impact of macro-economic and bank specific determinants of NPL. This study, first checks the influence of macro-economic conditions on bank NPL. Considering that although all banks in a country face the same macro-economic conditions, generally not all of them fail. Sometimes the structural characteristics of the banking sector and of the economic environment also play a role (Demirguc-Kunt and Huizinga 1998).

Secondly, in the next step, this study also examined the relationship of bank specific variables and NPL, which is the approach also followed by Salas and Saurina (2002) and Das and Ghosh (2007) in their study. In the third stage, this study considered the impact of corporate governance variables on NPL and bank performance. Despite the problems mentioned regarding the traditional panel data estimators in a dynamic framework, this thesis presents firstly, the results from the Ordinary Least Square (OLS), then presents the results from the Random Effect (RE). The support for the RE model is obtained from the Hausman test. The Hausman test shows the Chi Square of 25.67 with the p value of 0.177 for NPL. Given this, the results and discussion are focused on the outcome provided by the RE model. The General Moment Method (GMM) is considered to account for the endogeneity and the simultaneity issue.

#### **7.3.1 Results and Discussion of Determinants of NPL**

This section first presents the OLS, RE and GMM results of macro-economic determinants of NPL in Nepalese banks. In the next stage, this section presents the results of bank specific determinants of NPL. In the third stage, the results of the combined effect of macro-economic and bank specific variables on bank NPL is presented. From the objectives of this study, this thesis also presents in this section the influence of corporate governance on bank NPL. After the presentation of results, this section also discusses and compares the results of determinants of NPL in Nepalese banking and the influence of corporate governance on bank NPL in Nepalese banking. The discussion of results is mainly based on results derived from the RE model and OLS; GMM is discussed for comparison of results with RE.

### 7.3.1.1 Results of Macro-economic Determinants of NPL

The following three separate models are estimated to examine the influence of macro-economic variables on NPL. In the first model, macro-economic variables of GDP growth, inflation, broad money supply growth, exchange rates, growth of the share prices index and market interest rates are included. In the next step, GDP growth and inflation are replaced by lag of GDP growth and inflation in model 2. The third model is expanded with lag of GDP growth and inflation. The same models are employed in OLS, RE and GMM. The first results pertaining to OLS analyses are presented below:

$$\text{NPL} = \beta_0 + \beta_1 \text{GDP\_G} + \beta_2 \text{CPI} + \beta_3 \text{M2} + \beta_4 \text{EXCG} + \beta_5 \text{SPI\_G} + \beta_6 \text{MIR} + e_{it} \quad (1)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{GDP\_G}_{t-1} + \beta_2 \text{CPI}_{t-1} + \beta_3 \text{M2} + \beta_4 \text{EXCG} + \beta_5 \text{SPI\_G} + \beta_6 \text{MIR} + e_{it} \quad (2)$$

$$\begin{aligned} \text{NPL} = \beta_0 + \beta_1 \text{GDP\_G} + \beta_2 \text{GDP\_G}_{t-1} + \beta_3 \text{CPI} + \beta_4 \text{CPI}_{t-1} + \beta_5 \text{M2} + \beta_6 \text{EXCG} + \\ \beta_7 \text{SPI\_G} + \beta_8 \text{MIR} + e_{it} \end{aligned} \quad (3)$$

Where NPL= Non-performing loan, GDP\_G= GDP growth, GDP\_Gt-1= lag GDP growth, CPI= Inflation rate, CPIt-1= lag inflation rate, M2= Broad money supply growth, EXCG= Exchange rate, SPI\_G= Share prices index - growth, MIR= Market interest rate.

The OLS result in Table 7.6 shows that among all macro-economic variables, inflation, broad money supply growth, exchange rates, growth of share prices index, and market interest rates have a significant influence on NPL. The rest of the variables have no significant influence.

**Table 7.6: OLS Results of Macro-economic Variables on NPL**

<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Gross domestic product growth	0.253 (0.43)		0.593 (0.89)
Gross domestic product growth lag		0.408 (0.57)	-0.075 (-0.08)
Inflation	-0.499 (-1.05)		-0.748* (-1.90)
Inflation lag		-0.421 (-1.23)	0.311 (0.77)
Broad money supply growth	-0.208 (-0.67)	-0.257 (-1.30)	-0.236** (-2.17)
Exchange rate	-0.328 (-0.80)	-0.257 (-0.75)	-0.442* (-1.81)
Growth of share prices index	0.077 (0.78)	0.073 (0.96)	0.105** (2.08)
Market interest rate	0.654 (0.51)	0.457 (0.48)	1.050* (1.72)
Year Dummy	Yes	Yes	Yes
Constant	0.0736 (1.18)	0.0787* (1.78)	0.0419 (0.60)
Observation	207	207	207
R square	0.1733	0.1733	0.1733
Adjusted R square	0.1311	0.1311	0.1311
F	5.0408	5.0408	5.0408

*t* statistics in parentheses = \* $p < 0.10$ , \*\*  $p < 0.05$  and \*\*\* $p < 0.01$

The coefficient estimate of GDP shows that this variable has no significant influence on NPL. The result shows that even a drop in economic activity remains the most important risk for bank NPL but, at the same time, economic activity is not able to fully explain the evolution of NPL over time. The results show the negative influence of current year GDP growth on NPL in the following year but it is statistically not significant. So, it is found that both current year GDP growth and its lag have no significant influence on NPL.

The coefficient estimate of inflation is negative and significant. This result suggests that inflation has a positive influence on bank NPL of Nepalese bank. The result indicates that an increase in inflation rates minimizes bank NPL. This study has also examined the influence of previous year inflation on bank current year NPL. The result shows the positive influence of inflation lag on bank NPL but, statistically, the result is not significant and confirms no significant relationship of inflation lag on NPL. So, only current inflation has a significant influence on bank NPL.

Broad money supply growth was found to be negatively related with NPL in model 1 and 2 but the result is not statistically significant. In model 3 when it is expanded with more variables, it was found that broad money supply growth is significant and negatively related with NPL. The result indicates that increases in broad money supply minimize the NPL. Thus, the result suggests that the high growth of the money supply leads to a reduction in the interest rate. As a result, borrowers will have cheap funds which contribute to an increase in their ability to repay their financial obligation.

Foreign exchange was found to be negatively related with NPL in model 1 and 2 but the result is not statistically significant. In model 3 when it is expanded with more variables, it was found to be significant and negatively related with NPL. The result indicates that depreciation in the domestic currency maximizes the NPL, and vice versa. The result suggests that if the domestic currency depreciates, additional currency may require purchasing the same quantity of foreign product than before. This situation demands more credit facilities from banks to support additional expenses due to foreign fluctuations and a reduction in firm profitability. If the firm expects to earn a higher expected profit than before, then they face the problem of servicing interest and principal of the debt.

Growth of the share prices index was found to be positively related with NPL in model 1 and 2 but the result is not statistically significant in model 3 when it is expanded with more variables, it is found that growth of share prices is significant and positively related with NPL. The result indicates that improvement in the stock market index maximizes the NPL. Thus, the results suggest that the growth of the share prices leads to default rates and does not support the idea that a drop in share prices might lead to more default rates via wealth effects and declines in the value of collateral.

The coefficient value of market interest rate is found to be positive in model 1 and 2 but the result is found not statistically significant. In the overall model, it is found significant and positively related with NPL. The result shows that increases in market interest rates lead to the high NPL.

In summary, the OLS result shows that among the macro-economic variables, current year inflation, broad money supply growth, exchange rate, growth of share price index and market interest rate are the main significant factors influencing the NPL. Among the significant variables, current year inflation, broad money supply, and exchange rates were

negatively related with NPL, whereas it is found growth of share prices index and market interest rates are positively related with NPL. The rest of the macro-economic variables, GDP growth and inflation with one year lag, do not have any significant influence on NPL.

In the presence of time-invariant, pooled OLS models are a weak choice compared to other models (Wooldridge 2009). This study has also tried alternative specifications for data analysis. A panel data can be analyzed in two methods: FE or RE. The Hausmann Test is usually used to select either FE or RE for the analysis of panel regression. This study ran the Hausmann test which indicated that the RE model is consistent and it should be used. So, in the second step, this study used the RE analysis which is presented in Table 7.7.

The RE result showed that among all macro-economic variables, GDP with one year lag, inflation, exchange rate and market interest rates have a significant influence on NPL, and current year GDP growth, inflation with one year lag, broad money supply growth, and growth of share prices index have no significant influence on NPL.

**Table 7.7: RE Result of Macro-economic Variables on NPL**

<b>Independent variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Gross domestic product growth	-0.3358 (-0.74)		-0.3377 (-0.74)
Gross domestic product growth lag		-0.0429 (-0.23)	-0.5652* (-1.72)
Inflation	-0.5536*** (-3.54)		-0.6565** (-2.31)
Inflation lag		-0.3906*** (-2.91)	0.0437 (0.18)
Broad money supply growth	-0.0945 (-1.27)	-0.1803** (-2.16)	-0.1101 (-1.42)
Exchange rate	-0.2192*** (-2.81)	-0.1871 (-1.56)	-0.3224** (-2.15)
Growth of share prices index	0.0426** (2.04)	0.0345 (1.16)	0.0527 (1.63)
Market interest rate	0.3645** (1.97)	0.1429 (0.74)	0.7070** (1.98)
Constant	0.0944*** (3.23)	0.0936*** (3.92)	0.1102*** (3.24)
Observation	207	207	207
Adjusted R square	0.1577	0.1507	0.1681
Chi square	29.0392	27.8290	36.8776
p value	0.0001	0.0001	0.0000

*t* statistics in parentheses = \*p<0.10, \*\* p<0.05 and \*\*\*p<0.01

The RE analysis also shows the same result as OLS in the case of inflation and its one year lag, exchange rate and market interest rates. However, the result which is different from OLS is explained as follows.

The negative coefficient estimate of current year gross domestic growth shows that NPL is lower during good economic conditions and higher during economic recessions. But the result is not statistically significant which confirms that current year GDP growth has no significant influence on NPL. The result suggests that during good economic conditions, banks may behave more risk-aversely by tightening credit policy which may not significantly impact on default rates. The coefficient estimate of GDP growth with one year lag is significant and negatively related to NPL. The results show that the current year GDP growth influences negatively in the loan quality of banks in the following year.

The negative coefficient of broad money supply growth shows that it is negatively related to NPL but the result is not statistically significant. So the result confirms that there is no significant relationship between broad money supply growth and NPL. The result departed from the suggestion that increasing the money supply decreases interest rates and increases the opportunity of the public to have cheaper funds which increases the ability of borrowers to pay back their obligations and contribute to decreasing banks' exposure to NPL.

The coefficient value of growth of share prices index is positive and statistically significant in model 1. But overall, the model does not show a significant influence of growth of share prices index on NPL. This result is also not in line with suggestions that growth of the share prices index increases the revenue of investors and increases their ability to pay debt. Due to some difficulty in FE and/or RE, if the regressors are correlated with lagged dependent variables, their coefficient may be biased. So for the robustness check, this study also performed the regression model by GMM.

The GMM results in Table 7.8 show that among all macro-economic variables only inflation with one year lag has no significant relationship with NPL which is consistent with the result from OLS and RE. However, the result which is different than OLS and RE is explained as follows. The GMM analysis only found different results to OLS and RE in the case of the current year GDP growth. The coefficient estimate of GDP growth is significant and negative at 0.001 accepted levels, which shows that GDP growth is inversely related to NPL. This

result suggests that NPL is lower during good economic conditions and higher during economic recessions.

**Table 7.8: GMM Result of Macro-economic Variables on NPL**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Non-performing loans lag	0.5220*** (46.62)	0.5289*** (108.65)	0.5142*** (27.85)
Gross domestic product growth	-0.2757*** (-8.41)		-0.3717*** (-4.43)
Gross domestic product growth lag		0.0529 (1.13)	-0.1597*** (-2.69)
Inflation	-0.4509*** (-84.45)		-0.3846*** (-4.16)
Inflation lag		-0.2130*** (-15.39)	0.0023 (0.04)
Broad money supply growth	-0.1032*** (-19.44)	-0.1600*** (-13.11)	-0.0743** (-2.25)
Exchange rate	-0.2105*** (-28.47)	-0.1493*** (-11.97)	-0.1768*** (-2.71)
Growth of share prices index	0.0402*** (16.52)	0.0305*** (7.91)	0.0320** (2.35)
Market interest rate	0.5476*** (29.11)	0.2409*** (8.32)	0.5013*** (2.66)
Constant	0.0570*** (15.57)	0.0463*** (29.45)	0.0582*** (13.61)
Observation	153	153	153
Chi square	2.291e+05	1.903e+05	2.500e+06
Sargan test	20.5137	16.9381	16.9474
p value	0.0000	0.0000	0.0000

*t* statistics in parentheses = \*p<0.10, \*\* p<0.05 and \*\*\*p<0.01

To test the hypothesis of this study on the results provided by the RE model, current GDP growth has not significant related with NPL. So the result fails to support Hypothesis 1(A) that GDP growth is negatively related to NPL. The result found that GDP growth one year lag was negatively related to NPL which this study has hypothesized. So Hypothesis 1(B) that GDP growth one year lag was negatively related to NPL is supported. The study hypothesized that inflation and its lag are positively related with NPL but the result is the opposite in the case of current inflation rate, and not significant to inflation with one year lag. So the Hypothesis 2(A) and 2(B) of this study that current inflation and inflation one year lag are positively related with NPL are not supported. Broad money supply growth is found to have an insignificant relationship with NPL. So the result fails to support Hypothesis 3 of this study that broad money supply has a negative relation with NPL. The study hypothesized that

foreign exchange is negatively related to NPL which is supported with the results of this study. Growth of share prices index was found insignificantly related to NPL. So Hypothesis 5 of this study which is that growth of share prices index is negatively related with NPL is not supported. The Hypothesis 6 is that market interest rate has a positive relationship with NPL is supported with the results. The results found a significant and positive relationship between market interest rate and NPL.

In Summary, as mention above, the result and discussion is focused on the outcome provided by the RE model. Both OLS and GMM analysis have been presented for the comparison of the result. In conclusion, the results show that among all macro-economic variables, GDP growth with one year lag, inflation, market interest rate and exchange rate have a significant influence on bank NPL in Nepal. The results found limited evidence in the case of broad money supply growth and growth of share prices index as the OLS result found these indicators a significant influence on NPL, but RE does not show a significant relationship. The other macro-economic variables, GDP growth and inflation with one year lag have no significant influence on bank NPL of Nepalese banks.

#### **7.3.1.2 Discussion of Result of Macro-economic Determinants of NPL**

The previous section described the results of macro-economic determinants of NPL derived from OLS, RE and GMM. As per the objectives of this thesis to investigate the macro-economic determinants of NPL in Nepalese banks, this section presents the discussion and analysis of the result of macro-economic determinants of NPL in Nepalese commercial banks.

**Table 7.9: Summary of Results of Macro-economic Determinants of NPL and Hypothesis Test**

Dependent variables	NPL				
Independent variables	Hypothesis number	Hypothesis sign	Actual sign of result	Statistical significance of results	Conclusion (Hypothesis)
GDP growth	1(A)	-	-	Insignificant	Not supported
GDP growth one year lag	1(B)	-	-	Significant	Supported
Inflation	2(A)	+	-	Significant	Not supported
Inflation one year lag	2(B)	+	+	Insignificant	Not supported
Broad money supply growth	3	-	-	Insignificant	Not supported
Exchange rate	5	-	-	Significant	Supported
Growth of share prices index	6	-	+	Insignificant	Not supported
Market interest rate	7	+	+	Significant	Supported

### 7.3.1.2.1 Economic Activity

This study found GDP growth has no significant influence on bank NPL in Nepal. The result is consistent with the findings of Kallirai and Scheicher (2002), Fofack (2005) and Aver (2008) who found no significant relationship of economic activity and NPL in Austria, Sub Saharan Africa and Slovenia respectively. However, this study found that current year GDP growth is negatively related with the NPL of Nepalese banks in the following year which is consistent with the findings of Salas and Saurina (2002). As good economic conditions are negatively related with bank risk and accelerate at times when economic activity slows down, the findings of this study are not in line with the claims that slower or negative growth would probably increase NPL, and financial stress (Richard 1999). The possible reason of this result in Nepalese commercial banks may be in line with the claims that during recession periods when the probability of loan loss provision and NPL increase, banks may behave more risk aversely by tightening credit conditions and only allow good borrowers to get a loan. This situation helps to keep the NPL in the current year and helps to minimize NPL in the following year. However, the result is not consistent with Salas and Saurina (2002), Jimenez and Saurina (2006), Das and Ghosh (2007) from evidence on Spain and India respectively, and also with recent studies by Daly (2010), Zribi and Boujelbene (2011), Gonsel (2012), Castro (2012) with evidence on Australia, Tunisia, North Cyprus and GIPSI (Greece, Ireland, Portugal, Spain and Italy) respectively who found a negative contemporaneous effect of GDP

growth on NPL, and infer the quick transmission of macro-economic development to the ability of economic agents to service their loans.

#### **7.3.1.2.2 Inflation**

This study found a negative relationship between current year inflation and NPL in Nepalese banks. The result is consistent with the findings of Zribi and Boujelbene (2011) and Vogiazas and Nikolaidou (2011) from evidence in Tunisia and Romania who found the negative relationship of inflation on NPL. The result is not consistent with the claim that inflation increases the interest rate which leads to an increase in the obligation of borrowers resulting in an increase in the credit risk. However, the study is not in line with the findings of Rinaldi and Sanchis-Arellano (2006) and Gonsel (2012) who found a positive relationship of inflation and NPL. The possible reason of the finding of this study of Nepalese banks is that if the bank is able to anticipate inflation pressures and if the growth rate of inflation is lower than operating expenses of the bank, there may be a positive impact of inflation on bank efficiency (Revell 1979).

#### **7.3.1.2.3 Broad Money Supply Growth**

Broad money supply growth is found to be an insignificant determinant of NPL in Nepalese banks. It is theorized that money supply growth in the country decreases the interest rate and the public can get cheaper funds which help them service their debt. However, the results of this study are not consistent with this theory. The results of this study are consistent with Fofack (2005) who did not find any significant influence of money supply growth on NPL in Sub Saharan Africa, which is a similar developing economy as Nepal. The result is also consistent with Bofondi and Ropele (2011) who did not find any influence of money supply growth on NPL in the context of Italy. However, the economy of Italy is different to that of Nepal. The possible reason of these findings in context of Nepalese banks may be that money supply decreases the interest rate which leads to higher credit demand in the market. This situation stimulates the bank to compromise in credit assessment and to start lending to the low quality borrowers without investigating their current debt status or credit rating and debt repayment ability. So this situation may not lead to minimization of NPL of banks.

#### **7.3.1.2.4 Exchange Rate**

This study found the results in line with the statements that depreciation of the domestic currency increases the price of imported products which creates the problem to acquire more

credit to pay for the same unit of product which further creates a burden for the borrower to pay additional principal and interest. The study is consistent with the previous research conducted by Castro (2012), Zribi and Boujelbene (2011) and Gonsel (2012) who found the negative impact of depreciation of domestic currency on NPL. However, this study found conflicting results with Aver (2008) who found no influence of foreign exchange fluctuations on NPL. This can be attributed to the differences between developed and a less developed country in terms of financial sector structure and deepening. Nepal has faced a trading deficit from 2001. So the next possible reasons for the results may be that in Nepalese banks, is that depreciation of the domestic currency can be supposed to harm banks because their foreign exchange liabilities are significantly higher than assets denominated in foreign currencies.

#### **7.3.1.2.5 Share Prices Index**

This study found that growth of the share prices index is not a significant determinant of NPL in Nepalese banks. The results of this study are consistent with the findings of Bofondi and Ropele (2011) who found that share prices have no significant impact on the loan quality. Similarly, the results are similar the findings of Beck, Jakubik et al. (2013) who found that decline of the stock market can negatively affect bank asset quality, in particular in countries with large stock markets relative to GDP, but it is not the case for those countries where the capital market is small which also applies in Nepal that the Nepalese capital market is still in developing stages and small. The results of this study are not consistent with several studies Castro (2012) and Kalirai and Scheicher (2002), who found that a drop in share prices might lead to more defaults. So the findings of this study do not support the claim that increases in share prices reflect an improvement in the financial condition and contribute to a reduction of the rate of NPL.

#### **7.3.1.2.6 Market Interest Rate**

As with the previous research, this study found that market interest rates are positively related with bank NPL in Nepalese. Information asymmetry theory suggests that higher interest rates motivate the banks to invest in adverse projects which create the credit risk in banks. In line with this theory, the result of this study supports the claim that the market interest rate drives the interest rate of banks and, as a result, banks tend to be less restricted in their credit standards and face adverse selection which leads high NPL. The study found the results in line with Jimenez and Saurina (2006), Aver (2008), Nkusu (2011), Castro (2012) and Beck,

Jakubik et al. (2013) who found that interest rates charged by banks is positively related with bank NPL.

The above section elaborated the discussion of the results of macro-economic determinants of NPL of Nepalese banks. The discussion concludes that among the macro-economic variables used in the study, only GDP growth with one year lag, current inflation, foreign exchange fluctuations and market interest rates have a significant influence on NPL of the Nepalese banking industry which is in line with previous research. However, current year GDP growth, inflation with one year lag, broad money supply growth and growth of share prices index did not show any significant influence on NPL which is also supported by previous research.

### 7.3.1.3 Result of Bank Specific Determinants of NPL

As with the approach adopted by previous researchers Salas and Saurina (2002) and Das and Ghosh (2007), this thesis has estimated three separate models to examine the influence of bank specific variables on NPL. NPL with one year lag is included in all models. Besides this, in model one, this study has included loan growth, branch growth, loan loss provision and total assets. The second model included earnings before interest and tax to total assets, equity capital to total assets, and interest rate spread. In addition to this, the second model also included some control variables such as revenue growth, credit deposit ratio and bank age. In the third and overall model, all bank specific variables have been included along with control variables. The same models are employed in OLS, RE and GMM. The first results pertaining to OLS analyses are presented below.

$$\text{NPL} = \beta_0 + \beta_1 \text{NPL}_{t-1} + \beta_2 \text{LG} + \beta_3 \text{BG} + \beta_4 \text{LLP} + \beta_5 \text{TA} + e_{it} \dots \dots \dots (1)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{NPL}_{t-1} + \beta_2 \text{EBIT} + \beta_3 \text{ECTA} + \beta_4 \text{IRS} + \beta_5 \text{RG} + \beta_6 \text{CDR} + \beta_7 \text{BA} + e_{it} \dots (2)$$

$$\begin{aligned} \text{NPL} &= \beta_0 + \beta_1 \text{NPL}_{t-1} + \beta_2 \text{LG} + \beta_3 \text{BG} + \beta_4 \text{LLP} + \beta_5 \text{TA} + \beta_6 \text{EBIT} + \beta_7 \text{ECTA} + \beta_8 \text{IRS} \\ &+ \beta_9 \text{RG} + \beta_{10} \text{CDR} + \beta_{11} \text{BA} + e_{it} \dots \dots \dots (3) \end{aligned}$$

Where NPL= Non-performing loan, NPL<sub>t-1</sub>= Lag non-performing loan, LLP= Loan loss provision, LG= Loan growth, ECTA= Equity capital to total assets, EBIT = Earnings before interest & tax to total assets, BG= Branch growth, TA= Total assets in NPR, IRS= Interest rate spread, RG= Revenue growth, CDR= Credit deposit ratio, BA= Bank age,

The OLS result in Table 7.10 shows that among all bank specific variables, NPL lag, loan growth, loan loss provision, earnings and interest rate spread have a significant influence on NPL, and the other variables have no significant influence.

**Table 7.10: OLS Result of Bank Specific Variables on NPL**

<b>Independent variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Non-performing loans lag	0.4518*** (4.92)	0.6194*** (10.45)	0.4477*** (5.69)
Loan Growth	-0.0162 (-1.59)		-0.0160* (-1.75)
Branch Growth	-0.001 (-0.28)		-0.003 (-1.24)
Loan loss provision	0.3543*** (3.16)		0.3000*** (2.81)
Bank size	-0.0075* (-1.82)		-0.0071 (-1.61)
Earnings		-0.6281*** (-2.85)	-0.4542*** (-2.76)
Capital		-0.1291* (-1.78)	-0.0555 (-0.97)
Interest rate spread		0.4223* (1.87)	0.4194* (1.79)
Revenue growth		-0.0241* (-1.78)	0.003 (0.21)
Credit deposit ratio		0.0203 (1.45)	-0.0168 (-1.04)
Bank age		-0.0002 (-0.56)	-0.0001 (-0.39)
Year dummies	Yes	Yes	Yes
Constant	0.1018*** (2.72)	0.036 (1.32)	0.1095** (2.17)
Observation	175	177	168
R square	0.7957	0.8083	0.8774
Adjusted R square	0.7764	0.7878	0.8597
F statistics	27.7705	17.1742	38.5975

*t* statistics in parentheses = \*p<0.10, \*\* p<0.05 and \*\*\*p<0.01

As expected, NPL one year lag is significant with a positive coefficient value. The result suggests that the NPL of the current period is closely related to that of the previous period. The result shows that loan growth is significant and negatively related to NPL but has a weak relationship with other significant variables. The result explains that an increase in loan growth contributes to minimize NPL. A possible reason for loan growth which is negatively related to the NPL is that when the banks increase their lending as a result of high demand for credit, they tighten their credit standards and keep loans under control, which reduces the possibility of the banks' exposure to an adverse selection problem, hence reducing the banks' NPL.

The negative coefficient estimate of branch growth shows the negative relationship between branch growth and NPL, but the result is not statistically significant. The result indicates the branch expansion policy followed by banks in Nepal has no significant influence on bank NPL. The results suggest that the more aggressive growth policy of banks affects the level of problem loans but not in the current year but may impact with the passage of time.

The results show the coefficient estimate of loan loss provision is significant and positively related with NPL. The result explains why an increase in loan loss provision levels is an indication of deterioration of loan quality and potentially increases in NPL. Thus, a positive relation suggests that a higher loan loss provision indicates potentially higher NPL because banks which assume high default rates in their loan portfolios allocate large provisions for loan losses.

The coefficient estimate of bank size which is measured by total assets is significant and negative in model 1 but, overall in the model, it is positive but not statistically significant. The result shows that size has no significant relationship with NPL. The result does not support the idea that the large banks with large resources have more risk heading tools and have more ability to diversify their loans in more profitable sectors.

The results found earnings which are measured by 'before interest and tax to total assets' is significant and negatively related with NPL. The result explains that increases in the earnings of banks contribute to minimize the NPL. The result suggests that a decrease in earnings can prompt banks to adopt 'gamble for resurrection' strategies, resulting in the creation of loan portfolios with a higher probability of default in the future.

The coefficient estimate of capital is significant and negative and significant only in model 2 but, overall in the models, it is not statistically significant. The result explains why capital has no significant influence on bank NPL. The result is not in line with the statement that banks which assume more risks increase their capital. A possible reason for capital which has not a significant relationship with NPL is that sometimes the bank reaction to capital increase depends on the initial capital base. Another reason may be that well capitalized banks tend to maintain existing levels of capital, and poorly capitalized banks react either by increasing capital or reducing risk in order to build capital reserves.

The result show that coefficient estimate of interest rate spread is strongly significant and positively related with NPL in all models. The result shows that increases in interest rate

spread leads to higher NPL. Thus study suggests that high interest rate spread as result of high intermediation costs leads the borrower to be unable to repay their loan owing to the cost of such borrowing. This leads to high risk of loan default.

The study also used a control variable in the analysis. The OLS result shows that revenue growth contributes to minimize NPL in the second model but, overall in the model, revenue growth has no significant relationship with NPL. Similarly, other control variables of credit deposit ratio and bank age is negatively related to NPL but the result is not statistically significant. So, credit deposit ratio and bank age have also no significant relationship with NPL.

The RE result in Table 7.11 shows that among all bank specific variables NPL lag, loan growth, loan loss provision, bank size measured by total assets, earnings before interest and tax to total assets, have a significant influence on NPL; the other variables have no significant influence. The RE analysis also shows the same result as OLS in the case of NPL lag, loan growth, branch growth, loan loss provision, earnings before interest and tax to total assets, and capital. Interest rate spread is found strongly positively related with NPL which is the same as the OLS result but statistically not significant.

In the case of control variables, the RE result found that revenue growth is significant and negatively related with NPL in model 2 but in the overall model, it is not significantly related. Credit deposit ratio is found significantly negatively related with NPL which shows that higher credit provided by banks helps to minimize NPL. Bank age is found insignificant in all models and confirms that bank age has no impact on NPL of bank.

**Table 7.11: RE Result of Bank Specific Variables on NPL**

<b>Independent variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Non-performing loans lag	0.4914 <sup>***</sup> (4.61)	0.6266 <sup>***</sup> (11.94)	0.4575 <sup>***</sup> (3.98)
Loan growth	-0.0258 <sup>*</sup> (-1.72)		-0.0201 <sup>*</sup> (-1.91)
Branch growth	-0.0039 (-1.09)		-0.0032 (-1.26)
Loan loss provision	0.3009 <sup>**</sup> (2.33)		0.2738 <sup>*</sup> (1.89)
Bank size	-0.0130 <sup>**</sup> (-2.17)		-0.0079 <sup>**</sup> (-2.07)
Earnings		-0.6601 <sup>**</sup> (-2.35)	-0.4879 <sup>**</sup> (-2.00)
Capital		-0.1187 (-1.56)	-0.0478 (-0.83)
Interest rate spread		0.4886 (1.61)	0.4688 (1.49)
Revenue growth		-0.0295 <sup>**</sup> (-2.12)	-0.0013 (-0.07)
Credit deposit ratio		0.0090 (0.55)	-0.0223 <sup>**</sup> (-2.06)
Bank age		-0.0004 (-0.65)	-0.0003 (-0.59)
Constant	0.1359 <sup>**</sup> (2.22)	0.0194 (1.08)	0.1031 <sup>**</sup> (2.27)
Observation	175	177	168
Adjusted R square	0.7641	0.7935	0.8651
Chi square	510.10	2978.79	22517.55
p value	0.0000	0.0000	0.0000

*t* statistics in parentheses = \*p<0.10, \*\* p<0.05 and \*\*\*p<0.01

The GMM result in Table 7.12 shows that among all bank specific variables NPL lag, loan growth, loan loss provision, bank size, earnings, and capital have a significant influence on NPL. The other variables have no significant influence. The result is different to OLS and RE in the case of branch growth. The result found a positive direction of branch growth to NPL. The result explains that branch growth is positively related with NPL but the result is not statistically significant. Interest rate spread is found significantly positively related with NPL in model 2 but, in the overall model, shows that there is no significant relationship between interest rate spread and NPL.

In the case of control variables, the GMM result shows that revenue growth and credit deposit ratio have a significant relation with NPL in model 2 but, in the overall model, it is not statistically significant. So, the result indicates that revenue growth and credit deposit ratio have no significant influence on bank NPL. The result found a significant and positive relationship between bank age and NPL.

**Table 7.12: GMM Result of Bank Specific Variables on NPL**

Non-performing loans lag	0.3343*** (164.71)	0.4622*** (53.88)	0.4155*** (17.14)
Loan growth	-0.0267*** (-80.50)		-0.0104** (-2.09)
Branch growth	0.0000 (0.04)		0.0013 (1.02)
Loan loss provision	0.4037*** (211.03)		0.2533*** (8.74)
Bank size	-0.0173*** (-35.08)		-0.0163*** (-3.08)
Earnings		-1.0204*** (-99.22)	-0.6784*** (-14.05)
Capital		-0.2854*** (-30.54)	-0.1472*** (-4.39)
Interest rate spread		0.3280*** (6.10)	0.0212 (0.22)
Revenue growth		-0.0260*** (-12.12)	-0.0105 (-1.59)
Credit deposit ratio		0.0164*** (2.92)	0.0019 (0.25)
Bank age		-0.0002 (-0.85)	0.0028* (1.75)
Constant	0.1774*** (38.87)	0.0433*** (7.31)	0.1610*** (4.45)
Observation	137	147	136
Chi square	3.663e+08	3.622e+06	7.828e+06
Sargan	18.9961	17.3457	10.2401
p value	0.0000	0.0000	0.0000

*t* statistics in parentheses = \*p<0.10, \*\* p<0.05 and \*\*\*p<0.01

RE result showed that lag of NPL and loan loss provision are positively related with NPL. So the Hypotheses 7 and 8 that lag of NPL and loan loss provision have a positive relation with NPL of banks is supported in Nepal. This study found that loan growth is negatively related with NPL. So, the result failed to support Hypothesis 9 that loan growth is positively related with NPL. Hypothesis 10 of this study that capital is negatively related to NPL is not supported as the result shows no significant relationship between capital and NPL. This study hypothesized that earnings have a negative relationship with NPL which is supported as the result found a significant relationship between earnings before interest and tax to total assets and NPL. The results found branch growth has no significant relationship with NPL. So, Hypothesis 11 that branch growth is negatively related with NPL is not supported. The size of bank is found negatively related to NPL which this study has hypothesized. So Hypothesis 12 that size contributes to minimize NPL is accepted. The study hypothesized that interest rate spread was positively related with NPL which is not supported with the results of this study. The study found an insignificant relationship between interest rate spread and NPL.

In conclusion, the results from OLS, RE and GMM show that among all bank specific variables, NPL lag, loan loss provision, earnings and interest rate spread are the strongest variables which influence the NPL, whereas loan growth and capital have found a very weak significant relationship with NPL. The results show that branch growth has no significant influence on NPL. However, the study summarized the result on the basis of results provided by the RE model and confirm that, among bank specific variables, NPL lag, loan loss provision, loan growth, earnings and bank size have a significant influence on bank NPL in the case of Nepal. Whereas NPL lag and loan loss provision are positively related with NPL and loan growth, size and earnings are found to be negatively related with NPL. The other variables, branch growth, capital and interest rate spread rate have no significant indicator which impacts on NPL in the case of Nepal.

#### 7.3.1.4 Discussion of Result of Bank Specific Determinants of NPL

The previous section described the results of macro-economic determinants of NPL derived from OLS, RE and GMM. As per the second objectives of this thesis to investigate the bank specific determinants of NPL in Nepalese banks, this section presents the discussion and analysis of results of bank specific determinants of NPL in Nepalese commercial banks.

**Table 7.13: Summary of Results and Hypothesis Test**

Dependent Variables		NPL			
Independent Variables	Hypothesis Number	Expected sign	Actual sign of result	Statistical significance of results	Conclusion (Hypothesis)
NPL one year lag	7	+	+	Significant	Supported
Loan loss provision	8	+	+	Significant	Supported
Loan growth	9	+	-	Significant	Not supported
Capital	10	-	-	Insignificant	Not supported
Earnings	11	-	-	Significant	Supported
Branch growth	12	-	-	Insignificant	Not supported
Bank size	13	-	-	Significant	Supported
Interest rate spread	14	+	+	Insignificant	Not supported
<b>Control Variables</b>					
Revenue growth			-	Insignificant	
Credit deposit ratio			-	Significant	
Bank age			-	Insignificant	

#### **7.3.1.4.1 NPL One Year Lag**

The results of this thesis are consistent with the findings of Salas and Saurina (2002), Das and Ghosh (2007) Thiagarajan (2013) from evidence on Spain, India and Belize respectively. The result is in line with the claim of Campbell (2007) that a high proportion of NPL reflects a decrease in the quality of loans which finally increase bank exposure to NPL. So this study also supports the argument that previous year NPL can positively influence the current NPL levels because the problem loans of one year are not completely written off and have a carryover effect.

#### **7.3.1.4.2 Loan Loss Provision**

Loan loss provision is found positively related to bank NPL in the context of Nepal as with other countries. The results of this study show that the banks increase or decrease their provision in response to NPL. The higher loan loss provision signals potentially a higher NPL on banks and they need to make greater provision against potentially greater NPL. The result is consistent with previous research by Fisher, Gueyie and Ortiz (2002), Ahmad (2007) and Bikker and Matzemakers (2004). However, in countries where risk control is more effective and considered as an essential component of the bank strategy, they have other means such as credit derivate markets to hedge future exposure of credit risk along with loan loss provision. In the context of developing economies like Nepal, loan loss provisions are most often a tool to hedge future exposure to NPL.

#### **7.3.1.4.3 Loan Growth**

This study found that loan growth is negatively related to bank NPL in context of Nepal. The results of this study are consistent with Vogiazas and Nikolaidou (2011) who found credit growth is negatively related with credit risk in Bulgaria. This result also is in line with 'loan seasoning' hypothesis that borrowers do not immediately default after they have received a bank loan (Berger and Udell 2004). This hypothesis suggests that loans materialize into NPL with a lag of several years. Previous research by Salas and Saurina (2002), Jimenez and Saurina (2006) and Das and Ghosh (2007) found their results as the hypothesis suggested. The results of this study suggest that in some situations such as a high demand of loans, loan growth, other than a shift in supply, may not lead to higher loan losses. If there is not any relation between credit demand and the borrower's underlying credit worthiness then the rapid loan growth may not transform into loan losses. Next, if in the market there is a possibility of an increase in return on investment that may boost the demand for credit which

increases the capacity of borrowers to repay their loan. So, in the above situation, loan growth may not result in loan losses. Possible reasons for this result may be that the loan losses of banks in Nepalese context are masked by ever greening of loans (IMF 2010).

#### **7.3.1.4.4 Capital**

The findings of this study do not show that capital is a significant determinant of bank NPL in Nepal. The results of this study are different to the moral hazard hypothesis that under capitalized banks respond to moral hazard incentives by increasing the riskiness of their loan portfolios, which in turn results in higher NPL in the future. The result is consistent with the findings of Aggrawal and Jacques (2001) that bank loan portfolios is influenced by bank capital levels; the study does suggest that prompt corrective action has been effective in getting banks simultaneously to increase their capital ratios and reduce their level of portfolio risk. This result is not consistent with findings of Berger and DeYoung (1997) and Salas and Saurina (2002) who claim that excess loan rates were prominent among banks that had relatively low equity to assets ratio. This finding is consistent with claims that banks that take more risk may not necessarily hold more capital if they believe all depositors are insured or if they underestimate the adverse systemic implication of bank failure. Possible reasons for this result may be in context of Nepal that banks tend to increase their capital ratio, as it approaches the minimum regulatory level, rather than to absorb the shock. Adjustments by banks in their capital ratios are affected primarily by boosting their capital rather than through systematic substitution away from high risk loans. Capitalized and undercapitalized banks increase their capital ratios and the rate at which they adjusted are the same in response to the prompt corrective action.

#### **7.3.1.4.5 Earnings**

As suggested by theory, this study found a negative relationship between bank earnings and NPL in context of Nepal. The findings are in line with the argument of De Young (1997) and Kwan and Eisenbis (1997) that efficient banks are better at managing their NPL and higher levels of bank inefficiency can lead to an increase in problem loan ratios of banks. The finding of this study is also consistent with Salas and Saurina (2007) and Das and Ghosh (2007) with evidence in Spain and India. Banks try to improve their efficiency by increasing revenue which mainly comes from interest on loans. In the same way, the bank manages its operating cost such as interest expenses and other overhead expenses. This process increases the earnings of banks which boost up their capital which contributes to absorbing the risk in

the loan portfolio. A decrease in bank earnings stimulates banks to follow high lending strategies which invite the moral hazard problem. This situation leads to creation of loan portfolios with higher probability of default with the passage of time. So, a higher profitability has less incentive to generate income and, therefore, banks are less constrained to engage in risk activities such as granting risky loans. Instead, inefficient banks are obliged to grant credit considered risky and subsequently achieve high levels of impaired loans.

#### **7.3.1.4.6 Branch Growth**

This study is unable to find that branch growth is a significant determinant of bank NPL in Nepal. The result of this study is in line with the findings of Thiagarajan, Auapana et al. (2011) and Dash and Ghosh (2007) who found branch growth or its lag has no influence on NPL in the Indian commercial banking sector. Similarly, the previous researchers argue in two ways, firstly, the argument which is in favor of bank branching networks leading to a more stable banking system by helping banks to diversify their assets and broaden their deposit base whereas, by contrast, bank branch expansion into a new area can have an influence on the problem loans due to lack of familiarity with the customer base in the new locality. If the increase in loans is made in a traditional geographical market in which the managers of banks are well known, the impact of problem loans can be kept under control. However, if the bank enters into a new geographical market with opening new branches, adverse selection could be important. The possible reason of the result of this study may be that in Nepalese banks, the banking business is mainly concentrated in the capital city where the banks are permitted to open branches on the condition by firstly opening two branches outside of the capital. So, the objective of branch networking is different in context of Nepal which does not seem to relate with maximization of performance.

#### **7.3.1.4.7 Bank Size**

The results of this study support the previous findings about the positive relationship between bank size and risk which means that the large banks are safer than smaller banks. The result is consistent with the claim that the big banks have large resources to evaluate their loans which improves the quality of loans, and greater opportunities for portfolio diversification more than smaller banks. However, this study does not support the claim that large banks are not safer than small banks as they follow the policy of diversification advantage by lending in risky assets. This result is in line with previous findings of Salas and Saurina (2002), Das and Ghosh (2007) and Altunbas et al (2007).

#### **7.3.1.4.8 Interest Rate Spread**

The results do not support the argument that high interest rate spread increases the intermediation cost which transfers to the borrower and, as a result, they face problems to service interest and principal of loans. The result is in line with Dash and Ghosh (2007) who found that net interest income has no relationship with NPL in Indian state owned banks. The possible reason for the findings of this study may be that it helps the bank to maintain loan quality, since the cost of loans influences the performance of a loan, if banks assess their clients carefully and follow the policy of regular monitoring of their borrowers and charge interest rates accordingly. Most often, only ineffective interest rate policies and ineffective credit risk assessment influence the NPL rather than high interest rate spread.

#### **7.3.1.4.9 Other Control Variables**

The revenue growth of Nepalese banks was not found as a significant factor to help minimize NPL in banks. Revenue which comes primarily from loans, investment, and service fees measures the bank efficiency, and indicates how well management and staff have been able to keep the growth of this revenue continue. It is expected that revenue growth indicates the bank efficiency in lending which minimizes the ratio of NPL. The results of this thesis are not in line with the statement that revenue growth contributes to minimize NPL.

This study found a negative relationship between credit to deposit ratio and bank NPL in Nepal. The loan to deposit ratio predicts that the bigger the loan portfolio relative to deposit size the higher should be the probability of default. The result is not consistent with this claim and supports the idea that if the bank is following good credit assessment and management processes and lending on good projects, then the high credit deposit ratio helps the bank to increase its efficiency. The result is consistent with the findings of Ahamd and Ariff (2007) who found higher credit deposit ratios minimize the level of credit risk evidence as found in Mexico and India.

Bank age was argued by previous researchers as the influencing factor on NPL. However, this study failed to find a significant relationship of bank age and bank NPL in Nepal. One stream of research suggests that older firms can enjoy learning advantages and which leads to superior performance due to their more experience, abilities and skills (Majumdar 1997). Another stream of research argues that due to bureaucratic ossification, older firms are inert, without any flexibility to adapt to new situations and, therefore, are likely to be outperformed by younger, more flexible firms. Besides the above, as firms get older, they benefit from

dynamic economies of scale and from having good reputations that allowed them to earn a higher margin. On the other hand, older firms present difficulty in adapting to changes which lead to lower performance (Glancey 1998). The results of this study are not in line with claims that older firms have better performance than newer firms. This is consistent with findings which show bank age has no significant relation with minimization of NPL in Malaysia and Singapore (Karim, Chan et al. 2010). One possible reason of this finding in context of Nepal is that success induces firms to codify their approach through organization and processes, a regulation that can become blocked over time. This behavior seems increasingly to entangle firms in structural and process-related rigidities that are difficult to discard (Leonard-Barton 1992). Another possible reason for the result may be that after the bank reaches some age, the incremental effect of experience will be non-significant.

In conclusion, the above section elaborated the discussion of the results of bank specific determinants of NPL in the Nepalese banking sector. The discussion shows that among the bank specific variables used in the study, loan growth, earnings and size of bank influence positively to minimize NPL in context of Nepal, whereas NPL lag and loan loss provision are found negatively to influence a deterioration of loan quality. Other bank specific variables have not shown any significant influence to NPL. The findings of this study are supported by previous researchers in both similar, as well as in different economies.

#### **7.3.1.5 Regression Results of Combined Macro-economic and Bank Specific Determinants of NPL**

Using the approach adopted by previous researchers Salas and Saurina (2002) and Das and Ghosh (2007), this thesis has estimated three separate models to examine the combined macro-economic and bank specific determinants of NPL. NPL with a one year lag is included in all models where in model one, this thesis has included loan growth, branch growth, loan loss provision and total assets as bank specific variables. The same model also included GDP current year growth, GDP growth with one year lag, current inflation rate, inflation rate with one year lag, broad money supply growth, exchange rate, growth of share price index, and market interest rate as macro-economic variables. The second model included earnings before interest and tax, capital, interest rate spread, revenue growth, credit deposit growth, bank age as bank specific variables. All macro-economic variables included in the first model have been also included in this model. The third model included all macro-economic and bank

specific variables along with control variables. The same models are employed in OLS, RE and GMM. The results pertaining to OLS analyses are firstly, presented below.

$$\text{NPL} = \beta_0 + \beta_1 \text{NPL}_{t-1} + \beta_2 \text{LG} + \beta_3 \text{BG} + \beta_4 \text{LLP} + \beta_5 \text{TA} + \beta_6 \text{GDP\_G} + \beta_7 \text{GDP\_G}_{t-1} + \beta_8 \text{CPI} + \beta_9 \text{CPI}_{t-1} + \beta_{10} \text{M2} + \beta_{11} \text{EXCG} + \beta_{12} \text{SPI\_G} + \beta_{13} \text{MIR} + e_{it} \dots\dots\dots(1)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{NPL}_{t-1} + \beta_2 \text{EBIT} + \beta_3 \text{ECTA} + \beta_4 \text{IRS} + \beta_5 \text{RG} + \beta_6 \text{CDR} + \beta_7 \text{BA} + \beta_8 \text{GDP\_G} + \beta_9 \text{GDP\_G}_{t-1} + \beta_{10} \text{CPI} + \beta_{11} \text{CPI}_{t-1} + \beta_{12} \text{M2} + \beta_{13} \text{EXCG} + \beta_{14} \text{SPI\_G} + \beta_{15} \text{MIR} + e_{it} \dots\dots(2)$$

$$\text{NPL} = \beta_0 + \beta_1 \text{NPL}_{t-1} + \beta_2 \text{LG} + \beta_3 \text{BG} + \beta_4 \text{LLP} + \beta_5 \text{TA} + \beta_6 \text{EBIT} + \beta_7 \text{ECTA} + \beta_8 \text{IRS} + \beta_9 \text{RG} + \beta_{10} \text{CDR} + \beta_{11} \text{BA} + \beta_{12} \text{GDP\_G} + \beta_{13} \text{GDP\_G}_{t-1} + \beta_{14} \text{CPI} + \beta_{15} \text{CPI}_{t-1} + \beta_{16} \text{M2} + \beta_{17} \text{EXCG} + \beta_{18} \text{SPI\_G} + \beta_{19} \text{MIR} + e_{it} \dots\dots\dots(3)$$

Where NPL= Non-performing loan, NPL<sub>t-1</sub>= Lag non-performing loan, LLP= Loan loss provision, LG= Loan growth, ECTA= Equity capital to total assets, EBIT = Earnings before interest & tax to total assets, BG= Branch growth, TA= Total assets in NPR, IRS= Interest rate spread, RG= Revenue growth, CDR= Credit deposit ratio, BA= Bank age, GDP\_G= GDP growth, GDP\_G<sub>t-1</sub>= lag GDP growth, CPI= Inflation rate, CPI<sub>t-1</sub>= lag inflation rate, M2= Broad money supply growth, EXCG= Exchange rate, SPI\_G= Share prices index - growth, MIR= Market interest rate.

The OLS results are presented in Table 7.14. The results show the same as the previous result; non-performing loans one year lag, loan growth, loan loss provision, earnings and interest rate spread have a significant determinant on NPL in Nepalese banks. The OLS results show that among significant bank specific variables, non-performing loans with one year lag, loan loss provision and interest rate spread are positively related with NPL of Nepalese banks, whereas loan growth and earnings are negatively related with NPL. The other bank specific variables branch growth, bank size, capital, revenue growth, credit deposit ratio and bank age have no significant influence on bank NPL in the Nepalese context.

The OLS results show that all bank specific variables along with macro-economic variables, only market interest rate has a significant positive influence on bank NPL in context of Nepal. The other macro-economic variables GDP growth, GDP growth with one year lag, inflation, inflation with one year lag, broad money supply, exchange rate and growth of share prices index do not have a significant influence on NPL.

**Table 7.14: OLS Result of Combined Macro-economic and Bank Specific Variables on NPL**

	Model 1	Model 2	Model 3
Non-performing loans lag	0.4518*** (4.92)	0.6194*** (10.45)	0.4477*** (5.69)
Loan growth	-0.0162 (-1.59)		-0.0160* (-1.75)
Branch growth	-0.001 (-0.28)		-0.003 (-1.24)
Loan loss provision	0.3543*** (3.16)		0.3000*** (2.81)
Bank size	-0.0075* (-1.82)		-0.0071 (-1.61)
Earnings		-0.6281*** (-2.85)	-0.4542*** (-2.76)
Capital		-0.1291* (-1.78)	-0.0555 (-0.97)
Interest rate spread		0.4223* (1.87)	0.4194* (1.79)
Revenue growth		-0.0241* (-1.78)	0.003 (0.21)
Credit deposit ratio		0.0203 (1.45)	-0.0168 (-1.04)
Bank age		-0.0002 (-0.56)	-0.0001 (-0.39)
Gross domestic product growth	0.3477 (0.92)	0.4719 (0.78)	0.4489 (0.81)
Gross domestic product growth lag	0.2131 (0.67)	0.3825 (0.85)	0.2574 (0.75)
Inflation	-0.4061** (-2.23)	-0.3617 (-1.18)	-0.3758 (-1.43)
Inflation lag	0.2724 (1.65)	0.1509 (0.70)	0.2918 (1.58)
Broad money supply growth	-0.1223** (-2.50)	-0.0658 (-0.85)	-0.0969 (-1.47)
Exchange rate	-0.2309** (-2.56)	-0.1177 (-0.78)	-0.195 (-1.61)
Growth of share prices index	0.0498** (2.48)	0.0368 (1.03)	0.048 (1.57)
Market interest rate	0.7630*** (2.83)	0.599 (1.21)	0.7536* (1.75)
Year Dummy	Yes	Yes	Yes
Constant	0.0501 (1.08)	-0.0261 (-0.61)	0.0471 (0.96)
Observation	175	177	168
R square	0.7957	0.8083	0.8774
Adjusted R square	0.7764	0.7878	0.8597
F statistics	27.7705	17.1742	38.5975

*t* statistics in parenthesis= p<0.10\*, p<0.05 and \*\*\* p<0.01

The RE results in Table 7.15 show a different result than that of OLS in the case of loan growth and interest rate spread. From the RE result, these two variables have no significant influence on NPL in context of Nepalese banks. The RE result also found the same result as OLS in that non-performing loans with one year lag, loan loss provision and earnings have a significant influence on bank NPL. RE also found that among macro-economic variables only

market interest rate has a significant positive relation with NPL in Nepalese banks. This is the same as the OLS result; other macro-economic variables have no significant influence on bank NPL in context of Nepal.

**Table 7.15: RE Result of Combined Macro-economic and Bank Specific Variables on NPL**

	Model 1	Model 2	Model 3
Non-performing loans lag	0.4647*** (4.57)	0.6226*** (11.96)	0.4509*** (3.77)
Loan growth	-0.0160 (-1.36)		-0.0150 (-1.44)
Branch growth	0.0004 (0.12)		-0.0024 (-0.84)
Loan loss provision	0.3494** (2.50)		0.2993** (2.06)
Bank size	-0.0073 (-1.52)		-0.0074 (-1.61)
Earnings		-0.6051** (-2.06)	-0.4288* (-1.68)
Capital		-0.1421* (-1.80)	-0.0732 (-1.19)
Interest rate spread		0.4338 (1.42)	0.4541 (1.57)
Revenue growth		-0.0229* (-1.75)	0.0026 (0.16)
Credit deposit ratio		0.0190 (1.23)	-0.0187 (-1.56)
Bank age		-0.0002 (-0.55)	-0.0002 (-0.47)
Gross domestic product growth	-0.3211 (-0.70)	-0.0094 (-0.02)	-0.0606 (-0.19)
Gross domestic product growth lag	-0.1679 (-0.87)	0.0285 (0.12)	-0.1899 (-1.30)
Inflation	-0.4216* (-1.90)	-0.3082 (-1.01)	-0.3126 (-1.35)
Inflation lag	0.1523 (0.73)	0.0399 (0.16)	0.1671 (0.93)
Broad money supply growth	-0.0573 (-1.28)	-0.0126 (-0.23)	-0.0379 (-0.87)
Exchange rate	-0.2020** (-2.13)	-0.0720 (-0.54)	-0.1438 (-1.62)
Growth of share prices index	0.0236* (1.66)	0.0129 (0.50)	0.0207 (1.22)
Market interest rate	0.6463** (2.47)	0.4414 (1.05)	0.5822* (1.86)
Constant	0.0992* (1.71)	0.0149 (0.64)	0.0962* (1.89)
Observation	175	177	168
Adjusted R square	0.7932	0.8067	0.8752
Chi square	5556.9705	34320.9586	46312.4137
p value	0.0000	0.0000	0.0000

*t* statistics in parenthesis= p<0.10\*, p<0.05 and \*\*\* p<0.01

The GMM result in Table 7.16 shows the same result as RE in the case of bank specific variables. The GMM result also shows that non-performing loans one year lag, loan loss

provision and earnings are a significant determinant of NPL in context of Nepal if we regress macro-economic and bank specific variables together. In the case of macro-economic variables, the GMM result found a different result than OLS and RE. The GMM result found that among macro-economic variables, gross domestic product growth with one year lag is negatively related to NPL in context of Nepal. The other macro-economic variables used in this study have no significant influence on NPL in Nepalese banks.

**Table 7.16: GMM Result of Combined Macro-economic and Bank Specific Variables on NPL**

	Model 1	Model 2	Model 3
Non-performing loans lag	0.1621 <sup>***</sup> (3.90)	0.3660 <sup>***</sup> (8.67)	0.3069 <sup>*</sup> (1.69)
Loan growth	-0.0086 <sup>**</sup> (-2.01)		-0.0024 (-0.33)
Branch growth	-0.0014 (-1.31)		0.0011 (0.39)
Loan loss provision	0.5442 <sup>***</sup> (28.46)		0.4000 <sup>***</sup> (2.69)
Bank size	0.0166 <sup>**</sup> (-2.44)		-0.0081 (-0.67)
Earnings		-0.7771 <sup>***</sup> (-5.69)	-0.5570 <sup>*</sup> (-1.92)
Capital		-0.3756 <sup>***</sup> (-5.89)	-0.0511 (-0.55)
Interest rate spread		0.2007 (1.33)	0.1614 (0.84)
Revenue growth		-0.0172 <sup>***</sup> (-4.50)	0.0018 (0.20)
Credit deposit ratio		0.0119 (0.80)	-0.0006 (-0.02)
Bank age		-0.0094 (-1.61)	0.0016 (0.24)
Gross domestic product growth	-0.8067 <sup>***</sup> (-6.47)	0.2969 (0.98)	-0.3021 (-0.87)
Gross domestic product growth lag	-0.2082 <sup>***</sup> (-3.86)	-0.0958 (-0.59)	-0.2604 <sup>**</sup> (-2.05)
Inflation	0.1179 <sup>*</sup> (1.90)	-0.3720 <sup>**</sup> (-2.39)	-0.0049 (-0.04)
Inflation lag	-0.3808 <sup>***</sup> (-3.19)	0.4525 (1.51)	-0.0015 (-0.00)
Broad money supply growth	0.0579 <sup>***</sup> (4.36)	0.0273 (1.02)	0.0196 (0.44)
Exchange rate	0.1212 <sup>***</sup> (2.98)	-0.0958 (-1.58)	0.0112 (0.16)
Growth of share prices index	-0.0405 <sup>***</sup> (-4.72)	0.0189 (1.10)	-0.0109 (-0.51)
Market interest rate	-0.6202 <sup>***</sup> (-3.08)	1.0537 <sup>*</sup> (1.84)	-0.0037 (-0.01)
Constant	-0.0759 (-1.55)	0.0846 <sup>***</sup> (4.00)	0.0913 (0.77)
Observation	137	147	136
Chi square	1.23E+05	3.69E+07	6.67E+05
Sargan	9.2761	8.8907	2.9292
p value	0.000	0.000	0.000

*t* statistics in parenthesis= p<0.10\*, p<0.05 and \*\*\* p<0.01

### 7.3.1.6 Discussion of Result of Combined Macro-economic and Bank Specific Determinants of NPL

The previous section described the results of combined macro-economic and bank specific determinants of NPL derived from OLS, RE and GMM. As with the third objective of this thesis to investigate the combined macro-economic and bank specific determinants of NPL in Nepalese banks, this section presents the discussion and analysis of results of combined macro-economic and bank specific determinants of NPL in Nepalese commercial banks.

**Table 7.17: Summary of Results (Macro-economic and Bank Specific Determinants of NPL)**

Dependent variables		NPL			
Independent variables	Hypothesis number	Expected sign	Actual sign of result	Statistical significance of results	Conclusion (Hypothesis)
<b>Macro-economic variables</b>					
GDP growth	1(A)	-	-	Insignificant	
GDP growth one year lag	1(B)	-	-	Insignificant	
Inflation	2(A)	+	-	Insignificant	
Inflation one year lag	2(B)	+	+	Insignificant	
Broad money supply growth	3	-	-	Insignificant	
Exchange rate	5	+	-	Insignificant	
Growth of share prices index	6	-	+	Insignificant	
Market interest rate		+	+	Significant	
<b>Bank specific variables</b>					
NPL one year lag	7	+	+	Significant	
Loan loss provision	8	+	+	Significant	
Loan growth	9	+	-	Insignificant	
Capital	10	-	-	Insignificant	
Earnings before interest and tax	11	-	-	Significant	
Branch growth	12	-	-	Insignificant	
Total assets	13	-	-	Insignificant	
Interest rate spread	14	+	+	Insignificant	
<b>Control Variables</b>					
Revenue growth			+	Insignificant	
Credit deposit ratio			-	Insignificant	
Bank age			-	Insignificant	

The results of this study found that when we check the combined effects of macro-economic and bank specific variables to NPL, among the macro-economic variables, only market interest rate has a significant negative influence on NPL. Besides this, when we check the influence of bank-specific variables, the study found lag of NPL, loan loss provision and earnings are found as expected from this study, has a significant influence on NPL in the Nepalese banking industry.

### 7.3.1.7 Regression Result of Corporate Governance Determinants of NPL

Five separate models are estimated to examine the influence of governance variables on NPL. In the first model, this study included board size, independence and diligence as governance variables. The second model included audit committee size, independence and diligence. The third model was estimated with institutional ownership, foreign ownership and CEO remuneration. In the fourth model, the analysis included all governance variables. Besides this, the study also included bank specific and macro-economic variables in the models as control variables. The analysis in thesis has included bank specific variables in models 1, 2 and 3 as control variables. The final model, or model 4, has included all governance and bank specific variables along with macro-economic variables. The same models are employed in OLS, RE and GMM. Firstly, the results pertaining to the OLS analyses are presented below.

$$NPL = \beta_0 + \beta_1 BS + \beta_2 BI + \beta_3 BD + \beta_4 NPL_{t-1} + \beta_5 LLP + \beta_6 LG + \beta_7 ECTA + \beta_8 EBIT + \beta_9 BG + \beta_{10} TA + \beta_{11} IRS + \beta_{12} RG + \beta_{13} CDR + \beta_{14} BA + e_{it} \dots \dots \dots (1)$$

$$NPL = \beta_0 + \beta_1 ACS + \beta_2 ACI + \beta_3 ACD + \beta_4 NPL_{t-1} + \beta_5 LLP + \beta_6 LG + \beta_7 ECTA + \beta_8 EBIT + \beta_9 BG + \beta_{10} TA + \beta_{11} IRS + \beta_{12} RG + \beta_{13} CDR + \beta_{14} BA + e_{it} \dots \dots \dots (2)$$

$$NPL = \beta_0 + \beta_1 IO + \beta_2 FO + \beta_3 CEO\_R + \beta_4 NPL_{t-1} + \beta_5 LLP + \beta_6 LG + \beta_7 ECTA + \beta_8 EBIT + \beta_9 BG + \beta_{10} TA + \beta_{11} IRS + \beta_{12} RG + \beta_{13} CDR + \beta_{14} BA + e_{it} \dots \dots \dots (3)$$

$$NPL = \beta_0 + \beta_1 BS + \beta_2 BI + \beta_3 BD + \beta_4 ACS + \beta_5 ACI + \beta_6 ACD + \beta_7 IO + \beta_8 FO + \beta_9 CEO\_R + \beta_{10} NPL_{t-1} + \beta_{11} LLP + \beta_{12} LG + \beta_{13} ECTA + \beta_{14} EBIT + \beta_{15} BG + \beta_{16} TA + \beta_{17} IRS + \beta_{18} RG + \beta_{19} CDR + \beta_{20} BA + \beta_{21} GDP\_G + \beta_{22} CPI + \beta_{23} M2 + \beta_{24} EXCG + \beta_{25} SPI\_G + \beta_{26} MIR + e_{it} \dots \dots \dots (4)$$

Where BS= Board size, BI= Board independence, BD= Board diligence, ACS= Audit committee size, ACI= Audit committee independence, ACD= Audit committee diligence, IO= Institutional ownership, FO= Foreign ownership, CEO\_R= CEO remuneration, GDP\_G= GDP growth, CPI= Inflation rate, M2= Broad money supply growth, EXCG= Foreign

exchange, SPI\_G= Growth of share price index, MIR= Market interest rate,  $NPL_{t-1}$  = Non-performing loans lag, LLP= Loan loss provision, LG= Loan growth, TA= Total assets in NPR, ECTA= Equity capital to total assets, EBIT= Earnings before interest and tax, BG= Branch growth, IRS= Interest rate spread, RG= Revenue growth, CDR= Credit deposit ratio, BA= Bank age.

OLS estimation in Table 7.18 shows that only board independence and audit committee size have a significant influence on NPL whereas other governance variables have no significant impact on NPL. The results show that board size has a negative relation with NPL but is statistically not significant. The results indicate that in context of Nepal, board size has no significant influence on bank NPL or board size does not contribute to minimize the bank NPL.

The results show that the coefficient estimate of board independence is significant and negatively related with NPL. The results show that there is a negative relationship between board independence and bank NPL in context of Nepal. The results indicate that involvement of more independent directors in boards contributes to minimizing bank NPL because they can solve the information asymmetry problem and reduce uncertainty.

The negative coefficient of board diligence shows the negative relationship between frequency of board meetings and bank NPL but the result is not statistically significant. The result explains that frequency of board meetings has no significant influence on NPL. The results suggest that regular meetings of the board of directors failed to monitor managers and contribute to minimize the NPL. The results indicate the importance of quality in meetings rather than frequency.

**Table 7.18: OLS Result of Corporate Governance Variables on NPL**

Independent variables	Model 1	Model 2	Model 3	Model 4
Board Size	0.0003 (0.25)			-0.0004 (-0.34)
Board independence	-0.0427 (-1.36)			-0.0910*** (-3.02)
Board meetings	-0.0001 (-0.60)			-0.0001 (-0.80)
Audit committee size		0.0034 (1.59)		0.0044** (2.37)
Audit committee independence		0.0022 (0.22)		0.0191 (1.65)
Audit committee diligence		0.0001 (0.27)		0.0001 (0.45)
Institutional ownership			0.0150** (2.02)	0.0104 (1.56)
Foreign ownership			0.0156 (1.01)	0.0096 (0.67)
CEO remuneration			0.0008 (0.42)	-0.0003 (-0.13)
Non-performing loans lag	0.5491*** (4.58)	0.5295*** (5.03)	0.5160*** (4.62)	0.4699*** (4.22)
Loan loss provision	0.2278* (1.98)	0.2306** (2.18)	0.1994* (1.67)	0.2752** (2.54)
Loan growth	-0.007 (-1.10)	-0.0031 (-0.46)	-0.0089 (-1.40)	-0.0063 (-0.91)
Capital	-0.0363 (-0.54)	-0.0781 (-1.09)	-0.108 (-1.40)	-0.1042 (-1.28)
Earnings	-0.7524*** (-3.20)	-0.7657*** (-3.39)	-0.6649*** (-3.01)	-0.6651*** (-2.84)
Branch growth	0.0036 (1.34)	0.0038 (1.35)	0.0046 (1.55)	0.004 (1.64)
Bank size	-0.0091** (-2.35)	-0.0080** (-2.05)	-0.0094** (-2.39)	-0.0099*** (-2.95)
Interest rate spread	0.5753** (2.62)	0.5260** (2.27)	0.7147*** (2.72)	0.5459** (2.26)
Revenue growth	-0.0245 (-1.48)	-0.0273* (-1.66)	-0.0376** (-2.01)	-0.0313* (-1.72)
Credit deposit ratio	-0.024 (-1.62)	-0.0086 (-0.59)	-0.0058 (-0.26)	-0.0094 (-0.42)
Bank age	0.0002 (0.64)	0.0002 (0.51)	-0.0004 (-0.80)	-0.0002 (-0.40)
Gross domestic product growth				0.5938 (0.59)
Inflation				-1.7275 (-0.98)
Broad money supply growth				0.2474 (1.13)
Exchange rate				0.1057 (1.06)
Growth of share prices index				-0.097 (-1.13)
Market interest rate				-0.3932 (-0.81)
Year dummy	Yes	Yes	Yes	Yes
Constant	0.1075*** (2.72)	0.0766* (1.97)	0.0972** (2.17)	0.2207* (1.82)
Observation	127	127	126	126
Adjusted R square	0.9182	0.9196	0.9203	0.9257
<i>f</i> statistics	52.7363	43.9635	45.8283	51.3549

*t* statistics in parenthesis= p<0.10\*, p<0.05 and \*\*\* p<0.01

In the case of the audit committee characteristic, the results show a significant and positive coefficient of audit committee size which indicates that large audit committee size significantly positively influences the maximization of NPL. This result is in line with the notion that upon satisfying the size requirement, a large audit committee faces the problem of

free-ride where individual members may not work properly for resource maximization (Sun, , Lan, et al. 2014).

The coefficient of audit committee independence is positive but statistically not significant. The positive coefficient shows that there is a positive relationship of involvement of independent directors in audit committees to NPL. However, the insignificant result of audit committee independence to NPL explains that there is no significant influence of audit committee independence on NPL. The result is supported with the idea that financial experts in audit committees are useful, rather than the involvement of independent directors in audit committees.

The same result was found in the case of audit committee diligence. The result shows that there is a positive relationship between audit committee diligence and NPL, but the relationship is very weak and insignificant. This result supports the view of Abbott, Parker et al. (2003) that frequency of audit committee meetings may not improve the efficiency of firms if there is lack of quality in meetings.

The results of OLS show no significant relationship of ownership structure on NPL. The coefficient of institutional ownership is significant and positive in model 3 but, overall, the model shows a positive but not statistically significant relationship with NPL. This result shows that there is no influence of institutional ownership on NPL. The result is not supported with the idea that institutional owners have more experience and can operate the firm at lower cost and support the idea that sometimes institutional investors may fail to monitor managers due to the dispersed nature of institutional shareholdings and being short-term return focus.

The same result is also found in the case of foreign ownership. The positive coefficient estimate of foreign ownership shows the positive relationship between foreign ownership and NPL but the result is not significant. The result indicates that there is no significant influence of foreign ownership on NPL. The result suggests that foreign investors should be from those countries where the best corporate governance practices are in place and follow the same practice where they invest.

The results found a negative coefficient estimate of CEO remuneration. This estimate shows that there is a negative relationship between CEO remuneration and NPL. However, the result is not statistically significant. This result explains that there is no significant influence of CEO remuneration on NPL. The result suggests that perception of CEO is also very important conceptually, since compensation/performance is sometimes not clearly visible and thus not motivating to the targeted individuals.

In the case of the control variables, the results show that only some of the bank specific variables have a significant influence on NPL. Among bank specific variables, the results show that NPL lag, loan loss provision, bank size, earnings, interest rate spread and revenue growth have a significant influence on bank NPL. Among these significant variables, NPL lag, loan loss provision and interest rate spread have a positive relation with NPL. Bank size, earnings and revenue growth are negatively related with NPL. The results show that macro-economic variables have no significant influence on bank NPL when it is used as control variables.

The RE results are presented in Table 7.19 which show the same results as the OLS estimation. In addition, of the significant governance variables in OLS, the RE results found audit committee independence and institutional ownership have a significant and positive relationship to NPL which was not significant in the OLS results.

**Table 7.19: RE Result of Corporate Governance on NPL**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
Board size	0.0014 (0.86)			-0.0004 (-0.50)
Board independence	-0.0337 (-1.33)			-0.0910*** (-2.63)
Board diligence	0.000 (-0.19)			-0.0001 (-0.87)
Audit committee size		0.0035 (1.37)		0.0044** (2.29)
Audit committee independence		-0.0006 (-0.08)		0.0191** (2.09)
Audit committee diligence		0.0002 (0.74)		0.0001 (0.52)
Institutional ownership			0.0128** (2.52)	0.0104*** (2.99)
Foreign ownership			0.0103 (0.71)	0.0096 (0.82)
CEO remuneration			0.0014 (0.75)	-0.0003 (-0.16)
Non-performing loans lag	0.5414*** (3.66)	0.5291*** (3.98)	0.5198*** (3.51)	0.4699*** (3.62)
Loan loss provision	0.2263 (1.63)	0.2227* (1.66)	0.1981 (1.27)	0.2752** (2.42)
Loan growth	-0.0139 (-1.41)	-0.011 (-1.22)	-0.017 (-1.63)	-0.0063 (-0.78)
Capital	-0.0174 (-0.27)	-0.0592 (-1.01)	-0.074 (-1.39)	-0.1042* (-1.78)
Earnings	-0.7359*** (-3.18)	-0.7782*** (-3.02)	-0.6872*** (-2.86)	-0.6651*** (-2.62)
Branch growth	0.003 (0.95)	0.003 (0.84)	0.0038 (1.05)	0.004 (1.45)
Bank size	-0.0052* (-1.93)	-0.0053** (-2.13)	-0.0056** (-2.40)	-0.0099*** (-3.04)
Interest rate spread	0.3809 (1.33)	0.3708 (1.22)	0.5339 (1.58)	0.5459* (1.95)
Revenue growth	-0.0143 (-1.05)	-0.0196 (-1.55)	-0.0248* (-1.79)	-0.0313*** (-2.50)
Credit deposit ratio	-0.0169 (-1.44)	-0.0035 (-0.34)	-0.0036 (-0.22)	-0.0094 (-0.53)
Bank age	0.0002 (0.45)	0.0001 (0.38)	-0.0003 (-0.74)	-0.0002 (-0.50)
Gross domestic product growth				0.5938 (0.51)
Inflation				-1.7275 (-0.81)
Broad money supply growth				0.2474 (0.91)
Exchange rate				0.1057 (0.89)
Growth of share prices index				-0.097 (-0.92)
Market interest rate				-0.3932 (-0.66)
Constant	0.0667** (2.18)	0.0549* (1.86)	0.0673* (1.94)	0.2207 (1.48)
Observation	127	127	126	126
Adjusted R square	0.9254	0.9268	0.9264	0.9412
Chi square	13900.727	16871.692	8887.2115	0.000
p value	0.000	0.000	0.000	0.000

t statistics in parenthesis = \* p<0.10, \*\* p<0.05 and \*\*\* p<0.01

The GMM result is presented in Table 7.20 which found the same results as OLS and RE in the case of audit committee size and independence, institutional ownership and CEO remuneration. Except for these variables, the GMM results are different to the OLS and RE which is only explained in this section.

**Table 7.20: GMM Result of Corporate Governance Variables on NPL**

Independent variables	Model 1	Model 2	Model 3	Model 4
Board size	0.0014 (0.53)			0.0303** (2.33)
Board independence	-0.0379 (-0.77)			1.2982** (2.09)
Board diligence	-0.0005*** (-2.78)			-0.0038** (-2.01)
Audit committee size		0.0015 (0.53)		0.0321* (1.66)
Audit committee independence		-0.0039 (-0.16)		0.0266 (0.45)
Audit committee diligence		0.000 (-0.03)		-0.0040* (-1.67)
Institutional ownership			0.0556 (0.76)	0.1627 (0.81)
Foreign ownership			0.156 (0.65)	7.3017* (1.80)
CEO remuneration			-0.0049 (-0.63)	-0.0094 (-0.56)
Non-performing loans lag	0.3749*** (4.85)	0.2537** (2.40)	0.1142 (0.70)	1.7057** (2.31)
Loan loss provision	0.3218** (2.33)	0.3258* (1.73)	0.3849*** (3.40)	0.4299 (1.44)
Loan growth	0.0008 (0.19)	0.0104 (1.39)	0.0026 (0.54)	0.0456 (1.36)
Capital	0.0047 (0.02)	-0.2505 (-1.51)	-0.2342*** (-2.59)	1.3496 (1.30)
Earnings	-0.6156*** (-3.10)	-0.7407* (-1.86)	0.0596 (0.17)	0.000 (0.00)
Branch growth	0.0025** (2.12)	0.0026 (0.87)	0.0019 (0.76)	0.0321* (1.88)
Bank size	-0.0164 (-0.88)	-0.0385* (-1.76)	-0.0133 (-0.75)	0.1367 (1.03)
Interest rate spread	-0.1897 (-0.70)	0.6444* (1.70)	-0.0548 (-0.10)	0.000 (0.00)
Revenue growth	-0.0248*** (-3.75)	-0.0252*** (-5.00)	-0.0408*** (-4.09)	-0.2608* (-1.94)
Credit deposit ratio	-0.0477*** (-4.05)	-0.0374 (-1.56)	-0.006 (-0.24)	0.5244* (1.68)
Bank age	0.0047 (1.47)	0.0098** (2.14)	0.0025 (0.62)	-0.0236 (-1.12)
Gross domestic product growth				(-0.24) (-0.99)
Inflation				0.000 (0.00)
Broad money supply growth				-0.4933 (-1.50)
Exchange rate				-0.4205 (-1.39)
Growth of share prices index				0.1246 (1.33)
Market interest rate				0.4149 (0.80)
Constant	0.1763 (1.02)	0.3183* (1.66)	0.1323 (0.78)	-2.9045 (-1.45)
Observation	100	100	99	99
Chi square	36068.434	12915.292	16320.029	31667.391
Sargan test	3.9348	13.1169	9.0234	0.000
p value	0.000	0.000	0.000	0.000

t statistics in parentheses = \* p<0.10, \*\* p<0.05 and \*\*\* p<0.01

The coefficient estimate of board size is significant and positive as opposed to the prediction of this study. The results show that board size has a positive significant influence on NPL. The results explain that increasing the number of members in the board maximizes the NPL. The results support the idea that large boards involved in less meaningful discussion due to involvement of many directors makes it difficult to achieve a target. Similarly, in the case of

board independence, the GMM results show the opposite result than OLS and RE. The results show a significant and positive coefficient of board independence. This result indicates that the involvement of more independent directors contributes to maximizing NPL. This result suggests that whilst independent directors bring independence, objectivity and experience to bear upon board decisions, they may also stifle managerial initiative through excessive monitoring. The coefficient estimate of board meetings is significant and negative which was not found significant in OLS and RE. The results show that board diligence has a negative relation with NPL. This result explains that increasing the frequency of numbers of board meetings helps to minimize NPL through effective monitoring. The results show the coefficient estimate of foreign ownership is positive and the same as the OLS and RE result, but it was found significant in GMM. This result shows that foreign ownership has a positive relation with NPL.

The hypothesis of this study is tested on the basis of results provided by the RE model as mentioned previously. The study has hypothesized that board size has a negative relation with NPL but the result is not in line with the hypothesis of this study. Therefore, Hypothesis 15(A) is not supported. The results show that board independence has a negative relation with NPL in context of Nepal. Hypothesis H 16(A) that board independence is negatively related with NPL is supported. The results found an insignificant negative relationship between board diligence and NPL. Hypothesis H 17(A) of this study that board diligence minimizes the NPL is not supported in the context of Nepalese banks. The results show the significant positive relationship of audit committee size and independence with NPL which is in contrast to Hypotheses 18(A) and 19(A) of this study that audit committee size and audit committee independence are negatively related with NPL. The hypothesis in the case of audit committee size and independence is not supported. The study hypothesized that audit committee diligence is negatively related with NPL. However, the results do not show a significant relationship. The results failed to support Hypothesis 20(A) that board meeting frequency is negatively related with NPL and is not supported in the context of Nepalese banks. It is hypothesized in this study that institutional and foreign ownership have a negative relation with NPL but the results show that institutional ownership has a positive relation with NPL, whereas foreign ownership has no significant relation with NPL. Hypotheses H21 (A) and H22 (A) that institutional ownership and foreign ownership have a negative relation with NPL respectively are not supported. The results show that CEO remuneration is negatively

related with NPL but it is statistically not significant. Hypothesis 23(A) of this study that CEO remuneration is negatively related with NPL is not supported.

In conclusion, board independence, audit committee size and independence, and institutional ownership found no significant relationship with NPL in OLS. RE result shows that board independence has a negative relationship with NPL, whereas a positive relationship is found in the case of audit committee size and independence and institutional ownership. The results show that other variables have no significant influence on NPL. The GMM result shows quite a difference to OLS and RE in the case of some variables. The GMM results show board size, independence, diligence, audit committee size, diligence and foreign ownership have a significant influence on NPL. The result explains the positive relationship of board size, independence, audit committee size and foreign ownership with NPL whereas other significant variables are negatively related to NPL.

#### **7.3.1.8 Discussion of Corporate Governance Determinants of NPL**

The above section presented the results and discussion of macro-economic and bank specific determinants of NPL in context of Nepalese banks. Besides this, results of corporate governance determinants of NPL in the Nepalese banking industry are also presented in the above section. This section discusses the results of corporate governance determinants of NPL in context of Nepalese banks.

**Table 7.21: Summary of Results and Hypothesis Test**

Dependent Variables		NPL			
Independent Variables	Hypothesis Number	Expected sign	Actual sign of result	Statistical significance of results	Conclusion (Hypothesis)
Board size	15 (A)	-	-	Insignificant	Not supported
Board Independence	16(A)	-	-	Significant	Supported
Board diligence	17(A)	-	-	Insignificant	Not supported
Audit committee size	18(A)	-	+	Significant	Not supported
Audit committee independence	19(A)	-	+	Significant	Not supported
Audit committee diligence	20(A)	-	+	Insignificant	Not supported
Institutional ownership		-	+	Significant	Not supported
Foreign ownership		-	+	Insignificant	Not supported
CEO Remuneration	23(A)	-	-	Insignificant	Not supported
<b>Control variables</b>					
NPL one year lag			+	Significant	
Loan loss provision			+	Significant	
Loan growth			-	Insignificant	
Capital			-	Insignificant	
Earnings before interest and tax			-	Significant	
Branch growth			+	Insignificant	
Total assets			-	Significant	
Interest rate spread			+	Significant	
Revenue growth			-	Significant	
Credit deposit ratio			-	Insignificant	
Bank age			-	Insignificant	
GDP growth			+	Insignificant	
Inflation			-	Insignificant	
Broad money supply growth			+	Insignificant	
Exchange rate			+	Insignificant	
Growth of share prices index			-	Insignificant	
Market interest rate			-	Insignificant	

**7.3.1.8.1 Board Size**

It is acknowledge from the previous research that board size has a significant influence on bank NPL. However, the findings of this study discovered that board size has no influence on NPL in Nepalese context which is consistent with Nyor and Mejabi (2013) and Liang, Xu and

Jiraporn (2013) in context of Nigerian deposit money bank and Chinese commercial bank respectively. Theoretically, it implies that large boards are less effective. A possible reason for this result in the context of Nepal may be that board appointments may be made in order to meet affirmative action provisions such as employment equity targets rather than for the quality of their contribution to board decisions. It also implies that the recommendations of the Nepalese corporate governance code that board size must be between five to nine members is not empirically supported to minimize NPL of banks.

#### **7.3.1.8.2 Board Independence**

This study found board independence has a positive influence on a bank loan quality in context of Nepalese commercial banks. The finding gives support to the expectation of many corporate governance codes which promote the inclusion of more independent directors on boards. The result is consistent with previous findings of Liang, Xu and Jiraporn (2013) who found inclusion of more independent directors improves the loan quality and minimizes NPL. So, the results of this study suggest that the board which is controlled by more independent directors tend to other managerial plans and strategic actions, which arises from excessive managerial supervision. Besides this, the results support the argument that adding outside directors to the board improves the supervision of management and reduces the conflict of interest among stakeholders. Besides, if a bank appoints a new outside director with advisory capabilities, strategic decisions should improve since the counselling skills of the directors complement those of the CEO. We should, therefore, expect to see a minimizing of bank NPL.

#### **7.3.1.8.3 Board Diligence**

The results found a negative relationship of board diligence to NPL in context of Nepalese commercial banks. The results support the expectation that bank board meetings play a role that is more proactive than reactive. Thus, an increase in the frequency of board meetings would be a response to a search for strategic decisions to improve value, rather than a response to poor results. However, such a relationship of board meetings lacks a statistically significant influence. Thus, it is accepted that in context of Nepal, there is no significant positive influence of board meetings in minimizing of NPL. This result also implies that the recommendation of the central bank that bank boards must hold a minimum of twelve meetings in a year is not empirically supported or that this frequency helps to minimize NPL. The possible reason of this result in context of Nepalese banks is that board meetings may be

just fixing the crises rather than trying to address any strategic decisions which contribute to banks minimizing their NPL. Empirically, this finding is consistent with the results of Andres and Vallelado (2008) who report a statistically insignificant association between frequency of board meetings and bank performance for a sample of 69 commercial banks from six OECD countries from 1996-2006.

#### **7.3.1.8.4 Audit Committee Size**

The positive relationship of audit committee size and bank NPL in context of Nepal is in the opposite direction of agency theory. The prediction made about strong audit committees to minimize NPL was found to be inaccurate in the Nepalese banking context. The result is consistent with findings of Al-Matari, Al-Swidi et al. (2012) in context of Saudi Arabia listed companies. A plausible interpretation of the negative influence of audit committee size on bank NPL may be attributed to institutional theory, focusing on the process and system by which they acquire collective meaning and legitimization. In other words, the findings may be referred to this theory which suggests that companies might adopt practices or regulation as a result of a notice from a legislator to impose some practice in order to improve bank effectiveness. However, there is no prediction that the adoption of these regulations will improve bank effectiveness in Nepal. The results support the argument that smaller audit committees can improve the loan quality as the smaller size can increase audit committee vigilance over board decisions and curtail potential managerial opportunism (Yermack 1996).

#### **7.3.1.8.5 Audit Committee Independence**

This study found involvement of an independent director in audit committees has positive related with bank NPL in context of Nepal which is opposite of agency theory. The result does not support the statement that concerning the presence of outside directors in the audit committee deserves some consideration. It can be argued that the presence of outside directors in audit committees fails to facilitate the strategic and monitoring role of a board and presence of outside directors entails costs to the firm that take the form of fees, travel expenses, stock and stock-options, with a negative influence on bank efficiency (Belkhir 2009). The possible reason for this result in context of Nepal may be consistent with the argument of Ruigrok et al. (2006) that independent directors have only limited time they can invest in any individual board mandate and they consequently lack much of the intimate knowledge and expertise on the way things are done and decisions are reached in the firm.

#### **7.3.1.8.6 Audit Committee Diligence**

The result is not in line with the agency theory that the activity of the audit committee might mitigate agency problems leading to reduced agency costs by aligning the interests of controlling owners with those of the firm. The results show that the audit committee has no significant influence to improve the loan quality and minimize NPL of banks in the Nepalese context. The results are consistent with findings of Huang, Lai et al. (2008) who reported that audit committee meetings have no significant influence on firm performance. This result is not consistent with the claim that frequency of audit committee meetings can improve the process of financial accounting which leads to better performance (Abbott, Parker et al. 2003). The possible reason of this finding in context of Nepal may be supported with the claim that the number on the audit committee may not enhance bank effectiveness if there is a lack of quality in the meeting. The results follow the suggestion of KPMG (2008) that audit committees feel overloaded from agendas and activities with limited time in meetings which may hamper their effectiveness.

#### **7.3.1.8.7 Foreign Ownership**

Foreign ownership of banks is not found as a significant determinant of bank NPL in context of Nepal which is not consistent with Clarke, Cull et al. (1999) and Bonin, Hasan et al. (2005) who claim that foreign ownership has positively influenced bank effectiveness in developing countries. The results show that foreign ownership does not lend support to minimize NPL in Nepalese context.

The ability of foreign banks to take full advantage of local opportunities depends upon cultural connections (Clarke et al. 2001). Similarly, culture helps the greater chances of achieving market closeness (Ford 1989). So, with cultural similarity there is an important factor of a bank's effectiveness to assess the needs and requirements of various stakeholders (Holden and Burgess 1994). It may even be the substance in the interaction process. While trust and experience are only achieved or lost through interaction, cultural similarity can be significant before relations begin (Swift 1999). Therefore, the results suggest in Nepalese commercial banks that foreign ownership of bank headquarters in distant countries with a very different market environment, language, culture, and supervisory/regulatory structure could be at higher disadvantage from those located within Nepal. Besides this, banks with higher foreign ownership rely on deposits to finance their loan portfolios and it is likely that

in countries with heavy government involvement in the banking system like Nepal, foreign banks face more restrictions when tapping into the local deposit market.

#### **7.3.1.8.8 Institutional Ownership**

This study found a positive relationship between institutional ownership and bank NPL in Nepal. The results of this study are consistent with the findings of Enobakhare (2010) who found a negative influence of institutional shareholding on NPL of bank in Nigeria, which is also a developing economy like Nepal. The previous findings by researchers suggest that large institutional shareholdings in a firm prevent managers from pursuing opportunistic earnings management through discretionary accrual choices (Chung, Firth et al. 2002). Indeed, Shleifer and Vishny (1986) note that large institutional shareholders may have a greater incentive to monitor managers than members of the board of directors, who may have little or no wealth invested in the firm. The results of this study are not supported with the above statement. The results support the argument that size of institutional shareholding motivates an institution to use their ability to influence corporate decisions. If institutions hold a relatively small portion of shares in a firm, in the case of a poor performance of the firm, they can easily liquidate their investments and, therefore, have less incentive to monitor. So, institutional investors' aims of continuing the liquidity of their holdings and their desire for short-term profits, outweighs the benefit of monitoring management in the hope of eliciting higher long-term profitability (Coffee 1991; Maug 1998). So, the possible reason of this result in the context of Nepal may be institutional shareholdings represented by individuals who are not skilled in the act of banking; hence their inability to contribute positively to the quality of risk assets being created.

#### **7.4.1.4.9 CEO Remuneration**

CEO remuneration is not found as a significant determinant of NPL in Nepalese commercial banks. Based on the previous studies, it is generally accepted that executive remuneration is supposed to motivate their effort, that is, pay leads performance and satisfied individuals with their compensation motivates them to perform better (Adams 1966). However, the results of this study do not support this statement in Nepalese banks. The result is consistent with Zajac (1990) that CEO compensation has no significant influence on a firm's performance. The findings of this study are in line with the argument of Falk et al. (2004) that boards should design rules that give appropriate incentives to the executive to act in the best interest of the shareholder. It is generally accepted that delegating the management of the firm to the

executive creates an agency problem since, in the absence of the right incentives, executives could base their decisions on short-term or personal objectives which imply immediate reward, rather than trying to serve the interest of the stockholders by increasing the long-term value of the firm (Jarque 2008).

#### **7.3.1.8.10 Control Variables**

As control variables, among the bank specific variables used in this study, NPL lag, loan loss provision, earnings and revenue growth are found as significant explanations of the NPL of banks in Nepal. Similarly, in the process of examining the influence of corporate governance on banks NPL in Nepal, this study also used macro-economic indicators as well. However, macro-economic attributes did not show any influence on bank NPL in Nepal.

In conclusion, the findings of the role of corporate governance on minimization of level of NPL, only board independence contributed in Nepalese banks. Audit committee size, independence and institutional ownership are found significant governance variables which deteriorate loan quality and maximize NPL. The other corporate governance variables used in this study have not played any significant role to help in minimizing the level of NPL in Nepalese banks.

### **7.5 Summary**

The results and discussion of macro-economic, bank specific and corporate governance determinants of bank NPL in Nepal is presented and discussed in this chapter. The relationship of macro-economic, bank specific and corporate governance in the hypothesis, which was tested for statistical significance, was discussed in relation to the theory, literature and context of the study. Results confirmed that among macro-economic variables, GDP with one year lag, inflation, market interest rate and exchange rate are significant determinants which explain the NPL in Nepalese banks. Other macro-economic variables used in this study including current GDP growth, inflation lag, broad money supply growth, and growth of share prices index have no significant influence on NPL. In the process of predicting the effect of bank specific variables to NPL of Nepalese bank, NPL lag, loan loss provision, loan growth, earnings and bank size were found significant determinants of NPL, whereas other bank specific variables capital, branch growth and interest rate spread were not found to be significant determinants of NPL.

The relationship of corporate governance and NPL of Nepalese banks was also examined in this study. The study found only board independence, audit committee size, audit committee independence and institutional ownership are a significant determinant of NPL in banks.

Other corporate governance variables used in this study have are not found to be significant determinants.

Overall, the results conclude that bank NPL is influenced by macro-economic, bank specific and governance variables in context of Nepal. Among the macro-economic variables, it is found that gross domestic growth with one year lag, inflation rate, exchange rates and market interest rate are an influencing factor of NPL, whereas other macro-economic variables, current GDP growth, inflation with one year lag, broad money supply growth and growth of share price index have not significant determinants of NPL. In the case of bank specific variables, NPL with lag, loan loss provision, loan growth, bank size and earnings are found as significant determinants of NPL in Nepalese commercial banks. Other bank specific variables, branch growth, capital, interest rate spread are not found as significant determinants of NPL.

When this thesis examined the corporate governance determinants of NPL with controlling macro-economic and bank specific variables, board independence, audit committee size, audit committee independence and institutional ownership were found as significant governance determinants of NPL. The other governance variables, board size and diligence, audit committee diligence, foreign ownership and CEO remuneration are found as insignificant variables of determinants of NPL in Nepalese banks.

## **CHAPTER EIGHT**

### **Results and Discussion**

#### **8.1 Introduction**

The previous chapter presented the results and discussion of macro-economic, bank specific and corporate governance determinants of NPL in Nepalese bank. The next objective of this study is to examine the corporate governance determinants of bank performance. To examine this objective, this study explored the influence of corporate governance on Nepalese bank performance. So this chapter reports the findings of corporate governance determinants of bank performance and also provides discussion of the findings. Section 8.2 presents the description and correlation results of corporate governance variables and performance. Section 8.3 presents the regression results of corporate governance determinants of bank performance and hypothesis test. Section 8.4 presents the discussion of results. Section 8.5 summarizes the overall findings and discussion of corporate governance determinants of bank performance.

#### **8.2 Descriptive and Correlation Results**

Table 8.1 shows the descriptive statistics of governance variables and bank performance. The results show that the mean value of Return on Assets (ROA) is 1.2 percent which ranges from minimum -18.9 percent to maximum 18 percent. The negative minimum value of ROA shows that due to unfavorable macro-economic conditions of Nepal from 2008 to 2011 for example low economic growth, political disturbance etc. The acceleration in inflation and deceleration in GDP growth, some bank faced the problem of losses. Similarly, the profitability of commercial bank was also decreased in 2006 and then profitability was improved marginally. The Tobin's Q ranges from minimum 0.009 to maximum 0.044 percent with the average value 0.014 during the observation years from 2005-2011. The average board size in Nepalese banks is 7 where in average 12.5 percent of members on boards are dominated by professional directors. The average board and audit committee diligence is 20.43 percent and 8.48 percent respectively. The average audit committee size is 3.44 percent which is dominated by professional directors at 16.4 percent. The mean value of foreign ownership and institutional ownership is 11.6 percent and 20.7 percent respectively. The

CEOs of Nepalese banks received remunerations including salary and bonuses of NPR1.822 (USD 0.025) million on averages.

**Table 8.1: Descriptive Statistics of Corporate Governance Variables**

Variables	Observation	Mean	Median	Minimum	Maximum	Skewness	Kurtosis
ROA	150	0.012	0.033	-0.189	0.180	-2.256	19.581
TQ	129	0.014	0.004	0.009	0.044	3.646	20.838
BS	150	7.000	7.000	4.000	9.000	-0.310	-0.44
BI	150	0.125	0.145	0.000	0.250	-1.022	0.647
BD	150	20.413	16.000	0.000	87.000	2.185	6.398
ACS	150	3.447	3.000	0.000	6.000	-0.893	2.294
ACI	150	0.164	0.200	0.000	0.500	0.129	-1.442
ACD	150	8.487	7.500	0.000	24.000	0.545	0.119
FO	150	0.116	0.000	0.000	0.750	1.822	2.224
IO	150	0.207	0.118	0.000	0.800	1.135	0.041
CEO_R	150	1.822	7.000	1.400	23.300	1.315	2.232

In this section, a Pearson r was calculated to determine whether a statistically significant correlation was present between corporate governance variables and bank performance i.e. ROA and Tobin's Q, Table 8.2 shows the correlation matrix of corporate governance variables. The results show that board size, board diligence, audit committee independence and audit committee diligence are not statistically significantly correlated with ROA and Tobin's Q. The results show that audit committee size is significantly positively correlated with ROA and Tobin's Q. Board independence is found to be significantly positively correlated with ROA but it is not significantly correlated with Tobin's Q. Foreign ownership is found significantly positively correlated with only Tobin's Q and not significantly correlated with ROA. The results show that institutional ownership and CEO remuneration are not significantly correlated with ROA and Tobin's Q.

The result of the correlation matrix among corporate governance variables is also explained in Chapter 7, Section 7.3. It is not explained in this section.

**Table 8.2: Correlation Matrix of Corporate Governance Variables**

Variables	ROA	TQ	BS	BI	BD	ACS	ACI	ACD	FO	IO
BS	0.038	0.029								
BI	0.260**	-0.043	-0.270**							
BD	-0.040	-0.061	-0.130	-0.053						
ACS	0.237**	0.230**	0.219**	0.241**	0.020					
ACI	0.143	-0.032	-0.167*	0.505**	0.022	0.042				
ACD	0.160	-0.159	0.320**	0.103	0.090	0.246**	0.039			
FO	0.114	0.240**	-0.177*	0.100	-0.174*	0.209*	0.005	-0.238**		
IO	-0.033	-0.090	0.220**	-0.013	-0.094	0.129	-0.004	0.110	-0.137	
CEO_R	0.060	0.140	0.215**	-0.116	-0.219**	0.223**	-0.128	-0.043	0.044	0.145

\*\*Significant at 5% level, \*significant at 10% level.

### 8.3 Regression Results and Discussion of Influence of Corporate Governance on Bank Performance

This section starts the empirical analysis emphasizing the impact of corporate governance determinants on bank performance. Despite the problems mentioned regarding the traditional panel data estimators in a dynamic framework, this thesis presents, first the results from the Ordinary Least Square (OLS). Secondly, this section presents the results from the Fixed Effect (FE). The support for the FE model was obtained from the Hausmann test. The Hausmann test shows a Chi square of 37.98 with p value 0.004, and Chi square of 30.67 with p value 0.04, for ROA and Tobin’s Q respectively. Given this result, the results and discussion are focused on the outcome provided by the FE model.

#### 8.3.1 Result of Influence of Corporate Governance on Bank Performance

Four separate models are estimated to examine the influence of governance variables on bank performance which is measured by ROA and Tobin’s Q. In model one, this study included board size, independence and diligence as governance variables. The second model included audit committee size, independence and diligence. The third model was estimated with foreign ownership, institutional ownership and CEO remuneration. The fourth model was estimated with all corporate governance variables used in models 1, 2 and 3. Besides this, this study has included three bank specific variables, namely loan loss provision, bank size and capital, and three macro-economic variables, namely GDP growth, inflation and broad money supply growth as control variables in all models. The same model is employed in Ordinary Least Square (OLS) and Fixed Effect (FE).

The first results pertaining to OLS analysis is presented below.

$$\text{Performance} = \beta_0 + \beta_1 \text{BS} + \beta_2 \text{BI} + \beta_3 \text{BD} + \beta_4 \text{LLP} + \beta_5 \text{TA} + \beta_6 \text{ECTA} + \beta_7 \text{GDP\_G} + \beta_8 \text{CPI} + \beta_9 \text{M2} + e_{it} \dots \dots \dots (1)$$

$$\text{Performance} = \beta_0 + \beta_1 \text{ACS} + \beta_2 \text{ACI} + \beta_3 \text{ACD} + \beta_4 \text{LLP} + \beta_5 \text{TA} + \beta_6 \text{ECTA} + \beta_7 \text{GDP\_G} + \beta_8 \text{CPI} + \beta_9 \text{M2} + e_{it} \dots \dots \dots (2)$$

$$\text{Performance} = \beta_0 + \beta_1 \text{IO} + \beta_2 \text{FO} + \beta_3 \text{CEO\_R} + \beta_4 \text{LLP} + \beta_5 \text{TA} + \beta_6 \text{ECTA} + \beta_7 \text{GDP\_G} + \beta_8 \text{CPI} + \beta_9 \text{M2} + e_{it} \dots \dots \dots (3)$$

$$\text{Performance} = \beta_0 + \beta_1 \text{BS} + \beta_2 \text{BI} + \beta_3 \text{BD} + \beta_4 \text{ACS} + \beta_5 \text{ACI} + \beta_6 \text{ACD} + \beta_7 \text{IO} + \beta_8 \text{FO} + \beta_9 \text{CEO\_R} + \beta_{10} \text{LLP} + \beta_{11} \text{TA} + \beta_{12} \text{ECTA} + \beta_{13} \text{GDP\_G} + \beta_{14} \text{CPI} + \beta_{15} \text{M2} + e_{it} \dots \dots \dots (4)$$

Where BS= Board size, BI= Board independence, BD= Board diligence, ACS= Audit committee size, ACI= Audit committee independence, ACD= Audit committee diligence, IO= Institutional ownership, FO= Foreign ownership, CEO\_R= CEO remuneration, GDP\_G= GDP growth, CPI= Inflation rate, M2= Broad money supply growth, LLP= Loan loss provision, TA= Total assets in NPR, ECTA= Equity capital to total assets,

**8.3.1.1 Result Based on Accounting Measurement**

OLS estimation in Table 8.3 shows that among corporate governance variables, board size, audit committee diligence, foreign ownership and CEO remuneration have a significant influence on bank performance if measured by accounting base i.e. ROA. The other corporate governance variables, board independence and diligence, audit committee size and independence, and institutional ownership have no significant influence on bank performance.

**Table 8.3: OLS Result of Corporate Governance Variables on ROA**

Independent variables	Model 1	Model 2	Model 3	Model 4
Board size	-0.0038 (-1.45)			-0.0040* (-1.93)
Board independence	0.0254 (0.66)			0.0506 (0.74)
Board diligence	-0.0003 (-1.06)			-0.0003 (-1.51)
Audit committee size		-0.0006 (-0.14)		-0.0025 (-0.64)
Audit committee independence		0.0001 (0.00)		-0.0052 (-0.25)
Audit committee diligence		0.0001 (0.19)		0.0007** (2.25)
Institutional ownership			0.0028 (0.44)	0.0069 (1.03)
Foreign ownership			0.0163** (2.32)	0.0196** (2.32)
CEO remuneration			0.0031 (1.29)	0.0053* (1.91)
Loan loss provision	0.0407 (0.73)	0.0275 (0.63)	0.0476 (0.86)	0.0612 (1.47)
Bank size	0.0081** (2.45)	0.0097** (2.25)	0.0071* (1.77)	0.0053 (1.44)
Capital	0.0824* (1.96)	0.0693* (1.69)	0.0798** (2.01)	0.1052** (2.46)
Gross domestic product growth	1.5628 (0.67)	3.843 (1.29)	3.2204 (1.03)	2.2238 (0.81)
Inflation	-0.5045 (-0.36)	-1.8864 (-1.11)	-1.4123 (-0.77)	-0.7358 (-0.46)
Broad money supply growth	0.0686 (0.44)	0.2268 (1.13)	0.179 (0.83)	0.0965 (0.53)
Year dummy	Yes	Yes	Yes	Yes
Constant	-0.0701** (-2.21)	-0.1008*** (-2.84)	-0.0987*** (-2.71)	-0.0688** (-2.02)
Observation	146	146	145	145
Adjusted R square	0.1148	0.0425	0.0761	0.1412
<i>f</i> statistics	1.4329	2.729	2.5903	2.8252
<i>p</i> value	0.1586	0.0025	0.004	0.0004

*t* statistics in parenthesis = \*  $p < 0.10$ , \*\*  $p < 0.05$  and \*\*\*  $p < 0.01$

The significant and negative coefficient of board size shows that board size is significant and negatively related with bank performance. The results indicate that in Nepal, increasing the members on boards has negatively influenced bank performance. The results suggest that larger boards of Nepalese banks are less effective.

The results show that the coefficient estimate of board independence is positive which shows the positive relationship between board independence and bank performance. However, the

result is statistically not significant. So, the result indicates that board independence has no significant influence on bank performance. The result suggests that involvement of independent directors on boards does not significantly contribute to improved bank performance in Nepal.

The negative coefficient of board diligence shows the negative relationship between frequency of board meetings and bank performance but the result is statistically not significant. The result explains that frequency of board meetings has no significant influence on performance in Nepalese bank. The results suggest that regular meetings of the board of directors have failed to monitor managers or contribute to maximizing the performance of bank. The results also imply that firms meet regularly and that this has no influence either positive or negative on the performance of firms as the coefficient is not statistically significant.

In the case of audit committee characteristics, the results show that audit committee size and independence is negatively related with bank performance. However, the result is not statistically significant. The result indicates that both audit committee size and independence have no significant influence on improvement in bank performance in Nepal. The result suggests that the “free rider” problem always exists in larger groups so the large audit committee does not perform their duties to the expected level. Besides this, the results also suggest the importance of financial experts in audit committees rather than chaired by an independent director.

The results show the significant and positive coefficient of frequency of audit committee meetings and bank performance. The results explain that there is a positive relationship between audit committee meetings and bank performance. The results indicate that frequency of audit committee meetings has a positive influence on bank performance. However, the relationship is very weak.

The coefficient of institutional ownership is positively related to bank performance but the result is statistically not significant. The result indicates that institutional ownership has no significant influence on bank performance. The results suggest that institutional investors may fail to monitor managers due to the dispersed nature of institutional shareholdings.

The coefficient of foreign ownership is significant and positive in all models. The result indicates that the banks owned by foreign ownership positively impacts on the performance as they can gain technology advantages from their home country and apply the same where they invest.

The result shows the significant and positive coefficient of CEO remuneration. The result indicates that CEO remuneration has a positive influence on bank performance. The result suggests that better pay motivates the manager to perform better.

To examine the relationship between corporate governance and bank performance, this thesis has also used the control variables. The result shows that loan loss provision has no significant influence on bank performance. The coefficient of bank size is positive in models 1, 2 and 3 respectively, but in the final model, it is not significant. The result suggests that there is no influence of bank size with performance. Capital is found significant and positively related with bank performance in all models. The result indicates that the capital contributes to improve bank performance. Macro-economic variables i.e. GDP growth, inflation, and broad money supply have no significant influence in bank performance in all models.

The FE result is presented in Table 8.4. The FE result shows the same result as OLS in the case of board size, independence, diligence, audit committee size, audit committee independence, and institutional ownership. The result shows that audit committee meetings have a negative influence on bank performance. However, the result is not statistically significant. The result indicates the importance of quality meetings rather than the number of meetings. The FE result found a positive relationship between foreign ownership and bank performance but the result is not statistically significant. The result indicates that it is not necessary that foreign investors may enhance the bank performance if they are interested in the short term return rather than the long term due to less concentrated ownership. The result found a positive relationship between CEO remuneration and bank performance but the result is not statistically significant. The result shows that the CEO remuneration has no significant influence on enhancing the bank performance. The result indicates that the CEO remuneration may have an influence on bank performance only in the initial years as the early years are related with the CEO's career.

In the case of control variables, the FE result found different results only for bank size than OLS result. The result shows that bank size has a positive impact on bank performance. The result indicates that bigger bank have more opportunity of diversification of their loan portfolio than do smaller bank. This minimizes the risk and enhances the performance.

The hypothesis of this study is tested on the basis of results provided by the FE model as mentioned previously. The study has hypothesized that board size has a negative relation with ROA but the result is in line with the hypothesis of this study. So Hypothesis 15(B) that board size is negatively related with bank performance in context of Nepalese banks, is supported. This study has hypothesized that board independence and diligence, audit committee size, independence and diligence, institutional ownership, foreign ownership and CEO remuneration has a positive relation to bank performance as measured by ROA. The result shows all these variables have no significant influence on bank performance. So on the basis of the results, Hypotheses 16(B), 17(B), 18(B), 19(B), 20 (B), 21(B), 22(B) and 23(B) that board independence, board diligence, audit committee size, audit committee independence, audit committee diligence, institutional ownership, foreign ownership and CEO remuneration are positively related with bank performance in Nepal, is not supported.

**Table 8.4: FE Result of Corporate Governance on ROA**

Independent variables	Model 1	Model 2	Model 3	Model 4
Board size	-0.0068*** (-2.74)			-0.0067** (-2.55)
Board independence	0.0277 (0.59)			0.0473 (0.89)
Board diligence	-0.0002 (-0.91)			-0.0003 (-0.97)
Audit committee size		-0.0000 (-0.00)		0.0009 (0.29)
Audit committee independence		0.0051 (0.26)		-0.0106 (-0.48)
Audit committee diligence		-0.0002 (-0.30)		-0.0001 (-0.19)
Institutional ownership			0.0601 (1.18)	0.0437 (0.83)
Foreign ownership			-0.1975 (-0.66)	0.1985 (0.61)
CEO remuneration			0.0043 (0.91)	0.0039 (0.80)
Loan loss provision	-0.0071 (-0.12)	-0.0339 (-0.54)	-0.0265 (-0.43)	0.0021 (0.03)
Bank size	0.0128** (2.01)	0.0068 (1.05)	0.0075 (1.18)	0.0132* (1.74)
Capital	0.1590** (2.32)	0.1426** (2.13)	0.1615** (2.46)	0.1868** (2.52)
Gross domestic product growth	0.1151 (0.38)	0.0415 (0.13)	0.0438 (0.14)	0.1041 (0.33)
Inflation	0.0238 (0.12)	0.0637 (0.31)	0.0754 (0.37)	0.0148 (0.07)
Broad money supply growth	-0.0011 (-0.04)	0.0109 (0.41)	0.0123 (0.46)	0.0011 (0.04)
Constant	-0.0812 (-1.56)	-0.0721 (-1.26)	-0.0814 (-1.23)	-0.1293* (-1.82)
Observation	146	146	145	145
Adjusted R square	0.1367	0.0364	0.0154	0.0886
Log likelihood	393.3257	385.1593	384.1011	392.0184
<i>f</i> statistics	4.2109	2.4952	2.8896	2.6023
<i>p</i> value	0.0000	0.0001	0.0000	0.0000

*t* statistics in parentheses = \**p*<0.10, \*\* *p*<0.05 and \*\*\**p*<0.01

In conclusion, the OLS result shows that among corporate governance variables, board size, audit committee meetings, foreign ownership and CEO remuneration have a significant influence on bank performance. However, limited evidence is found in the case of audit committee meeting, foreign ownership and CEO remuneration as these variables are not significantly related with bank performance in the FE results. The FE result shows that only board size is a main determinant of bank performance in the context of Nepalese commercial

banks and other board characteristics, audit committee characteristics, ownership and CEO remuneration have not a significant influence on bank performance in Nepal.

### 8.3.1.2 Result Based on Market Measurement

OLS estimation shows that among governance variables, board size, board diligence, audit committee diligence, foreign ownership and CEO remuneration have a significant influence on bank performance. The result does not find a significant relationship of other governance variables, board independence, audit committee size, audit committee independence and institutional ownership with bank performance.

**Table 8.5: OLS Result of Corporate Governance on Tobin's Q**

Individual variables	Model 1	Model 2	Model 3	Model 4
Board size	0.0853 <sup>*</sup> (1.76)			0.0920 <sup>*</sup> (1.74)
Board independence	0.1855 (0.24)			-0.7629 (-1.06)
Board diligence	-0.0093 <sup>*</sup> (-1.69)			-0.0111 <sup>**</sup> (-2.06)
Audit committee size		0.0569 (1.65)		0.0100 (0.30)
Audit committee independence		-0.2199 (-1.21)		0.4400 (1.49)
Audit committee diligence		-0.0025 (-0.29)		0.0123 <sup>*</sup> (1.69)
Institutional ownership			0.0965 (0.97)	0.0193 (0.19)
Foreign ownership			0.7643 <sup>***</sup> (6.13)	1.0410 <sup>***</sup> (6.05)
CEO remuneration			0.1488 <sup>***</sup> (3.52)	0.0982 <sup>**</sup> (2.17)
Loan loss provision	-0.2859 (-0.39)	-0.8127 (-1.20)	-0.0156 (-0.03)	0.9592 (1.33)
Bank size	0.0839 (1.33)	0.0894 (1.36)	-0.0428 (-0.65)	-0.1217 <sup>*</sup> (-1.85)
Capital	2.1567 (1.10)	1.2122 (0.63)	2.1105 (1.19)	2.8210 (1.50)
Gross domestic product growth	171.6623 <sup>***</sup> (3.31)	158.4065 <sup>***</sup> (3.53)	131.6627 <sup>***</sup> (3.36)	126.8659 <sup>***</sup> (2.76)
Inflation	-92.0925 <sup>***</sup> (-3.11)	-85.6333 <sup>***</sup> (-3.38)	-66.0249 <sup>***</sup> (-2.96)	-61.0449 <sup>**</sup> (-2.33)
Broad money supply growth	11.4978 <sup>***</sup> (3.32)	10.5431 <sup>***</sup> (3.50)	8.5213 <sup>***</sup> (3.25)	8.4545 <sup>***</sup> (2.81)
Year dummy	Yes	Yes	Yes	Yes
Constant	-0.3839 (-0.59)	0.0853 (0.13)	0.5772 (1.09)	0.4767 (0.89)
Observation	141	141	140	140
Adjusted R square	0.2557	0.1942	0.3233	0.4222
<i>f</i> statistics	6.1732	7.0951	16.6330	12.5913
p value	0.0000	0.0000	0.0000	0.0000

*t* statistics in parentheses = <sup>\*</sup>p<0.10, <sup>\*\*</sup>p<0.05 and <sup>\*\*\*</sup> p<0.01

The OLS result in table 8.5 shows a significant and positive coefficient of board size. The results indicate that board size is significantly positively related with bank performance. The result explains that the bigger board size positively impacts on the bank performance in the context of Nepalese commercial banks. The result suggests that markets perceive the bank as a complex business and support the large boards which can solve the complexity in a firm. The result shows the negative relationship between the board independence and bank performance but the result is statistically insignificant. The result indicates that board independence has no significant influence on bank performance. The result suggests that independent directors are less conflicted than inside directors but they are less informed about the company than insider directors which may not enhance the performance of the bank. The result shows a significant and negative relationship between board diligence and bank performance. The result indicates that frequency of board meetings has a negative influence on bank performance. The result suggests that the market perceives board meetings as just fixing the existing problems of banks.

The result found a positive relationship between audit committee size and bank performance. The result indicates that larger audit committee size has a positive influence on bank performance. However, the result is not statistically significant. The result suggests that audit committee size has no significant influence on bank performance in Nepal. The result suggests that audit committee effectiveness is important rather than their size. The same insignificant relationship is found in the case of audit committee independence which indicates that involvement or if chaired by the audit committee with an independent director does not help to enhance the bank performance. The result suggests considering the quality and proper authority of independent directors is important in audit committees for enhancement of bank performance.

The results found a significant and positive relationship between audit committee diligence and bank performance. The result indicates that the frequency of audit committee meetings has a positive impact on bank performance. The results suggest that markets perceive audit committee meetings as better monitoring tools and provide reliable information to the market.

The positive coefficient of institutional ownership shows a positive relationship between institutional ownership and bank performance, but the result is not statistically significant. The result indicates that institutional ownership has no significant influence on bank

performance. The coefficient of foreign ownership is significant and positive in all models. This implies that the foreign ownership has a positive influence on bank. The result suggests that markets perceive foreign investors as a good mechanism as they bring the knowledge and experience from those countries where the corporate governance is in best practice.

The result found a positive coefficient of CEO remuneration which shows the positive relationship between CEO remuneration and bank performance. The result indicates that better pay of CEOs has a positive influence on bank performance. The result suggests that markets perceive that better pay motivates the manager to perform better which improves the performance of banks.

The FE results are presented in Table 8.6 which shows the same result in the case of board size, board diligence, audit committee size, audit committee independence and institutional ownership.

**Table 8.6: FE Result of Corporate Governance on Tobin's Q**

Independent variables	Model 1	Model 2	Model 3	Model 4
Board size	0.1006*** (2.64)			0.0920** (2.30)
Board independence	-1.2826* (-1.79)			-1.6377** (-2.01)
Board diligence	-0.0076* (-1.97)			-0.0088* (-1.90)
Audit committee size		-0.0079 (-0.18)		0.0134 (0.29)
Audit committee independence		-0.2807 (-0.91)		0.3438 (1.01)
Audit committee diligence		-0.0077 (-0.88)		-0.0051 (-0.60)
Institutional ownership			-0.8376 (-1.03)	-0.7372 (-0.91)
Foreign ownership			1.7140 (0.36)	0.3929 (0.08)
CEO remuneration			-0.0506 (-0.66)	-0.0916 (-1.23)
Loan loss provision	1.3974 (1.52)	1.0265 (1.05)	1.1303 (1.15)	1.6485 (1.66)
Bank size	0.0163 (0.17)	0.1055 (1.04)	0.0644 (0.63)	0.0744 (0.64)
Capital	2.9316*** (2.79)	1.8850* (1.80)	1.4086 (1.35)	3.0111*** (2.66)
Gross domestic product growth	9.4813** (2.06)	10.4203** (2.08)	10.4253** (2.07)	9.7714** (2.05)
Inflation	-2.2232 (-0.75)	-3.5146 (-1.08)	-3.5404 (-1.08)	-3.2587 (-1.04)
Broad money supply growth	1.7369*** (4.44)	1.3908*** (3.33)	1.4019*** (3.32)	1.8319*** (4.48)
Constant	-0.1016 (-0.13)	-0.1595 (-0.18)	0.2021 (0.19)	-0.2793 (-0.26)
Observation	141	141	140	140
Adjusted R square	0.2536	0.1222	0.1135	0.2236
Log likelihood	-7.2279	-18.6635	-19.1538	-5.8337
<i>f</i> statistics	8.8420	5.7212	5.5325	5.2014
<i>p</i> value	0.0000	0.0000	0.0000	0.0000

*t* statistics in parentheses = \**p*<0.10, \*\**p*<0.05 and \*\*\**p*<0.01

FE estimation found a significant and negative coefficient of board independence. The result shows that board independence has a negative relationship with bank performance. The result suggests that involvement of independent directors in boards has a negative impact on bank performance. The result suggests that markets perceive that the independent directors as ignorant about the company as inside directors are. The FE shows a different result in the case of audit committee diligence than OLS. The FE result shows that a negative relationship of audit committee diligence and bank performance but the result is not statistically

significant. The result indicates that frequency of audit committee meetings has not a significant influence on bank performance. The result suggests that the quality of meetings is an important governance mechanism rather than the number of meetings. In comparison to the OLS result, the FE result shows a positive relationship between foreign ownership and bank performance but the result is not statistically significant. The FE result shows that foreign ownership has no significant influence on bank performance. The result suggests the importance of concentrated foreign ownership for the long term performance of bank. The FE estimation shows a negative relationship between CEO remuneration and bank performance but the result is not statistically significant. The result indicates that the pay of the CEO has no significant influence on bank performance. The result suggests that the board submits a compensation report to shareholders for approval before such compensation packages are implemented.

To examine the relationship between corporate governance and bank performance measured on a market value basis rather than book value basis, this thesis has also used the control variables. The result shows that loan loss provision has no significant influence on bank performance. The coefficient of bank size is not statistically significant which shows that bank size has no significant influence on bank performance. Capital is found significant and positively related with bank performance. The result indicates that the capital maintained by bank has a positive determinant on bank performance.

The result shows that macro-economic variables have a significant influence on bank performance. The significant and positive significant coefficient of GDP growth in all models shows that GDP growth has a positive influence on bank performance. The result suggests that with the improvement in economic activity, bank performance will also improve. The result found that inflation has a negative influence on bank performance but the result is not statistically significant. The result suggests that if the bank is able to anticipate inflation, it may not significantly impact bank performance. The same applies to GDP growth while broad money supply growth has a positive influence on bank performance.

The hypothesis of this study is tested on the basis of results provided by the FE model. The study has hypothesized that board size has a negative relation with Tobin's Q but the result is in contrast with the hypothesis of this study. The result shows that large board size has a positive impact on bank performance measured on a market value basis. The result fails to

support Hypothesis 15(C). This study has hypothesized that board independence and diligence are positively related with bank performance but the result is the opposite of the hypothesis. The result shows that board independence and diligence has a negative impact on bank performance. The result fails to support Hypotheses 15 (C) and 16 (C) that board independence and diligence is positively related to bank performance.

This study hypothesized that audit committee size, independence and diligence, institutional ownership, foreign ownership and CEO remuneration is positively related with bank performance measured by Tobin's Q. But the result shows all these variables have no significant influence on bank performance. So, on the basis of the results, Hypotheses 17(C), 18(C), 19(C), 20 (C), 21(C), 22(C) and 23(C) that audit committee size, audit committee independence, audit committee diligence, institutional ownership, foreign ownership and CEO remuneration are positively related with bank performance measured by Tobin's Q is not supported.

The overall result of this study shows that only board size has a negative influence on ROA, whereas it positively impacts Tobin's Q in Nepalese banks. Other corporate governance variables used in this study have no significant determinants of ROA. The result shows that board independence and diligence have the negative influence on Tobin's Q and the other corporate governance variables used in this study have no significant influence on Tobin's Q. Overall, the result shows that audit committee size, independence and diligence, institutional ownership, foreign ownership and CEO ownership are not significant determinants of bank performance measured by either accounting or market base.

#### **8.4.1 Discussion of Influence of Governance on Bank Performance**

The previous section described the results of corporate governance determinants of bank performance i.e. ROA and Tobin's Q, and tested the hypotheses of this study. This section provides the discussion and analysis of the results.

**Table 8.7: Summary of Results and Hypothesis Test**

<b>Dependent Variables</b>		<b>ROA</b>			
<b>Independent Variables</b>	<b>Hypothesis Number</b>	<b>Hypothesis sign</b>	<b>Actual sign of result</b>	<b>Statistical significance of results</b>	<b>Conclusion (Hypothesis)</b>
Board size	15(B)	-	-	Significant	Supported
Board independence	16(B)	+	+	Insignificant	Not supported
Board diligence	17(B)	+	-	Insignificant	Not supported
Audit committee size	18(B)	+	+	Insignificant	Not supported
Audit committee independence	19(B)	+	-	Insignificant	Not supported
Audit committee diligence	20(B)	+	-	Insignificant	Not supported
Foreign ownership	21(B)	+	+	Insignificant	Not supported
Institutional ownership	22(B)	+	+	Insignificant	Not supported
CEO remuneration	23(B)	+	+	Insignificant	Not supported
<b>Control variables</b>					
Loan loss provision		-	+	Insignificant	
Size		+	+	Significant	
Capital		+	+	Significant	
GDP growth		+	+	Insignificant	
Inflation		-	+	Insignificant	
Broad money supply growth		+	+	Insignificant	

**Table 8.8: Summary of Results and Hypothesis Test**

Dependent Variables		Tobin Q			
Independent Variables	Hypothesis Number	Hypothesis sign	Actual sign of result	Statistical significance of results	Conclusion (Hypothesis)
Board size	15(C)	-	+	Significant	Not supported
Board independence	16(C)	+	-	Significant	Not supported
Board diligence	17(C)	+	-	Significant	Not supported
Audit committee size	18(C)	+	+	Insignificant	Not supported
Audit committee independence	19(C)	+	+	Insignificant	Not supported
Audit committee diligence	20(C)	+	-	Insignificant	Not supported
Foreign ownership	21(C)	+	+	Insignificant	Not supported
Institutional ownership	22(C)	+	-	Insignificant	Not supported
CEO remuneration	23(C)	+	-	Insignificant	Not supported
<b>Control variables</b>					
Loan loss provision		-	+	Insignificant	
Size		+	+	Insignificant	
Capital		+	+	Insignificant	
GDP growth		+	+	Significant	
Inflation		-	-	Insignificant	
Broad money supply growth		+	+	Significant	

#### 8.4.1.1 Board Size

As the agency theory suggests, this study also found that large boards negatively impact on accounting return of the firm i.e. ROA. The result of this study differs from prior studies (Haniffa and Hudaib 2006) that document a statistically significant and positive link between board size and accounting return. However, the result is consistent with the finding of (Staikouras, Staikouras et al. 2007; Rashid, DeZoysa et al. 2010). Theoretically, it implies that large boards are less effective. Within the Nepalese context, this appears to indicate further that board appointments may be made in order to meet just the provision of the central bank. The result is also concerned with the statement of Coles and Daniel (2008) that the impact of board size on performance also depends upon in which macro-economic environment, in which the firm is operating. As we can see that the macro-economic conditions of Nepal were not satisfactory during 2005-2011 (refer Chapter 2) which may be a possible reason of the findings of this study. Next, experts argue that the lack of financial

expertise of board members also negatively impacts on bank performance which may be also be a possible cause in Nepal.

In contrast to accounting return, board size is found to be positively related to the market base measurement of performance and statistically significant. It also supports past evidence that documents a statistically significant and positive nexus between board size and Tobin's Q (Beiner et al. 2006; Adams and Mehran 2008; Rashid, DeZoysa et al. 2010). However, it contradicts the results of past studies that report statistically significant and a negative link between board size and Tobin's Q (Yermack 1996; Vefeeas 1999; Haniffa and Hudaib 2006; Coles et al. 2008; Guest 2009). The result argues that as the bank is more opaque and complex than other non-financial firms and markets perceive that large boards are suited to deal with organizational opaqueness and complexity as large boards may consist of subsidiary directorships.

#### **8.4.1.2 Board Independence**

The result of this study is not consistent with the growing literature suggesting that board independence plays an important role to mitigating the agency problem by monitoring and controlling the opportunistic behavior of management and improves the firm performance. The result is consistent with Fosberg (1989), Hermalin and Weisbach (1991), Bhagat and Black (2001) and Rashid, DeZoysa et al. (2010) who don't support the board independence as an indicator of firm performance on the basis of accounting measurement in the case of non-financial firms. In the case of the banking literature, the result is consistent with Staikouras, Staikouras et al. (2007) and Al-Saidi and Al-Shammari (2013) for evidence on Europe, Malaysia and Kuwait respectively.

In contrast to accounting return, board independence is found to be negatively related to the market based measure of performance and statistically significant which is consistent with findings of Bhagat and Bolton (2008) Fauzi and Locke (2012); Wang, Tsai et al. (2013). The result contrasts the findings of Staikouras, Staikouras et al. (2007) who found a positive relationship to board composition and bank performance as measured by market base.

The non-significant relationship of board independence and accounting return of Nepalese banks supports the argument of Klein (1998) that independent directors may not have the necessary knowledge, experience, time and skills to be effective monitors. The possible

reason for this result may be in Nepalese banks that all professional directors in the professional list issued by the central bank may not have gained adequate experience and skills in banking. The other possible reason is that the independent directors are appointed through the central bank in Nepal from the professional list. Even though they are less conflicted, they may be ignorant about the bank. Another possible reason is that generally, professional directors who are in the professional list maintained by the central bank are retired personnel from banks or other organizations. In this regard, age may matter, too. Older directors, at some point, are likely to become less effective.

#### **8.4.1.3 Board Diligence**

This study found no significant relationship of board diligence to accounting return ROA in Nepalese banks. The result is not consistent with agency theory which suggests that corporate boards that meet more frequently have increased capacity to effectively advise, monitor and discipline management, and thereby improve corporate financial performance. The study is consistent with Hermalin and Weisbach (1991), Klein (1998), Bhagat and Black (2000), Andres and Vallelado (2008), Brick and Chidambaran (2010) and Velnampy (2013) who examined the influence of board monitoring on accounting returns of firms and failed to find any relationship. Theoretically, frequent board meetings are not necessarily beneficial. A higher frequency of board meetings, for example, can result in higher costs in the form of managerial time, travel expenses, refreshment and directors' meetings fees. The result is consistent with the claim of Vafeas (1999) that frequent board meetings might imply either the inefficiency of the board in making decisions leading to low firm performance, or the board endeavoring to deal with existing problems. The result supports the argument of Menon and Williams (1994) that frequency of board meetings is just a rough signal of activity and not supporting any sign of the work accomplished during these meetings. It is also argued that quality of time directors spend in board meetings is important rather the quantity of time. The possible reason of this result in Nepalese banks may be supported with the argument of DeZoorth (1997) that working experience and/or financial background of directors, board members must have accounting and audit experience. In general, it can be argued that the financial literacy of the directors helps them to better understand the performance of firms and they can efficiently reach any strategic decision.

In terms of market base measurement, the result is consistent with Vafeas (1999), Carcello, Hermanson et al. (2002) and Fich and Shivdasani (2006) who found a negative relationship

between board meetings and Tobin's Q. Possible reasons for this finding may be that in context of Nepal, markets perceive frequent board meetings as a signal of poor performance of firms who claim that impact of boards is to help identify valuable investment opportunities.

#### **8.4.1.4 Audit Committee Size**

This study found audit committee size does not have a significant contribution to bank performance i.e. ROA and Tobin's Q in Nepal. The result is not similar to many previous studies in the literature which provide a significant positive relationship between audit committee size and corporate performance, for example Klien (2002) in context of developed economies the US. The other studies in context of developing economies, Coleman-Kyereboah (2007) and AlBeera (2009) also reported the same result. All the above studies are conducted in the context of non-financial firms which are different in nature to banks. However, the findings of this study are consistent with Hamdan, Sarea et al. (2013), Rouf (2011) and Ghabayen (2012) evidenced on Jordan, Bangladesh and Saudi Arabia respectively. The findings of this study state that the proper size of audit committees is still debatable in the corporate governance studies. Some empirical studies find that the normal size of the audit committee in the UK and USA is about three to five members (Davidson, Xie et al. 2004) whereas in Nepal it is ranged from three to six members. This study supports the claim of such authors who argue that larger sizes of audit committees may delay the decision making and cause avoidable debates. The result supports the argument that effectiveness of audit committees, rather than size, is an important factor in enhancing the firm's performance. The result also supports the claim of Mohiuddin and Karbhari (2010) that the audit committee should involve independent, expert, and knowledgeable members who have adequate authority. The possible reason of this result in context of Nepal may be affected by this problem mentioned by Mohiuddin and Karbhari (2010).

#### **8.4.1.5 Audit Committee Independence**

This study found there is not a significant contribution of audit committee independence on bank performance in Nepal and this is not supported by agency theory. Most of the previous authors suggest that independent directors can reduce the agency problem. As a result, audit committee independence also reduces the agency problem in firms (Erickson, Park et al. 2005). The author suggests the importance of audit committee independence as independent directors on the audit committee have no economic or personal relationship with

management. As a result, they perform their task effectively (Abbott, Parker et al. 2004). However, the finding of this study does not support that audit committee independence improves the firm performance. The finding is in line with of Kajola (2008) and Coleman-Kyereboah (2007) who do not find any significant relationship of audit committee independence on performance. This finding supports the argument of Byrd and Hickman (1992) that to maintain the impression of active monitoring among shareholders, high-caliber CEOs may dress up their firm's board with professional directors. The finding supports the conventional wisdom to appoint professionals with high credentials to serve on the audit committee. Mustafa and Youssef (2010) also reported the same argument that audit committee independence should not be effective unless the independent director is a financial expert. The possible reasons of this finding may be supported with the claim of Mustafa and Youssef (2010) in Nepalese bank. Besides this, Chan and Li (2008) also found that if the audit committee is served by fifty percent of independent directors, this positively impacts on firm value. In Nepalese banks, the audit committee is not served by fifty percent of professional directors in all banks. This situation may be also affecting the effectiveness of audit committees.

#### **8.4.1.6 Audit Committee Diligence**

This study was unable to find a significant impact of audit committee diligence on bank performance which is in line with the findings of Wen-Yen and Pongpitch (2010) and Huang, Lai et al. (2008) who were also unable to find a significant relationship between frequency of audit meeting and bank performance. Most of the previous researchers such as Menon and Williams (1994), Beasley et al. (2000), Xie et al. (2003), Abbott et al. (2004) and Anderson et al. (2004) noted that frequency of audit committee meetings monitor the internal control and provides reliable information to the shareholders, and have a positive impact on firm performance which is not found in Nepalese banks. The result supports the argument of Abbott Parker (2003) that the number of audit committee meetings may not enhance the performance of firms if there is lack of quality in the meeting. The possible reason for this finding may be that in complex firms, audit committees feel overloaded and agendas and activities on compliance may be hampered by the audit committee effectiveness, as suggested by KPMG (2008). Other possible reasons for this result may be in the context of Nepal that the bank may fulfil the specified directives for just the compliance purposes with the purpose of avoiding any disciplinary action by the regulators. However, meeting the minimum requirements of audit committee meetings as directed by the regulator does not by itself

guarantee the effectiveness of an audit committee to improve the firm performance. Other qualitative factors also play significant roles for the effectiveness of audit committees such as the level of audit committee members, quality of discussion during meetings, qualification of audit committee members, and organizational work environment may all have an influence on audit committee performance.

#### **8.4.1.7 Institutional Ownership**

This study found institutional ownership does not have a significant influence on bank performance in Nepal. The findings of this study are consistent with Agrawal and Knoeber (1996), Loderer and Martin (1997) and Li and Qian et al.(2006) who found no significant role of institutional ownership on firm performance. The finding of this study is distinct from the results of other studies which support that hypothesis that higher institutional ownership has a strong long term interest in the financial success of the companies and may play an active role in monitoring top management (Baysinger and Hoskisson 1990;Chaganti and Damanpour 1991;Han and Suk 1998). The result shows that even short-term performance may not always benefit from an increase in institutional ownership. The result supports the view that whether the increase in institutional ownership will improve firm performance, it may not improve long-term performance because institutional investors may not always represent the best interest of shareholders. External monitoring by teams of institutional ownership does not always result in greater profitability or better corporate governance. The study finds that only institutional ownership cannot be effective to enhance the operating performance by interfering in the activities of management as the role is given to the board of directors.

#### **8.4.1.8 Foreign Ownership**

The result of this study states that foreign ownership does not have a significant impact on bank performance. The result is not supported by agency theory that foreign ownership minimizes the agency cost which helps to maximize the firm performance. While examining the impact of foreign ownership on firm performance, most studies for example, DeYoung and Nolle (1996), Genay, Udell et al. (2000) and Ongore and K'Obonyo (2011) indicate positive impacts of foreign ownership on performance. The result is not consistent with those of most previous studies in other countries. Hence, the results concluded that the monitoring role of foreign ownership does not work in Nepalese banks. The result is not supported with the argument that foreign ownership can substitute for debt and help firms better by reducing

agency costs of equity by monitoring managers. The results conclude that concentrated foreign ownership only plays a monitoring role because it lets the owners access qualified information and sets up an efficient monitoring mechanism in the firms (Diaz-Diaz et al. 2008). Investors may only focus on short-term goals rather than long term returns in the absence of concentrated ownership. In Nepalese banks, the foreign ownership is quite low and divergent, thus the monitoring of foreign ownership on banking activities may not be considerable.

#### **8.4.1.9 CEO Remuneration**

The result shows that the pay of CEO in Nepalese banks has no significant contribution to bank performance. The result is not consistent with the rational behavior hypothesis that the CEO is paid more to motivate them more and works harder to improve the financial performance of the corporation that he/she leads. However, the finding of this study is not supported with this argument in context of Nepalese commercial banks. This finding suggests the bank think about the role of the CEO compensation as an incentive for improving bank performance whether the designed CEO compensation actually affects the bank profitability of this scale. The board members must make sure of the representation of shareholders while designing the CEO remuneration. The result supports the argument of Lewellen and Huntsman (1970) that the management is not necessarily self-conscious to act with the owner's welfare in mind, and suggest that the board member's goal is to figure out a way to compensate to the CEO fairly while still giving him the incentive to look out for the best interest of the bank. This dilemma minimizes the principal-agent problem. The principal-agent relationship is in two parts that the agent (manager) is always looking out for his best interests for good remuneration as much as possible whereas the principal (shareholder) owns a stake in the company which helps them for the better performance of the company as much as it can. So this study suggests that the board member must choose that way for the CEO compensation which motivates them for the better performance of firm. One theory is to use an incentive-based contract where the CEO is paid a base salary and is rewarded with a performance-based bonus. According to Murphy (1986) the level of managerial effort will depend on an executive's incentive contract. The possible reason for this finding in the context of Nepal may be consistent with the argument of Murphy (1986) that pay and performance are both heavily linked during the initial years of an executive's career.

#### **8.4.1.10 Control Variables**

As a control variable, loan loss provision is found to have no significant effect on bank performance. This implies that the size of loan loss provision as a measure of management's risk taking behavior does not have any significant effect on bank performance. This situation may be supported with the fact that income from new granted loans compensates the risk of uncollectable loans. The finding of this study is consistent with (Fanta, Kemal et al. 2013). The result of this study found that bank size has a positive effect on bank performance; implying larger banks enjoy better profits than smaller banks in terms of accounting measurement. This benefit is likely to be due to economies of scale and larger market share possessed by the larger bank which is in line with previous studies.

The finding of this study is consistent with claims of Berger (1995) that well capitalized banks face lower costs of funding which reduces the risk incurred by the bank. Similarly, the results support the argument of Sufian and Habibullah (2009) that strong capital structure provides additional strength to withstand financial constraints and increased safety for depositors during unstable macro-economic conditions particularly for banks operating in the banking sector of developing economies. They can, therefore, afford to maintain the same level of risk of investing in riskier assets whose expected return is of course higher. This results in better performance.

In a scenario where balance sheets and conventional analytical tools becomes less informative, macro-economic instability allows controlling shareholders to expropriate minority shareholders and other stakeholders easily, as the ability to monitor the company and its manager is seriously undermined.

The effect of GDP growth on bank performance is different depending on whether to consider ROA and Tobin's Q. In the first case, when ROA is considered, the effect is positive but not significant. This situation shows that, generally, banks adjust their interest rate as the trend of economic activity to maintain their profitability. But in the case of Tobin's Q, GDP growth is significantly positively related. This result shows that stock and bond investors are always trying to predict uncertainty in the future and assess the risk and outcomes related with growth, shifting resources back and forth between fixed income and co-ownership as

they forecast either bust or boom respectively. Equity risk premiums are much more a matter of forecasted future growth differential than they are of past or even present.

The finding reveals that inflation has no significant impact on bank performance in both measurement i.e. accounting and market. The result suggests that the effect of inflation on bank returns depends upon whether it is anticipated or unanticipated. In the situation of anticipated inflation, the bank can adjust their interest rate which keeps the bank on target for their profitability. In the case of market measurement, the stock traders have professionals on stock trades and do transactions of stocks with the hope of profit making from changes in share prices. They are interested in short-term profitability rather than long-term profitability or the value of assets of the company. The prediction that others will buy shares in future motivates the stock traders to buy shares with the hope to sell the share with high price. If others believe the same thing, then the wave of buying pressure will, in fact, cause the price to rise.

This study found that money supply growth has no significant impact on profitability of banks in the context of Nepal. The results argue that although money supply is basically determined by the central bank policy, it could also be affected by the behavior of households that hold money, and banks in which money is held. Similarly, it is argued by previous researchers that the broad money supply impacts on the stock market as well. So, the finding of this study supports this argument that monetary policy influences stock returns by the discount rate (the weighted average cost of capital) and the future stream of cash flows. Tightening of the monetary policy raises the rate of interest which reduces net profits. Hence, it may be concluded that tightening of monetary policy helps to minimize the inflation rate and also stock prices as it leaves less money for individuals to demand goods or to buy stocks.

Using accounting based performance, only board size is found significant and negatively impacts on bank performance in Nepal, whereas other corporate governance variables used in this study do not show any important or significant influence on bank performance. This is also proved by previous research in context of developed as well as in developing economies. In contradiction to accounting based performance, the study shows board size has a positive influence on bank performance on market based measurement, whereas board independence and diligence has a negative influence on bank performance.

## 8.5 Summary

The results and discussion of corporate governance determinants of bank performance is discussed in this chapter. The relationship of corporate governance and bank performance in Nepal from the hypothesis, which was tested for statistical significance, was discussed in relation to the theory, literature and context of the study. The results revealed that among the corporate governance variables, board size were found as a significant determinant of accounting return i.e. ROA of the bank. Other governance variables used in this study have no significant influence on bank accounting return ROA in Nepal. In addition to board size, board independence and diligence have a significant influence on bank performance measured by market base and the other governance variables used in this study are not related as significant determinants of bank performance. In summary, the results show that board size, in the case of accounting return and board size, independence and diligence in case of market return, are the only significant determinants of bank performance. The results conclude that Nepalese banks started to follow the corporate governance practice after the issuance of directives by the central bank in 2005. This shows that still the Nepalese commercial banks are in a transition period to adopt good corporate governance practice which is proved by the results of this study. Most of the corporate governance variables such as audit committee size, independence, diligence, institutional ownership, foreign ownership, and CEO remuneration have no significant influence on bank performance in Nepalese banks.

## CHAPTER NINE

### Conclusions and Recommendations

#### 9.1 Introduction

This chapter discusses the economic and political environment in which banks perform in Nepal. It also discusses the strategies firms have used to counteract the adverse effects of the volatile economic and political environment which have resulted in the resilience of the economy. The findings of the study are based on various theoretical perspectives and the empirical literature about corporate governance practices of both developed and developing countries. Furthermore, this chapter provides a summary of the conclusions drawn from the determinants of Non-performing Loan (NPL) and the influence of corporate governance on NPL and bank performance. Finally, recommendations for the code of best practice and the proposed conceptual framework for future research are summarized.

The structure of the chapter is organized as follows: Section 9.2 provides an overview of the research question and Section 9.3 provides the focus of study. Section 9.4 presents the findings of the study and Section 9.5 discusses the implications of the study. Section 9.6 discusses the limitation of the study and recommendations for future research. Section 9 concludes the study.

#### 9.2 Overview of the Research Questions

The research questions of this thesis were as mentioned under

- a. What are the macro-economic determinants of NPL in Nepalese banks?
- b. What are the bank specific determinants of NPL in Nepalese banks?
- c. What are the combined macro-economic and bank specific determinants of NPL in Nepalese banks?
- d. What are the influences of corporate governance on NPL in Nepalese banks?
- e. What are the relationships between corporate governance and bank performance in context of Nepalese banks?

Nepal relies on local and foreign investment and international trade to mobilize the economy. Understanding the determinants of NPL and good corporate governance are essential to

building depositor confidence. Successfully attracting investment from both local and foreign investors provides a stimulus to the economy which results in increased productivity and growth. As a result, regulatory reforms in corporate governance were developed in Nepal through the introduction of a code of best practice in 2006.

The economy of Nepal i.e. its GDP growth grew by an impressive 6.10 percent in 2008 in the midst of a number of serious challenges including adverse weather conditions, political disturbances and frequent insurgency. The economy's resilience to these adverse conditions was reflected in the growth of the service, industrial and agriculture sectors.

Survival strategies of the banks to maintain a healthy profitability amidst the economic and political adversities were extremely important to the economy of Nepal. Banks were undertaking strategies to mitigate risk by diversification into new products and new markets and undertaking emergency reassessment of the short-term goals in the backdrop of a worsening country scenario. Some high performing banks have ventured into new businesses. One of the factors for the good performance of some banks that operated in a highly volatile environment is their effective risk management practice. Furthermore, stock market performance showed share prices in Nepal were also driven by speculative activities but governance practices in Nepal are trying to provide accountability to shareholders.

### **9.3 Focus of Study**

The magnitude of NPL is a key element in the initiation and progression of financial and banking crises. Ahmad (2002) reported a significant relationship between NPL and financial crises and concluded that credit risk which is often measured by NPL had already started to build up before the onset of 1997. Laeven and Valencia (2008) counted 124 systemic banking crises over the period 1970 to 2007. The Asian financial crisis had become more serious as NPL increased. Further, the current impending global financial crisis which began in the United States is attributed to the August 2007 collapse of the sub-prime mortgage market. In fact, there is evidence that the level of NPL in the US started to increase substantially in early 2006 in all sectors (Greenidge and Grosvenor 2010). NPL are, therefore, a measure of the stability of the banking system, and thereby the financial stability of a country. In addition, banking crises have significant costs. Honohan and Klingebiel (2000) found that developing countries spent 14.3 percent of GDP to clean up their financial systems from the consequences of such crises. Thus, the first step of building a stable and strong financial

system is to minimize NPL or bad debt levels (Campbell 2007; and Sanjeev 2007). So the research on determinants of NPL is motivated by the above discussion.

Besides the above factors, research in corporate governance was motivated by renewed public interest after high profile corporate failures and scandals occurred internationally. There were strong calls for greater accountability and transparency concerning the way corporations are controlled and managed. In response, a range of laws impacting corporate governance were passed in several countries. The codes or principles and guidelines were basically a non-binding set of principles, standards or best practices, issued by a collective body and relate to the internal governance corporations (Well and Manges 2003). The view taken was that the codes/principles based governance approaches allow companies and/or industries to develop governance structures that are specific to their context.

To improve the standard of governance practiced in Nepal, the central bank issued NRB directives regarding corporate governance for bank which are supported by suggestions or guidelines as to how the principles should be implemented. It was assumed that the adoption of principles and guidelines would result in good governance practices leading to improved financial performance. It was recognized that the board of directors is an important internal governance mechanism and can play a more proactive part in discharging a fiduciary role for improving a company's financial performance. In this regard, the NRB directives regarding corporate governance focused on making boards more independent of management by having an independent chair, and professional directors as members of board committees such as audit, remuneration and risk management.

This thesis, firstly reports an investigation of determinants (macro-economic and bank specific) of NPL in Nepalese commercial banks. Secondly, an examination of whether or not governance variables influence NPL in the context of Nepalese commercial banks has also been a focus of this study. The governance factors implemented through board independence and activity, and board committees recommended by Central Bank of Nepal are of particular interest in this regard.

This research also examined the influence of corporate governance mechanisms on bank performance in the context of Nepal. These mechanisms include board size, board independence, board diligence, audit committee size, audit committee independence and

audit committee diligence. In addition to this mechanism, this study also included ownership structure and CEO remuneration as part of the analysis of influence of these variables on Nepalese bank performance. In regards to performance of commercial banks, the research adopts accounting and market based measurements i.e. ROA and Tobin's Q.

The data for the bank are obtained from Annual Reports for the period 2001 to 2011 and also hand collected from individual banks in regards to corporate governance variables. For the macro-economic variables, the study used monetary policy reports, various publications and reports of Central Bank of Nepal, and World Bank data bases as sources. Ordinary Least Square (OLS) regression techniques on pooled data are used to test the hypotheses. The FE and RE regression technique is used to control for unobserved heterogeneity. GMM is employed in the context of NPL to control endogeneity.

## **9.4 Summary of the Findings**

This section summarizes the finding of this thesis. In the process of this, this section summarizes the results of macro-economic and bank specific determinants of NPL of Nepalese banks. Besides this, the influence of corporate governance on Nepalese bank NPL and performance is also summarized in this section.

### **9.4.1 Macro-economic Determinants of Non-performing Loan**

The financial intermediaries' model explains that banks predict the macro-economic conditions of a country to forecast possible returns on lending, whilst businesses use macro-economic analysis to determine whether their operation will be welcomed by the market. This study has hypothesized that macro-economic conditions of Nepal are the main factors affecting the NPL of bank to fulfill the research question. The relevant variables that were hypothesized as a macro-economic predictor of NPL are: GDP growth, GDP growth one year lag, inflation, inflation one year lag, broad money supply growth, exchange rates, growth of share prices index, and market interest rates. However, among all macro-economic variables used in this study, four variables were found to be statistically significantly related to NPL in context of Nepalese banks.

According to the theory the study found that GDP growth one year lag, foreign exchange and market interest rates have a positive impact on loan quality of banks and help to minimize NPL. By contrast, the study found that inflation has a negative relation to NPL in the context

of Nepal. The study found other macro-economic variables including current GDP growth, inflation lag, money supply growth and growth of share prices index have no significant influence on bank NPL which is supported by theory.

#### **9.4.2 Bank Specific Determinants of Non-performing Loan**

This study hypothesized eight potential bank specific variables to meet the objectives of the study. Apart from macro-economic economic variables, bank specific variables may also be explained as determinants of NPL. The financial intermediaries' theory and agency theory suggest that the bank specific factors such as NPL one year lag, loan growth, loan loss provision, and interest rate spread have a positive relationship with bank NPL. The study found this result is in line with the theory that NPL lag and loan loss provisions have a maximize bank NPL. A negative relationship was found in the case of loan growth which is in contrast to the expected theory. Similarly, the result does not support the theory that a higher interest rate spread has a negative impact on loan quality and increases NPL, as the study found no significant impact on NPL in the case of Nepal.

Similarly, the study supports the theory that branch growth, bank size, earnings and capital have a negative relationship with NPL and contribute to minimize NPL of banks. However, the study found that bank size and earnings have a positive impact on loan quality and minimize NPL, which is in line with the theory as suggested. The findings of this study do not support the theory that branch network and capital are negatively related to bank NPL. So the study found that NPL lag, loan growth, loan loss provision, bank size and earnings are determinants of NPL in context of Nepalese banks.

#### **9.4.3 Influence of Governance on Non-performing Loan**

To examine the objective of this study that corporate governance has a significant influence on bank NPL, the relevant variables that were hypothesized are: board size, independence and diligence, audit committee size, independence and diligence, institutional ownership, foreign ownership, and CEO remuneration. Other bank specific and macro-economic variables have been used as control variables. Based on agency theory and the previous literature, this study hypothesized that board size has a positive relationship with NPL, whereas other corporate governance variables used in this study had a negative relationship with NPL. The study found the results were in line with the theory that board independence has positive impact on loan quality and minimize the bank NPL, whereas audit committee

size, audit committee independence and institutional ownership were found positively related to NPL which is in contrast to theory.

The result is not supported with the theory that board size, board diligence, audit committee diligence, foreign ownership and CEO remuneration have a significant influence on bank NPL in the context of Nepal.

#### **9.4.4 Influence of Governance on Bank Performance**

The study used nine corporate governance variables to examine their influence on bank performance. The study used two measurement of bank performance, namely accounting base measurement (ROA) and market base measurement (Tobin's Q). The study also used loan loss provision, bank size, capital, GDP, inflation and broad money supply as control variables.

As per agency theory, this study hypothesized that board size had a negative impact on bank performance, whereas other corporate governance variables used in this study have a positive impact on bank performance. The regression results showed that only board size is a significantly negative influence on ROA, in context of banks in Nepal in accordance with the theory. Other variables have no significant influence on bank performance as measured by ROA, and is not supported by the theory. However, when the study considers the market based measurement performance of banks, board size was found a positive influence on bank performance which is contradiction with the theory. This study also found the result contrasted with the theory that board independence and board diligence have a negative influence on bank performance. The other governance variables such as audit committee size, audit committee independence, audit committee diligence, foreign ownership, institutional ownership, and CEO remuneration have no significant influence on bank performance in both measurement i.e. accounting and market, which does not support the theory, in context of Nepalese commercial banks.

In conclusion, this study found that the Nepalese commercial banks need to pay attention to bank specific variables and corporate governance variables rather than just blaming the macro-economic condition of the country. This study shows that among the macro-economic variables used in this study, GDP with one year lag, inflation, market interest rate and the fluctuations in the exchange rate are the significant variables that drive the banks' NPL in

Nepal. With these macro-economic variables, other bank specific variables NPL lag, loan loss provision, loan growth, earnings and bank size were significant variables to explain NPL. Considering the importance of governance to minimize the risk in the banks in Nepal, this study also found that board independence, audit committee size, audit committee independence and institutional ownership were important variables which also influenced bank NPL in Nepal, along with macro-economic and bank specific variables.

In the case of bank performance, the study revealed that only one corporate governance variable that is board size, was found as a significant determinant of accounting return, ROA. In addition to board size, board independence and diligence have a significant influence on bank performance measured by market return. The study concludes that board size is a significant variable which influence the bank performance in terms of both accounting return and market return. Board independence and diligence are the additional significant variables that influence the bank performance in terms of market return.

## **9.5 Implication of the Study**

This section discusses the implication of this thesis. This section presents the implication of this study for theory, practitioners, policy makers and regulatory agencies.

### **9.5.1 Implication for Theory**

This study was accomplished to broaden the framework of theories. The theory of financial intermediation focuses on an intermediary role of banks where they are delegated to monitoring depositors' money as well as checking borrowers' activities on behalf of depositors to ensure that they have all the necessary information to reduce an asymmetric information problem. Our findings concerning the relationship between NPL and rapid rate of growth of loans and earnings of banks have proven that the implications of this study support the theory of financial intermediation. However, when management of a bank relaxes their credit standards or takes on excessive risk, the probability of an adverse selection and moral hazard activities increases, which leads to an increase in the NPL.

The findings regarding the impact of bank size on their NPL exposure supports the portfolio theory that the larger bank has more diversification opportunities compared with the smaller bank. As a result, they have low NPL and they are safer.

Capital assets pricing theory suggests that systematic risk results from external factors whereas unsystematic risk results from internal factors. The findings are consistent with the capital assets pricing theory. We found that aggregate economic activity, inflation, market interest rate and exchange rate which are (systematic variables) by their nature, have significant impacts on NPL. Moreover, the study found that lag NPL, loan loss provision, loan growth, efficiency and bank size, which are unsystematic by their nature, have a significant impact on NPL.

Agency theory suggests that good corporate governance reduces the agency cost for shareholder wealth maximization to creating shareholder value and protecting the interests of all stakeholders. Good corporate governance practices are important for accountability to shareholders and other stakeholders. The results show the size of boards of directors is an important element of corporate governance which maximizes the bank performance and stock performance. However, the result regarding other corporate governance variables, specifically board independence, board diligence, audit committee size, independence and diligence, ownership structure and CEO remuneration on bank performance, contradicts agency theory.

### **9.5.2 Implication for Practitioners, Policy Makers and Regulatory agencies**

The results leave several implications for banks in Nepal. Viewing evidence about what drives bank NPL will help Nepalese banks understand which economic and financial factors are critical to track and analyze in order to attain operational success and forecast their NPL in the future. The study also supports the convention that commercial banks should pay attention to the performance of the real economy when providing loans so as to reduce the magnitude of NPL. In an effort to control the magnitude of NPL in Nepal, bank regulators should seek to implement measures designed to ensure that bank maintain adequate provision and conservative credit standards during instances of economic growth in order to mitigate the effect of increased NPL during periods of recession.

Moreover, the practical implication of this study is to provide a guideline for the bank's in Nepal that should be taken in terms of the formulation of strategies and credit policies. The bank should follow a prudent credit policy during good economic conditions, not a lenient policy. Although the ability of the borrowers to repay their financial obligations increases during boom periods, the study found that NPL resulting during good economic conditions

are carried forward to the period following the recession periods. These lags heightened the NPL problems during recession periods. In addition, the bank should not reduce stringent credit standards during the low interest periods because of the positive conditions associated with the low interest rates. This leads to an increase in the probability of an asymmetric information problem which contributes to raising bank exposure to NPL. Besides this, policy makers can have a “bird’s eye view” regarding the results of their decisions previously taken. They also can make prudent judgments in preparing further NPL minimizing policy.

For practitioners to mitigate their overall bank exposure to NPL, they have to align their bank capital with their NPL exposure. The results show bigger banks manage their risk better than smaller banks. The results emphasize the role of bank capital in increasing their soundness and safety. The capital of banks represents the first line of defense against risks that could affect the income of banks, negatively. The banks which have a higher capital ratio have lower probability of insolvency. Hence, banks should maintain a strong capital base capable of absorbing various types of risk. On the other hand, the findings stress the important function of the central bank in monitoring and guiding the bank to ensure the soundness and stability of the financial system. In this aspect, the central bank should keep up with the latest international development in the field of banking. For example, the results show that the commitment of banks to comply with the instructions of the central bank for Basel standards in capital adequacy increases the stability of banks.

A lag of NPL was found to be positively related to the NPL in this study. Hence, the bank should take remedial actions to address the bank loan problem without any delay. If the bank does not take corrective actions immediately, the problem will be more complicated. When banks transfer problem loans to the next periods, this will increase the duration of the negative impact on the bank profitability. The continued success of the Nepalese banking sector depends on its efficiency, profitability, and competitiveness. In view of the increasing competition attributed to the more liberalized banking sector, bank management as well as the policymakers will be more inclined to find ways to obtain the optimal utilization of their capacities as well as making the best use of their resources, so that these resources are not wasted during the production of banking products and services. Thus, from the regulatory perspective, the performance of banks will be based on their efficiency and profitability. The policy direction will be directed towards enhancing the resilience and efficiency of the

financial institution with the aim of intensifying the robustness and stability of the banking sector in Nepal.

To improve accountability and transparency of managerial decision making to shareholders, the central bank directives recommended that boards should be comprised of professional directors and have audit committees whose members should be independent. However, the availability of a small pool of directors for board positions in banks has created three different types of problems: (i) difficulty in finding directors who are totally independent; (ii) the creation of an “over boarding problem” where some directors sit on too many Boards of different companies; and (iii) the appointment of independent directors who lack appropriate skills.

The problem of selection of board members in banks tends to affect board performance and financial performance. Important areas for the future reform of bank boards should include an increased emphasis on selecting board members based on skills required. Similarly, it is very important to include financial expertise in audit committees of banks for good governance practices. Addressing these issues will lead to an improvement in the application of a principle-based governance approach.

## **9.6 Limitation of the Study**

This study has significantly contributed to our understanding that macro-economic, bank specific and governance impact on NPL and performance of banks. However, as with any research, this study is subject to a number of limitations as listed below.

The sample in this study has excluded the state owned banks. Hence, the outcome from this study cannot be generalized to state owned banks. The study explored the macro-economic determinants of NPL consisting of only six variables i.e. GDP growth, inflation, broad money supply growth, foreign exchange, market interest rates, and growth of the share prices index. The future research may extend these variables by considering other variables, for example unemployment rate, terms of trade, indebtedness etc. Similarly, when considering bank specific variables, this study has not considered the loan concentration which is also one of the important determinants of NPL. So, it is recommended to include this variable also in future research. In the case of examining the impact of corporate governance on NPL and

bank performance, the study has considered data only for seven years. The results may differ if multiple years are considered for analysis.

Data used in this thesis were extracted from the financial annual reports of the banks. Financial account reports suffer from the following errors: they are subject to manipulation, they may systematically undervalue assets; they may produce alterations due to the nature of depreciation methods implemented, the method of inventory valuation, and the treatment of certain revenue and expenditure items.

Besides the selected characteristics, this study does not investigate the impact of other qualitative factors such as the culture and dynamics of boards of directors and audit committees which may have an influence on bank performance. For instance, relationships between members of the board with those of the audit committee, or shareholders, are not explored. As such, the effectiveness of their activities, the scope of reference for the audit committee or support given by the internal auditor on the audit committee, which may have an impact on the bank performance, are not included in this study. This thesis explores four important governance mechanisms namely; board of directors, audit committee, ownership structure, and CEO remuneration. Among the corporate governance variables, the study has not included the board expertise and audit committee expertise which may also drive the bank performance. Similarly, in the case of ownership structure, the research may extend the variables with ownership mix and concentration. While this study checked only internal governance mechanisms, it is possible that external governance factors not explored in this study also determine the NPL and performance of bank.

I hope that these limitations do not compromise on the validity or conclusions drawn based on the results.

## **9.7 Conclusion**

This concluding chapter has discussed briefly the overview of the research question of this study. To address the research question, this chapter described the importance of investigation of determinants of NPL. Similarly, the role of corporate governance in the bank performance of Nepal is also discussed. The chapter presented the summary of findings of this study. It was found that both macro-economic and bank specific variables are important indicators which influence NPL in the context of Nepal. Similarly, corporate governance

variables are also considered as predictors of NPL. However, corporate governance variables are not important predictors for bank performance, in the context of Nepal as expected. Only board size, board independence and audit committee size are considered as main predictors of bank performance. The results and what they imply for theory and practitioners, policy makers and regulators are also discussed. It was suggested that future research should be carried out considering qualitative factors with an extended time span, and some more macro-economic, bank specific and corporate governance variables where this thesis has some limitations. The main contribution of this study is to help the policy makers, practitioners and researchers to understand better the determinants of NPL and role of corporate governance, in context of developing economies such as Nepal by which commercial banks in Nepal manage their NPL and performance and regulatory bodies safeguard the stability and integrity of the financial system.

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