**UNIVERSITY OF GHANA BUSINESS SCHOOL**


# ASSESSING THE EFFECTIVENESS OF DEREGULATION ON NON-PERFORMING LOANS IN SOME SELECTED BANKS IN GHANA

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## DECLARATION

I hereby declare that this thesis, "**ASSESSING THE EFFECTIVENESS OF DEREGULATION ON NON-PERFORMING LOANS IN SOME SELECTED BANKS IN GHANA**", with the exception of referenced works by others which has been duly acknowledged, is wholly my own initiative produced from research conducted under supervision and that no part of it has been published or presented for the award of a degree elsewhere.

BRIGHT BAAH EGYIR _____ _____

(Student) Signature Date

Certified by;

Dr. AMINU KARIMU _____ 22 August,2019

(Supervisor) Signature Date

# DEDICATION

With much gratitude to the Almighty God, this work is dedicated to My Beloved Family, Friends and all Loved Ones who have supported and catered for me in diverse ways.

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Unless the Lord builds a house, those who build labour in vain. Unless the Lord watches over the city the watchman watches in vain. I am very grateful to the Almighty God, my maker, teacher, director, protector and everything, without him this study wouldn't have seen the light of the day. I acknowledge my supervisor Dr. Aminu Karimu without whose relentless effort, selfless dedications and assistance, I wouldn't have come this far with this project. Indeed, your prayers, invaluable supervision and constructive criticism had been instrumental and productive in this project. My sincerest appreciation also goes to David, Baaba Hassan T. Namaa and Abena Dugan for the time spent and contributions in making this project a success.

I am most appreciative to my family, most especially to my lovely parent and wonderful siblings for their immeasurable support, prayers through thick and thin throughout my study. It's my prayer that the good Lord bless you beyond measure.

# ABSTRACT

The financial sector plays an important role in every country in terms of resource mobilization and allocation. It is deemed by many scholars as the pivot around which economies evolve. Banks are globally regarded as the major player in financial sector. The expansion in the activities of banks that include, but not limited to, securities markets, fund management, insurance, to a large extent, can be attributed to deregulation in the financial sector. The study sought to examine the effect of deregulation on non-performing loans in Ghana relying on panel data of sampled banks in Ghana from 1981-2016. The study presented a robust estimation results of the fixed effect and Random effect models. The robust estimation was to control for the presence of heteroskedascity and correlation in the regression model. Based on the Hausman test, we used the random effect model over the fixed effect. The results of the study established that deregulation has no significant effect on non-performing loans in Ghana. However, the study established that loan growth as a bank-specific variable had significant effect on non-performing Loans. Lastly, macroeconomics factors such as inflation and real exchange rate significantly and positively influenced non-performing loans.

Recommendations were made to policy and decision makers and conclusions were drawn based on the findings of the study.

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# LIST OF ABBREVIATIONS

ADF: Augmented Dickey Fuller

AfDB: African Development Bank

BSM: Black, Scholes and Merton

EMH: Efficient markets hypothesis

FINSAP: Financial Sector Adjustment Programme

GDP: Gross Domestic Product

IMF: International Monetary Fund

INF: Inflation

LGR: Loan Growth Rate

NPL: Non-Performing Loan

RER: Real Exchange Rate

REM: Random–Effects Model

ROA: Return On Asset

WDI: World Bank Development Indicators

# CHAPTER ONE

## 1.0 Background to the Study

Over the last decades, many countries have engaged in several reforms designed to deregulate and privatize industries where regulation and public possession have been the order of the day (Alexandersson, 2010). According to Alexandersson (2010), such modifications have affected many banking and financial industries across the globe. Strahan (2002) posited that the state-level deregulation of restrictions on branching became an important part of the United States economic boom which accelerated. Essentially, the banking system had faster growth, macroeconomic stability improved with interstate deregulation which combined across state lines.

As indicated by Abbas and Malik (2010), the efficacy and augmentation of the banking sector to the financial liberalization and deregulation has a consequential effect in a competitive environment. Comparatively there is the existence of a positive correlation between deregulation of the banking sector and bank performance as opined by Olokoyo (2012). While it has been noted that, deregulation decreased the sensitivity of country economies to shocks to their personal banks' capital, it is worth noting also that restrictions on bank activities, lax entry provisions and savings insurance have a tendency of reducing financial institution overall performance and enhance public ownership of the banking system (Fuerst, Goldberg & Gomis-Porqueras, (2012). African countries particularly, have experienced modification from a device of restrictive financial and monetary control to a greater liberalized monetary sector (Marius & Bogdan, 2012). Beck (2008) advances the point that the restrictive policies were expected to contribute to the industrialization of the economic system and even more significantly to the stability of the banking sector. In another context, monetary repression had additional cost on the banking system's competitiveness and efficacy. As mentioned by Stiglitz (1998; cited in Adams and Agbemade, 2012), the technology

of unfettered government intervention in the economy led into many situations of economic inefficiency rather than enhancing market performance.

The socioeconomic environment prevailing in many developing countries gave proof to Cheong's (2004) declaration that distortions in interest and foreign exchange costs should limit the real size of the financial system and typical economic growth. The restrictive financial policies are regarded to have contributed to the retardation of the economic development process in many developing nations (Philips et al, 2014), as was once evidenced in Ghana for the duration of the 1970s and the 80s (Aryeetey, 1994).

Unfortunately, it was in reaction to this and additionally in response to international political pressures and the stride towards liberalization of international economy, that there was once a wave of financial sector reforms, partly as a way to deepen financial markets and additionally to promote economic growth but the economies of African states have seen little changes since the colonial period as stated by Adams and Agbemade (2012).

The Financial Sector Adjustment Programme (FINSAP) was implemented in 1988 to tackle the inefficiencies in the banking enterprise which were, low competition, and low profitability as a result of high non-performing mortgage assets, less liquidity, low capital base, and low level of technology (Anim, 2000). According to Bonney (2011), the financial sector has consequently gone through restructuring for the duration of 1988-1992, and to him, there have been some enhancements in the restructuring. Also, towards the background of unending output losses from the global financial crises and a protracted decline in growth, structural reforms are being more and more advocated by policymakers and institutions alike as a way to revive boom in advanced economies, thereby making deregulation very necessary (Draghi, 2015; IMF, 2015, 2016; OECD, 2016).

Deregulation is described by Obayi, Eme, and Emeh, (2012) as the doing away of regulations regarding financial markets and trades. Anyadike (2013) also defined it as the gradual withdrawal or elimination of regulations in the way of liberating the economy. Ernst and Young (1988) posit that deregulation and privatization are factors of economic reform programmes charged with the overall goal of enhancing the basic economy through suitable spelt out ways. For example, releasing government from the bondage of non-stop financing of great projects which are best suited for personal funding by using the sale of such enterprises; encouraging effectiveness in resources utilization; reducing government borrowing whilst raising revenue; promotion wholesome market competition in a free market environment; enhancing returns from investment and broadening companies share possession accordingly engendering capital market improvement (Izibili & Aiya, 2007). Eme and Onwuka, (2011) put it otherwise by way of indicating that deregulation in the economic sense depicts freedom from government control.

In principle, deregulation is usually intended to boost competition. However, deregulation must seek to open an industry to opposition and this competition should stimulate innovation and also improvement of products that enhances customer satisfaction. Nonetheless, despite some progress over the years, there is little agreement with respect to whether deregulation will end in expanded or reduce hazard amongst the participants of the deregulated industry. Therefore, the effect of deregulation has not been matched by a corresponding growth in the financial industry hence an empirical issue. Researchers have examined the modifications in risk that takes place in the deregulation of the airline, telecommunication, trucking and financial services among other industries (Semaan & Drake, 2009). This current study seeks to assess the effectiveness of the credit risks that have emerged after the deregulation of the financial sector in the Ghanaian economy.

## 1.1 Statement of the Problem

The financial sector plays an important role in every economy in terms of resource mobilization and allocation and, is by far, the most vital part of the financial system in developing countries, accounting for bulk of the financial transactions and assets (Herring & Santomero, 2000; Zhuang et al, 2009). Banks, which are globally regarded as the major player in financial sector, have recently expanded in other activities such as securities markets, fund management, insurance, among others, obscuring the distinction between banks and other financial markets. It is argued that if banks undergo large losses and find themselves short of capital, it will enforce large negative externalities on the rest of the economy.

Financial crisis of late 2000s, which started from US and spread into whole world having trading relationships with US, is also labeled as cause of default in mortgages/loans. Increases in NPLs' rate is the main reason of reduction in earnings of banks. Notwithstanding, there has been varying opinions, over the years, on the success of financial deregulations in the banking sector. A study by Chen (2007) found that deregulation has positively impacted loan recovery in EU. A more recent but contrary study by Pilbeam (2018) revealed that deregulation has negative impact on loan performance.

The study revealed the ease of entry in to banking services as a result of deregulation has sprung up a lot of banks leading to unhealthy competition. The effect is that banks may not conduct due diligence before granting loans to customers and hence lead to high level of non-performing loans. Soedarmono (2011) also acknowledged that contemporary financial crises were mostly triggered by financial sectors and thus, casting doubts on financial liberalization policies that spur financial development. Like most developing countries, Ghana adopted some forms of deregulation in the financial sector in early 1990s.

The collapse of indigenous banks has become a set back to the effort of promoting indigenous Ghanaians to take control of our economy by building strong local institutions. The history of bank failure in Ghana is dominated predominantly with locals Banks with some evidence dating as far back as 2000 when the Bank for Housing and Construction went down. These issues and many others have whipped up my interest to assess the effectiveness of deregulation on Non-Performing Loans in Ghana since little has been done in spite of the varying findings in other jurisdictions.

**1.2 Objectives of the Study**

The overall objective of the study is to assess the effectiveness of deregulation on Non-Performing Loans in Ghana. In so doing, the study will consider certain bank-specific variables and other economic variables that are likely to influence non-performing loans after deregulation. For an in-depth analysis of the above-stated objective, the following specific objectives will be pursued:

1. To examine the bank specific factors that influenced non-performing loans in some selected banks in Ghana on deregulation;
2. To examine the effect of other economic variables that influenced Non-Performing loans in some selected banks in Ghana on deregulation;
3. To determine whether or not deregulation influence loan performance of the selected banks.

**1.3 Research Questions**

The research question seeks to provide answers to the following;

1. What are the bank specific variables that influence non-performing loans among banks in Ghana on deregulation?
2. What are the economic variables that influence non-performing loans among banks in Ghana on deregulation?
3. Can loan performance be directly linked to deregulation?

## 1.4 Significance of the Study

The importance of this research stems from the increasingly need to the effectiveness of deregulation on Non-Performing Loans in Ghana.

**Practice:** This will enable Banks, Investors and the general public to know the importance of deregulation on non-performing loans.

**Policy**: This will enable Government, key stakeholders and policymakers find appropriate empirical basis to improve and regulate banking sector to the advantage of all.

**Research**: This research is being undertaken to assess and draw lessons from the performance of the deregulation on non-performing loans which has received little attention in the banking sector in Ghana and also contribute to the already existing literature on the subject area in the country for further study in relation to the deregulation in the banking sector.

## 1.5 Limitations of the Study

It is foreseen that management of banks might not be readily forthright with the relevant information for the research. These shall be overcome by promising management of the confidentiality of whatever information provided. The study also anticipates time as the number one limitation of the study. Again, this study is limited to only the number of banks that operated prior to deregulation and after deregulation.

## 1.6 Organization of the Study

This research is presented in five chapters. Chapter one details the background of the study, the statement of the problem, research objectives and research questions. It further provides the significance of the research, the limitation of the research and the organization of the research. Chapter two focuses on the review of existing literature from various books, articles, related

research works and internet resources which will help the researcher in extracting the relevant literature on deregulation on NPL's in Ghana. Chapter three will focus on specification of the methodology to be used for the research and sources of data. Chapter four will be devoted to the presentation and analysis of data. Chapter five presents a summary of findings, conclusion and recommendations.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.0 Introduction

This chapter presents theoretical foundation of the subject matter and reviews existing literature on the financial sector prior to and after deregulation, impact of the deregulation of the financial sector and the role of the financial sector.

## 2.1 Overview of the Financial Sector in Ghana

In 1986, Standard Chartered Bank(Ghana) Limited formerly the British Bank of West Africa opened an office in Accra which commenced banking activities in Ghana and offered basic banking services of borrowing and lending money to customers (Kapstein et al, (2011) and Gockel (1995)). April 2018, the Ghanaian banking industry relatively consisted of 34 banks of which 17 are foreign controlled banks and the other 16 are 17 are locally controlled banks (Ghana Banking Report, 2018).

Banking system in Ghana is characterized by the concept of universal banking where banks render all forms of banking services. Although there had been some specialized banks in the past, one way or the other they have all transformed into universal banks (Annim 2000).

Ghana's financial sector have gone through a number of reforms which has resulted in several transformations (Owusu-Antwi, 2009; Brownbridge & Gockel, 1996). In the early stages and prior to the reforms, there was an extensive post-independence government intervention. Public ownership dominated the banking systems.

Banks that were established between 1950 to the late 1980 were either wholly or majority-controlled by the public sector. Interest rates were being fixed by the Monetary Authority (Bank

of Ghana) and there were limitations on sectorial credit allocation. Brownbridge & Gockel, (1996) as well as Annin (2000) have testified of the severe financial suppressions, steeply negative interest rates with the financial sector policies. The findings indicated that most credit were channeled to the public sector.

This discussion generated series of reforms comprising the liberalization of allocative controls on banks, restructuring of insolvent banks and reforms to prudential regulation and supervision. In the early 1990s, financial sector liberalization in Ghana was introduced as part of a comprehensive macroeconomic adjustment programme under the Financial Sector Adjustment Programme (FINSAP).

**2.2 Overview of the Ghana Banking Sector**

In the 1980s, most public sector banks were declared insolvent with about 41% non-performing loans attributable to the private sector (Kapur et al., 1991, pp. 60–61). The World Bank spearheaded numerous prudential banking reforms in Ghana and many developing economies as witnessed during this period. Specifically, in Ghana, such reforms included the passing of the Banking Law, 1989 (P.N.D.C.L. 225), Bank of Ghana Act, 2002 (Act 612), the Banking Act, 2004 a&b (Act 673), and the Banking Amendment Act 2007 (Act 783). The Banking Law (P.N.D.C. L225) was revised in 1989 under the Financial Sector Adjustment Programme (FINSAP I). Some of the new provisions in the Act included placing limits on risks exposure; capital adequacy ratio of 6%; setting uniform accounting standards and expansion of auditing scope and strengthening both on-site and off-site supervision of banks by the Bank of Ghana.

The supervisory powers of the Bank of Ghana were enhanced with the revision of the Bank of Ghana Law (P.N.D.C. L 291) in 1992.In 2002, the Bank of Ghana Act 612 led to the establishment of the Banking Supervision Department responsible for the supervision and examination of all

banking institutions in the country to strengthen the regulatory capacity of the Bank of Ghana. The supervision of the banking and credit system was to ensure adherence to prudential banking reforms by Ghanaian banks. The Banking Law, 1989 (P.N.D.C.L. 225), was replaced by Banking Act, 2004 (Act 673) to promote an effective banking system. The regulations in the Act covered the licensing of banks, capital requirements, liquidity, ownership and control, restrictions on lending, supervision and control and accounts and auditing.

A notable reform in the Act was the increase in the minimum capital adequacy ratio from 6% to 10%. The Banking Amendment Act (2007), Act 738, replaced the Banking Act (2004) with an additional function of ensuring the soundness and stability of the financial system in Ghana and also the establishment of offshore banking and other offshore financial services such as insurance and leasing with a focus of positioning Ghana as the regional hub for financial activities in Africa and to attract diaspora investments. As evidenced from the aforementioned reforms, most of the regulations have sought to ensure adherence to best banking practices.

### 2.3 The Concept of Deregulation

Deregulation is defined by Okarah (2014) as the elimination of regulations concerning financial markets and trades. Ernest and Young, (1988), Zhao, T. Casu B. & Ferrari A. (2006) and Orhangazi (2014) stated that deregulation and privatization are elements of economic reform programmes through which an economy seeks to improve on its overall goal through clearly defined ways. An instance is releasing government from the bondage of continuous financing of extensive projects which are better suited for private investment by the sale of public enterprises; which seeks to motivate efficiency and effectiveness in resources utilization; cutting down government borrowing while raising revenue; supporting healthy market competition in a free market environment;

enhancing returns from investment and widening enterprises share ownership thus engendering capital market development (Izibili and Aiya, 2007:228).

Further, deregulation can be defined as freedom from government control (innocent & Charles, 2011). Akinwumi et al (2005) posited deregulation to be an elimination of government interference in the system operation. Deregulation can also be defined as a system of government operation where systems are relaxed, maintained or fixed so that the system can decide on their own what optimum level influences the forces of demand and supply (Ajayi and Ekundayo, 2008). Okarah in 2014 postulated that when enterprises are deregulated it gives them the chance to have a minimal restriction as possible as a result of overall withdrawal of government controls in sharing and production of goods and services. A country's economy if deregulated could be conceptualized as divestiture or market economy (Korinek & Kreamer, 2013). By this they meant private participation in a Country's economic activities hence promoting competition in the economic system and eliminate monopoly so as to allow the forces of demand and supply in price fixing.

On the report of Ahmed (1993), deregulation involves offering greater space to the private sector as the key mover of the economy, divergent to emphasis on the dominance of the public sector. In the quest of achieving this objective, greater roles are given to market forces as against strict regulation by the government. The primordial goal is to stabilize and restructure the economy for uninterrupted growth. On the contrary, Ayodele (1994) posited that, deregulation is an important part of price and market reforms comprising both unshackling private sector development through the elimination of government restrictions on the private economic activities and divestiture of the public assets especially the public enterprises (Pes) into private hands.

The main aim of deregulation includes; introducing a market economy, increasing economic efficiency, establishing democracy and guaranteeing political freedom as well as increasing

government income (Dhaji and Milanovic, 1991). Daly & Goodland (1994) also stated planned Objectives of the deregulation policy as:

- Disassemble the natural monopoly of the state owned enterprise by privatizing and deregulating price controls.
- Build competition in the sector by encouraging more companies to get involved and ultimately supplying the market at competitive pricing levels.
- Enhance Foreign Direct Investment to the economy.
- Permits more innovation from small, niche players.
- Permit the free market to set prices. Often prices drop as a result.

**2.4 Financial Deregulation**

A study by Van der Elst (2002, cited in Bonen, 2008) posited that, the financial market reforms since its inception has brought growth of the European stock market. When such reforms arose in the United States and Britain some 15 years prior, essential transformations was seen in their political economy (Krippner, 2003). Bonen (2008) tried to find out whether the sort of transformation that occurred in Britain and United States could be felt in Europe and other international economies. In that regard Bonen (2008) in his research used what is termed as Varieties of Capitalism (VoC) approach. He said, the VoC stipulates that developed countries demonstrate various forms of capitalism, ranging from liberal markets economies (LMEs), exemplified by the United States, to a coordinated economies (CMEs) such as Germany. Again Bonen (2008) added that VoC scholars argue against the convergence of political-economic systems, arguing that unique institutions arrangements establish competitive advantages for various sectors in the several forms of capitalism.

The framework path reliance and institutional inertia are major elements that create differences between countries according to Bonen (2008). He also indicated that (quoting Hall & Soskice, 2001) there is a little explored notion in the VoC literature that "financial deregulation could be the string that unravels coordinated market economies" (Hall & Soskice, 2001, p.64). In subsequent study of Bonen in 20018 enquired why financial institutions are the potential source of convergence in his model. The findings indicated that it is the corporate governance effect of deregulation that modifies the nature of the firm and, by extension, the economy. Thus, financial deregulation boosts the likelihood of convergence since it homogenizes the operation of business by enforcing the practice of shareholder primacy.

### 2.4.1 Elements of Financial Deregulation

Bonen (2008) established that, the problems in discovering a comprehensive list of what financial deregulation entails. Additionally, he postulated that in order to appreciate the legal and regulatory prescriptions of deregulations, it is best to have in mind that it is premised on the allocative efficiency of capital markets. Meaning, when transaction cost is reduced, then traders act as arbitrageurs by moving capital toward assets with under-valued returns and vice versa. Through the repetition of this process, asset prices remain in line with the 'fundamentals'. Financial deregulatory reform was first pursued by the United Kingdom and the United states (Goyer, 2006).

The suspension of the American dollar's convertibility in Gold in 1971 brought the emergence of foreign exchange markets to advance in order to facilitate foreign trade. Subsequently, monetary policy shifted from elected officials to independent central banks. Furthermore, capital controls were minimized, meaning short-term equity finance is now practically unrestricted. From this point, we can conclude deregulatory policy reforms need only reduce transaction costs and maximize available information to attain efficiency. To conclude, restrictions on pension fund and

bank ownership of corporate shares were also lifted (Davies & Thompson, 2002). Together, these changes formed a new economy that centered on financial markets (Krippner, 2003).

### 2.4.2 The Origins of Deregulation as Positive Theory in Finance

A study by Preda in 2007 posited that, the efficient markets hypothesis (EMH) is the fundamental theory of financial economics. Efficient markets hypothesis was first propounded by Fama (1965). The EMH builds on rational actor assumptions to show that financial asset prices are based on the totality of participants' information. And, since all of the relevant information is eventually captured by the price, one cannot influence financial markets. So, the government has no interest in limiting financial markets, as they distribute capital as efficiently as possible once left to their own mechanisms. Scholars held this belief so strongly that in 1978 Michael Jensen famously declared that: "The efficient markets hypothesis is the paramount established fact in all of social sciences (Jenson, cited in Shleifer & Summers, 1990).

Financial deregulation found its first post-war theoretical support through the EMH. Efficient markets hypothesis was established in a particular academic and political culture. Fama's studies was carried out in the University of Chicago during a period of rebirth in microeconomic theory, with Chicago as the epicenter. During that period, Black, Scholes and Merton formed the eponymous BSM options pricing theorem. The BSM equation makes the calculation of options and futures prices relatively simple.

The simplicity and apparent certainty of the BSM provided legitimacy to derivatives markets, the use of which had been considered undependable since the Great depression (Mackenzie & Millo, 2003). Once recognized, this theorem "became the central paradigm in the full Kuhnian sense of financial economics." Since the BSM theorem 'proves' that economic actors can reliably price

notional values (i.e. the cost of options and futures) the irrational enthusiasm of 1920s need no longer be feared. Black and Scholes (1973) suggest that modern financial economics has been able to unravel the problem: capital markets were proven to be Pareto optimal by the EMH, and; securities markets were shown to be safe and rational through the BSM theorem. Bonen (2008) then conclude that the only impediment was government.

### 2.5 Non-Performing Loans

NPLs can be considered in a broader perspective as loans that are outstanding in both interest and principal for a period of time contrary to the terms and conditions spelt out in the loan agreement. The concept of Non-performing loans differs from one country to another. A loan may be considered non-performing in one country and might not be considered as such in another country. There is, however, some common views on NPL's. The IMF's compilation Guide on financial Soundness Indicators, defines NPLs as "A loan is nonperforming when payments of interest and/or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons such as a debtor filing for bankruptcy to doubt that payments will be made in full" (IMF, 2005).

Likewise, the 2014 annual report of Standard Chartered Bank Ghana Ltd, recognized non-performing loans, in accordance with GAAP and BOG regulations, as; any loan that is more than 90 days past due or is otherwise individually impaired (which represents those loans against which individual impairment provisions have been raised) and excludes:

Loans renegotiated before 90 days past due and on which no default in interest payments or loss of principal is expected.

Loans renegotiated at or after 90 days past due, but on which there has been no default in interest or principal payments for more than 180 days since renegotiation, and against which no loss of principal is expected.

The stock of NPLs stood at GH¢6.2 billion as at end of December 2016, expanding at a compound annual growth rate (CAGR) of 41.89 per cent from GH¢0.26 billion by end of December 2007. By the end of June 2017, the stock of NPLs in the banking industry had risen to GH¢7.96 billion from GH¢6.09 billion in June 2016. The ratio of NPLs to total gross loans (NPL ratio) experienced an increasing trend between 2007 and 2010 from 6.37 per cent to 18.08 per cent and declined to 11.27 per cent in 2014 and thereafter increased to 17.70 per cent in 2016 and 21.2 percent in June 2017. The NPL ratio reduction from 2011 to 2014 was due mainly to an upsurge in new loans disbursed (i.e. increase in gross new loans) and not because of a reduction in the stock of NPLs (BOG Report, 2018).

In recent times, however, a critical analysis indicates that the NPLs conundrum is now being fed by a cycle of events and actors that trace themselves to one source as weak economic fundamentals. The first cause is depressed private sector growth. When companies and individuals borrow funds to invest in their operations or start new ones, returns on those investments are eroded by the results of these systematic economic challenges that include rising inflation, currency depreciation, high fiscal deficits and 'killer' utility tariffs particularly electricity. With these bearish returns on investments, the borrowers are always handicapped in honoring scheduled repayment dates, leading to their facilities being classified as non-performing. BoG data showed that about 94.7 per cent of NPLs originated from the private sector (BOG, 2018).

In the case of the public sector, the government's attitude of not always paying back its loan on schedule has meant that facilities granted to the government and other state-owned enterprises will

have to always be treated as NPLs until a repayment schedule is agreed upon. A case in point is the legacy debt in the energy sector, which is now being cleared through the issuance of bonds.

# CHAPTER THREE

## METHODOLOGY

### 3.0 Introduction

This chapter describes the formulation of a research design and methodology adopted to achieve the stipulated goals for the study. In this chapter the research design, the population and sample are described. Also, the instrument used to collect the data, including methods implemented to maintain validity and reliability of the instrument are described. And finally, how the data was analyzed and presented.

### 3.1 Research Design

The research design is a framework within which research is conducted (Malhotra and Birks, 2007). It serves as the basic plan for collecting and analyzing data. The study is quantitative in nature hence employed a correlational design to explore the relationship between variables using statistical analyses.

The data comprised of variables for non-performing loans from 1981- 2016, which included data from five years prior to the adoption of deregulation in the banking sector (1981-1986). It further considered variables from 1987-2016, which is period after deregulation. The choice of the data was to enable the researcher make a comparative assessment of how deregulation has affected loan performance among some selected banks that have been in existence after deregulation. The choice for the period was mainly due to data availability and the need to include Banks that were operational during the period of study to reflect the situation on the ground.

### 3.2 Data Source and Description

The data used in this study is panel in nature. Panel data, also known as longitudinal data or cross-sectional time series data, is data that is derived from a number of observations over time on a

number of cross-sectional units like individuals, households, firms or governments. By combining time series and cross-section observations, it gives more informative data. As noted by Gujarati (2004), panel data can better detect and measure effects that simply cannot be observed in pure cross-section or pure time series data.

Primarily, data was collected from secondary sources for the study. It was preferred in this study because of time availability and other key resources. Moreover, it afforded an opportunity to collect high quality data (Saunders et al, 2007). In relation to the bank variables, data was sought from the annual financial reports of the sampled banks. Other sources included Bank scope and PWC's Ghana Banking Survey reports. Data on economic variables that may influence loan performance were sought from the Bank of Ghana Website as well as Ghana Statistical Services Website.

**3.3 Sample Design**

The population for this study was all commercial banks in Ghana per the objectives of this study, hence the sample was drawn from them. The study employed purposive sampling technique to select the required sample of banks considering the time and funds available. To be considered for selection, the bank has to be a commercial bank in Ghana and must have license to operate as such within the period under study.

The study gathered data from Ghana Commercial Bank (now GCB Bank), ADB, NIB, Merchant Bank (now Universal Merchant Bank). The choice of these banks is as a result of the fact that these banks have been in operation during the period of study. How well these banks have been able to recover loans to clients after deregulation of the financial sector was to a very large extent considered to be a better appreciation of how deregulation has affected non-performing loans in Ghana. Also, the sample size covers about 44% of the number of banks that were duly licensed

and operational in Ghana during the period of study and hence it is sufficient to draw conclusions from it.

### 3.4 Data Analysis and Presentation

As noted by Kothari (2004), data was analyzed in line with the purpose of the research plan after data collection. Hence the secondary data collected was analyzed to determine its suitability, reliability, adequacy and accuracy. The data collected from the stated sources was coded, checked and entered to simple excel program to make it easier for analysis. It was then processed and analyzed through STATA. Various diagnostic tests such as normality, heteroscedasticity, autocorrelation and multicollinearity test are conducted to ascertain the appropriateness of the model as well as the assumption of classical linear regression model. The degree of multicollinearity among the predictors was analyzed using correlation matrices.

With regards to econometric model, the study relied on panel data models; fixed effect and random effect models. The Hausman's test was used to decide whether the fixed effect or random effect model was appropriate.

### 3.5 Model Specification

This study made use of panel data. Panel data helps to control for variables that cannot be observed or measured like difference in business practices across companies; or variables that change over time but not across entities like national policies and regulations, international agreements, etc., thus it accounts for individual heterogeneity.

Based on the reviewed literature, it is evident that NPLs might be explained by both macroeconomic and bank-specific factors. The model used to ascertain the determinants of NPLs in this study is similar to that of Jiménez and Saurina (2005). The model is a simple linear

regression function that links the ratio of NPLs to total loans and key macroeconomic and bank-specific variables.

The general regression equation is of the form:

$$\mathbf{NPL}_{it}=\beta_0+\beta_1(\mathbf{LGR})_{it}+\beta_2(\mathbf{ROA})_{it}+\beta_3(\mathbf{SIZ})_{it}+\beta_4(\mathbf{GDP})_t+\beta_5(\mathbf{INF})_t+\beta_6(\mathbf{RER})_t+\varepsilon_{it} \quad \textbf{(1)}$$

Where;

$\beta_0$ is an intercept of the banks.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ *and* $\beta_6$, represent estimated coefficient for specific variables for bank *i* at year *t.*

LGR, ROA, SIZ, represent loan growth, return on assets, and bank size respectively of bank *i* at year *t*.

GDP, INF, RER, represent real gross domestic product, real inflation rate and real effective exchange rate respectively at year t. Also, $\varepsilon_{it}$ represent the random error term.

The model is further expanded by the introduction of another variable REGD which is the measure of Deregulation. This is because pre-deregulation period from 1981 to 1986 is too short so the full sample from 1981 to 2016 was used, where a deregulation dummy which takes a value of 1 for each of the years from 1987 to 2016, and zero for each of the years in the pre-deregulation period from 1981 to 1986 was created.

So the model was re-specified as:

$$\mathbf{NPL}_{it}=\beta_0+\beta_1\mathbf{LGR}_{it}+\beta_2\mathbf{ROA}_{it}+\beta_3\mathbf{SIZ}_{it}+\beta_4\mathbf{GDP}_t+\beta_5\mathbf{INF}_t+\beta_6\mathbf{RER}_t+\beta_7\mathbf{REGD}_t+\varepsilon_{it} \quad \textbf{(2)}$$

Where $\beta_7$ is the coefficient for deregulation effect.

### 3.6 Study Variables

Nonperforming loan ratio is the outcome variable used in this study. It is measured in terms of NPLs to gross loan. Also, predictor variables that will be included in this study are loan growth, profitability, inflation and real effective exchange rate.

### 3.6.1 Variables Definition and Justification

Strong association between NPLs and several bank specific variables is evidenced in the literature. These variables include bank size, profitability and loan growth. Some of these variables were used in deregulation to assess their relationship with NPLs in line with previous studies such as De Haan and Poghosyan (2012). Economic variables that are likely to influence non-performing loans in the study include real GDP, Inflation and Real Effective exchange rate. This is evidenced in the study by Klein (2013)

**Loan growth**: Bank managers, lured by the opportunity to maximize returns especially during periods of economic boom, seek to rapidly expand credit activities. This, if not well managed may lead to adverse selection thus majority of loans ending up with low credit quality borrowers and increase the level of NPLs in the long run. Several empirical studies in the literature found a strong positive relationship between loan growth and NPLs (Keeton (1999), Salas and Saurina (2002), Jimenez and Saurina (2006)). As a result, a direct relationship is expected between loan growth and NPLs in this study. Loan growth was measured by the annual percentage change in the loan portfolio of sampled banks in Ghana.

**Profitability**: As noted by Hu et al. (2004), profitable banks are less engaged in risky activities as they have less pressure to create revenues. On the other hand, those with lower profitability are likely to engage in risky lending particularly in order to close variance gaps and thus are exposed to credit risk. In the work of Jimenez and Saurina (2006), they found a negative relationship between profitability and NPLs. Thus, an indirect relationship is expected between profitability and NPLs in this study. There are several measures of profitability, but this study used Return on asset (ROA).

**Bank size**: Several studies reveal that large banks are often associated with lower levels of NPLs compared to smaller banks. Empirical studies relating to the impact of bank size on NPLs support these findings; (Salas and Saurina, 2002; Hu et al, 2006). This could be attributed to the fact that larger banks have better corporate governance ethics, risk management strategies and technology that enable superior credit risk management as compared to smaller banks. An indirect relationship between the size of a bank and bank's NPLs is expected in this study. This variable was measured by the natural log of total assets of each bank.

**Real GDP growth:** Empirically, studies have shown an indirect relationship between the growth in real GDP and NPLs (Salas and Suarina, 2002; Fofack, 2005; and Jimenez and Saurina, 2005). This is largely explained by the increase in income levels brought about by strong positive growth in real GDP which enhances the debt servicing capacity of borrowers. An indirect relationship between real GDP growth and NPLs is expected in this study. Real GDP growth was measured by the annual percentage change in real GDP in Ghana during the period under study.

**Inflation:** in basic economics literature, one of the known effects of inflation is the transfer of income from creditors to debtors. This is plausible when the interest on the loan contract is fixed, otherwise the debt burden may increase, reduce or remain same depending on the extent of the effect of the inflation on the nominal interest rate. Empirical studies show that inflation affects borrowers' debt servicing capacity through different channels and its impact on NPL can be positive or negative. Fofack (2005) found a positive relationship between inflation and NPLs in a number of Sub-Saharan African countries with flexible exchange rate regimes. On the contrary, Smadi (2010) found a negative association between inflation and NPLs in Jordanian commercial banking sector. This study was indifferent in its expectation of the relationship between inflation and NPLs.

**Real Effective Exchange rate**: Businesses are exposed to exchange rate movements especially those involved in international business. Like inflation a change in effective exchange rate can also affects borrowers' debt servicing capacity through different channels and its impact on NPL can be positive or negative. Thus, the relationship between exchange rate and NPL is indeterminate in this study. The annual effective Exchange rate of the Ghana cedi in terms of US dollar.

### 3.7 In Estimating the Effectiveness of the Model

Panel data was employed for this analysis; panel data has two main leading models that can be used to estimate the regression variables. The two models are the fixed and random effect models. The fixed effect model provides the opportunity to track the changes in the variables over time to estimate the effect of the independent variables on the dependent variables. It also provides the researcher with results that are more consistent but could be the less effective model to run in certain situations.

The random effect is used where some omitted variables may be constant over time but vary between cases, others may be fixed between cases but vary over time. In order to determine between fixed effect and random effect, the Hausman test was used.

# CHAPTER FOUR

# DATA PRESENTATION, ANALYSIS AND DISCUSSION

## 4.0 Introduction

This chapter presents the findings of the study based on scientific methods and processes. Findings are presented in appropriate forms using tables. Answers to all research questions are therefore found in this chapter. For all results, discussions are made based on theoretical and empirical views.

## 4.1 Data Description and Discussion of Results

This section presents an initial summary of the variables being studied. Summary statistics comprising frequencies and the percentages of the variables used in the model are presented. It analyses and discusses the findings in the study. The chapter acts on the research questions as provided in chapter one and provides detailed discussions and empirical findings in the form of tables to show how micro and macroeconomic factors and bank specific variables influence non-performing loans.

## 4.2 Descriptive Statistics

From Table 4.1 below, it is shown that over the time period under observation was from 1981 to 2016 for 4 banks, resulting in 144 observations in all since they are annual frequencies. Non-performing Loan which is the dependent variable ranged from 0.15 to 18.2. It also indicated a mean and standard deviation of about 2.9 and 2.2 respectively. In addition, Gross Domestic Product (GDP) ranged from -6.9 and 14 with a standard deviation and mean of 4.5 and 3.6 respectively. Real Exchange Rate (RER) and Return on Asset (ROA) recorded means 339.7 and 2.9 respectively, and standard deviations of 704.9 and 2.2 respectively. Inflation (INF) and Loan Growth (LGR) ranged from 8.6 to 122.9 and -10.4 to 258 respectively. They also have standard

deviations of 25.3 and 36 respectively. The variable Bank Size (SIZ) indicated a minimum of 5.8 and maximum of 9.9 and its average was 9. The deregulation dummy (REGD) also indicated 0.8 and 0.4 for mean and standard deviation respectively.

**Table 4. 1 Descriptive Statistics of the Variables**

| Variables | Observation | Mean | Standard Deviation | Min | Max |
|---|---|---|---|---|---|
| NPLs | 144 | 2.881 | 2.203 | 0.15 | 18.02 |
| GDP | 144 | 4.523 | 3.638 | -6.920 | 14.047 |
| INFL | 144 | 27.542 | 25.309 | 8.580 | 122.870 |
| RER | 144 | 339.651 | 704.931 | 64.666 | 3660.640 |
| ROA | 144 | 2.929 | 2.241 | -4.000 | 7.000 |
| LGR | 144 | 29.802 | 36.165 | -10.400 | 258.470 |
| SIZ | 144 | 9.031 | 0.746 | 5.800 | 9.900 |
| REGD | 144 | 0.833 | 0.373 | 0 | 1 |

Source: Authors Compilation (2019)

***NB: ADB, NIB, GCB and UMB were the banks used in the analysis. The annual data span from 1981 – 2016***

### 4.3 Correlation Matrix

The linear dependency of the explanatory variables is determined using the correlation matrix. The Pearson Product Movement Coefficient of correlation for pairs of independent variables measures the degree of linear relationship between two or more variables. Table 4.2 below shows the correlation matrix for the variables used in the study.

The Table 4.2 below provides the correlation that exist between the independent variables that are employed in the study. Generally, correlation among the independent variables should show a weak relationship. This is to avoid collinearity problems. All the variables were included in the analysis. This is due to the fact that none of them was found highly correlating. The empirical result indicates that none of the coefficients was above +/-0.800.

**Table 4. 2 Correlation Matrix Test for Multicollinearity**

| Variables | NPLs | GDP | INFL | RER | ROA | LGR | SIZ | REGD |
|---|---|---|---|---|---|---|---|---|
| NPLs | 1.000 | | | | | | | |
| GDP | 0.074 | 1.000 | | | | | | |
| INFL | 0.012 | -0.584* | 1.000 | | | | | |
| RER | -0.072 | -0.724 | 0.743 | 1.000 | | | | |
| ROA | 0.198 | 0.284 | -0.281 | -0.440 | 1.000 | | | |
| LGR | 0.916 | 0.171 | -0.151 | -0.233 | 0.294 | 1.000 | | |
| SIZ | 0.075 | 0.538 | -0.564 | -0.682** | 0.531** | -0.193* | 1.000 | |
| REGD | 0.208 | 0.477 | -0.505 | -0.712 | 0.424 | 0.304 | 0.740 | 1.00 |

***** 1% significance level; ** 5% significance level; *10% significance level**

*Source: Author's own computations*

### 4.5 Regression results

According to Sayrs (1989), panel data has two main leading models that can be used to estimate the regression variables. The two models are the fixed and random effect models. In instances where researchers decide to control variables that are absent and vary between cases but are fixed over time, they use the fixed effect model. The fixed effect model provides the opportunity to track the changes in the variables over time to estimate the effect of the independent variables on the dependent variables. Between the two models, the fixed effect is the most extensively used procedure for panel data analysis. Statistically speaking, this model provides the researcher with results that are more consistent but could be the less effective model to run in certain situations.

The random effect is used where some omitted variables may be constant over time but vary between cases, others may be fixed between cases but vary over time. In order to determine between fixed effect and random effect, the Hausman test is used. This test compares fixed effect

with random effect in STATA. Running a Hausman specification test at five (5) percent level enables the researcher to choose between fixed and random models.

**Hausman Test**

To decide between fixed or random effects, it is crucial to run a Hausman test where the null hypothesis of the preferred model is the random effects versus the alternative fixed effects. It basically tests whether the unique are correlated with the regressors, the null hypothesis is that, they are not. The Hausman test evaluates the Null hypothesis that the coefficient estimated by the random effect estimator is the same as the ones estimated by the constant fixed effects estimator. If the Hausman test is insignificant (P-value greater than 0.05), then the fixed effect model will be used (Torres-Reyna,2007). The Hausman test results, which aims at helping the researcher choose between the random and fixed effect model is also presented for justification is reported in Table 4.3.

Lastly, the study presents the adjusted $R^2$. Chin (1998) posits that the adjusted $R^2$ measures the appropriateness of the regression model. Chin (1998) further recommended adjusted $R^2$ values for endogenous latent variables based on 0.67 (substantial), 0.33 (moderate) and 0.19 (weak).

The estimated fixed and random effect models are reported in Table 4.3 and 4.4, respectively. First the model diagnostics of the fixed effect is presented, followed by the estimated coefficients of the model. After that, the random effect model diagnostics and coefficients are reported.

Results presented in Table 4.3 reveals that seven independent variables explained about 86.8% of the variation in Non-performing loans (NPLs) and are jointly significant at the 5% level based on the F-static (7, 133). Furthermore, the results indicate a positive effect on NPL and it is statistically significant at the 5% level. Also, the results indicate that the estimated coefficient for predicted

NPL and LGR was positive and significant at any of the conventional significance level. This means that, there exists a positive relationship between inflation and NPLs and LGR and NPLs.

**Table 4. 3 showing how Fixed-Effects within regression on economic variables and bank specific factors influence NPLs on Deregulation**

| Variable | Coef. | Std. Err. | T | P-value | [95% Conf. interval] | |
|---|---|---|---|---|---|---|
| GDP | 0.0361 | 0.0278 | 1.30 | 0.1960 | -0.0188 | 0.0910 |
| INFL | 0.0088 | 0.0041 | 2.14 | **0.0340** | 0.0007 | 0.0170 |
| RER | 0.0004 | 0.0002 | 1.95 | 0.0540 | 0.0000 | 0.0008 |
| ROA | -0.0426 | 0.0395 | -1.08 | 0.2830 | -0.1207 | 0.0355 |
| LGR | 0.0574 | 0.0021 | 26.92 | **0.0000** | 0.0532 | 0.0616 |
| SIZ | -0.1126 | 0.1743 | -0.65 | 0.5190 | -0.4573 | 0.2321 |
| REGD | 0.4891 | 0.3236 | 1.51 | 0.1330 | -0.1509 | 1.1291 |
| Constant | 1.3611 | 1.4406 | 0.94 | 0.3460 | -1.4883 | 4.2105 |
| R-squared | 0.870 | | | | | |
| F-Statistic | 119.44 | | | | | |
| P-value (F-statistic ) | 0.01 | | | | | |

*Source: Author's own computations*

All the other explanatory variables are not significant in the model, suggesting that these variables within the time frame based on the fixed effect model are not important explanatory factors for NPL in Ghana. This will be investigated further using a different estimation approach if this finding is robust to the estimation technique used.

The results based on a random effect model is presented in Table 4.4, which indicated that the seven (7) independent variables explained 86.83% of the variation in NPLs. It was found that inflation has significant effect on NPL at the 5% level. Also, both RER and LGR are significant factors. Differences across sectors are uncorrelated with the regressors ($corr(\mu_i, X_b) = 0.00$)

**Table 4. 4 showing how Random-effects GLS regression on economic variables and bank specific factors influence NPLs on Deregulation**

| Variable | Coef. | Std. Err. | T | P-value | [95% Conf. | interval] |
|---|---|---|---|---|---|---|
| GDP | 0.0363 | 0.0279 | 1.30 | 0.194 | -0.0184 | 0.0910 |
| INFL | 0.0087 | 0.0041 | 2.10 | **0.035** | 0.0006 | 0.0168 |
| RER | 0.0004 | 0.0002 | 2.07 | **0.039** | 0.0000 | 0.0008 |
| ROA | -0.0213 | 0.0378 | -0.56 | 0.573 | -0.0953 | 0.0527 |
| LGR | 0.0574 | 0.0020 | 28.06 | **0.000** | 0.0534 | 0.0614 |
| SIZ | -0.0967 | 0.1583 | -0.61 | 0.541 | -0.4070 | 0.2136 |
| REGD | 0.4441 | 0.3126 | 1.42 | 0.155 | -0.1686 | 1.0569 |
| Constant | 1.1843 | 1.3125 | 0.90 | 0.367 | -1.3880 | 3.7567 |
| R-square | 0.870 | | | | | |
| Chi-square | 896.49 | | | | | |
| P-value (Chi-square statistic) | 0.01 | | | | | |

*Source: Author's own computations*

### 4.6 Hausman Test

Hausman test was done to decide between fixed or random effects. The null hypothesis of a Hausman test is that the preferred model is random effects and the alternative is the fixed effects (Green, 2008). It basically tests whether the unique errors ($\mu_i$ ) are correlated with the regressors, the null hypothesis is they are not.

Chi-square (7) = 12.47

P-value = 0.0862

Since the p-value >.05 we reject our null hypothesis and conclude that the prefer model is random effect. Table 4.4 reports the random effects result on how economic factors interact with bank specific variables to influence NPLs in Ghana years after the rolling out of deregulation in the banking sector. From the results Inflation, real effect exchange rate and Loan growth are the variables, precisely economic factors and bank-specific factors, which have effects on NPLs.

Gross domestic product (GDP) has a bearing on the standard of living of people. A rise in GDP implies a higher standard of living and hence people are highly likely to pay off loans. The rate of default thereby reduces as stated by Messai and Jouini (2013). However, the study found a positive correlation between GDP and NPLs. This is in contrast with the study expectations as identified in Louzis, Vouldis and Metaxas (2012) in a similar study to examine the impact of bank-specific and macroeconomic factors on NPLs in Greece which found a negative correlation between GDP and NPLs. This finding, however, calls for further investigation and research since ex-ante, the study anticipated a negative correlation.

The Pearson coefficient value showed a statistically significant negative relationship between inflation rate and non-performing loans. This means that inflation has a direct correlation with nonperforming loans. This means inflation effect on non-performing loans is significant.

The study again found a positive relationship between NPLs and loan growth. This is in conformity with the findings from Keeton (1999), Salas and Saurina (2002). The implication of the results is that banks have a higher tendency to give out more loans than expected as a result of deregulation. In essence, banks in their quest to entice customers to bank with them, largely as a result of the dropping up of many banks due to deregulation, will give out more loans without conducting serious due diligence. This leads to giving out risky loans and hence shooting up the NPLs in the long run.

The study found bank's size to be negatively correlated with NPLs. This supports the earlier findings of Salas and Saurina (2002) and Hu et. Al (2006). This is true because as bank's size increases, stringent measures are put in place to control and monitor loans acquisition and usage. This has a higher tendency of reducing NPLs. The advent of deregulation led to the opening of

many banks with relatively smaller size. The huge number of banks, operating with less stringent measures and possessing relatively little assets, had a higher tendency to contribute to the higher level of non-performing loans years after deregulation.

Also, in reference to the regression results, the effects of deregulation on NPLs was found to be positively insignificant hence the introduction of deregulation didn't have much influence on non-performing loans in Ghana. Furthermore, the study found that real exchange rate (RER) has a positive and significant effect on non-performing loans and this support studies by Khemraj and Pasha (2009) in the Guyanese banking sector. The result indicates that whenever there is an appreciation of the local currency, the NPL portfolios of credit institutions are expected to be high. Lastly, it is observed that NPL effect in Ghana on deregulation was negatively affected by return on asset. In fact, a bank with strong profitability has less incentive to generate income and therefore less constrained to engage in risky activities such as granting risky loans. Instead, inefficient banks are obliged to grant credits considered risky and subsequently achieve high levels of impaired loans.

All in all, it can be deduced that loan growth as bank specific variable, contributed significantly to the level of non-performing loans in Ghana during the period of deregulation. This is evidenced in the regression results in Table 4.4. The macroeconomic environment also has an effect on the assessment of borrowers and their ability to have a loan. An economy in growth is favorable to an increase in revenues and a decrease in financial distress. The results from the study concludes that inflation and real exchange rate are positively and significantly related to Non-performing loans.

# CHAPTER FIVE

# SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

The chapter presents the summary of the findings of the study, draws conclusion and makes policy recommendations based on the findings of the study on how Ghana, as a country, can leverage of deregulation to improve upon the banking industry. Lastly, this chapter provides suggestion for future research in this area of study.

To be able to achieve this, the chapter has been divided into four major sections. The first section presents the summary of the study. The second section talks about the key findings of the research, the third section emphases the conclusion and recommendations of the study for policy makers and government. The final section of this chapter lays bare the gaps in this study that will need to be filled in future studies by academics and practitioners.

## 5.2 Summary of Key Findings

The bank sector of Ghana has undergone several phases since the advent of formal banking system in the country. The reforms and the restructuring were all geared towards making banking effective and efficient. Notable among the main reforms is the deregulation in the financial sector that ensued in the early part of the 1980s.

In recent times, Ghana has recorded a good number of fold ups and take-overs of seemingly buoyant financial institutions. Notable among them are UT Bank, Capital Bank and UniBank. The high level of insolvency among many banks can be traced, partly, to high NPLs. UT Bank for instance consistently recorded a very high level of NPLs which subsequently led to the take-over by GCB Bank.

It is against this back drop that this study critically and carefully examined whether the high NPLs in the country that had resulted to the seemingly financial crisis can be attributed to deregulation in the banking sector that has opened the flood gate for the influx of banks that operate with loosen regulations or high NPLs predate financial deregulation.

The study found that deregulation has positively affected NPLs but loan growth as a bank specific variable contributed significantly to NPLs after deregulation. Macroeconomic Factors such as Inflation rate and real exchange rate influenced NPLs and hence can be attributed to deregulation in the financial sector of Ghana.

### 5.3 Main findings

Chapter 4 of the study presented a carefully discussion and analyses of the results of the study. From chapter 4 the study found that, with regards to the main objective for the study, the introduction of deregulation did not have significant effect on non-performing loans in Ghana.

Per the first objective, the main factors that influence NPLs in banks operating in Ghana includes Inflation and real effect exchange rate. Per the results, Inflation and NPLs move in the same direction. An increase in inflation will lead to an increase in interest rate and hence a high NPLs.

The study further run a separate regression to find out the factors that contributed to NPLs during the period of deregulation. The study found that real exchange rate (RER) has a positive and a significant effect on non-performing loans and this support studies by Khemraj and Pasha (2009) in the Guyanese banking sector. The result indicates that whenever there is an appreciation of the local currency, the NPL portfolios of credit institutions are expected to be high.

The regression results on the effects of deregulation on NPLs, as observed in table 4.4 in chapter 4, shows that certain variables within the banking sector that are highly influenced by deregulation show a significant relationship with NPLs. It is observed from the table that loan growth rate (LGR) among the banks under consideration significantly affected NPLs. It should be noted that deregulation has direct impact on bank specific variables used in the study, of which loan growth rate is not an exception as found in the work of Jayaratne and Strahan (1996).

The findings in this study confirms earlier studies that in situation where deregulation is not properly managed, it will be a recipe for influx of many banks with relatively low asset value. This will result in less stringent measures in giving out loans to clients and hence the higher potential for high level of NPLs. In trying to understand the results after deregulation, it is clear that deregulation has effect on the size of banks and consequently impacted NPLs negatively.

### 5.4 Conclusion

The main objective of this study was to assess the effect of deregulation on NPLs. The study found it expedient to compare the effects of certain bank-specific variables and certain economic variables that can equally influence NPLs during deregulation period to appreciate the effects of deregulation on NPLs overtime. Per the findings and the justifications, it may be concluded that deregulation did not have significant effect on NPLs in Ghana but the results in table 4.4 from chapter 4 shows that loan growth as a bank specific variable appeared to be significant after deregulation. lastly, macroeconomic variables like inflation and real exchange rate have significant effect on NPLs after deregulation.

## 5.5 Recommendations

It is obvious that the government of Ghana, through Bank of Ghana, intends to boost confidence of Ghanaians in the financial sector and enhance financial inclusion. The findings of this study suggest that growth is a key player in influencing NPLs. It is therefore recommended that measures should be put in place to continuously enhance the growth of GDP in Ghana. An increase in GDP, as observed in the study, will reduce NPLs in Ghana.

Again, government should endeavor to reduce inflation rate in the country. When inflation increases, cost of borrowing also increases and there will be higher chances of loan default. Government should put in measures to reduce unnecessary spending that leads to an increase in inflation.

Furthermore, the study found that banks' sizes have an influence on NPLs. Relatively bigger banks have lower NPLs as compared to smaller banks. This indicates the size of banks really matters if banks want to reduce NPLs and continue to exist. The study therefore recommends that banks should attract more customers in order to reduce NPLs.

Finally, Bank of Ghana and the government of Ghana must control not only interest and inflation rates that influences the activities of the banks, but also items that are off the banks' balance sheet and additional causes by setting up standards for the maximum risk as well as minimum amount of total return for each factor of risk and return.

## 5.6 Suggestion for Future Research

The study found that GDP has a positive and no significant effect on NPLs during the deregulation period which is in contrast with findings from earlier scholarly research works in other jurisdictions (Beck, Jakubik & Piloiu, 2013). An increase in GDP in Ghana has a higher tendency

to reduce the rate of default and NPLs. This is practically true because countries with high level of GDP have low NPLs because the ripple effect is that inflation reduces, interest rates reduce and other economic variables become enabling for businesses as postulated by Demirgüç-Kunt and Detragiache (1999). The impact that GDP has on NPLs can largely be attributed to the management of the economy and not specifically to the happenings in the banking sector. In essence, for the sake of this research work, GDP's effect on NPLs cannot be as a result of deregulation. The study therefore recommends that a thorough research should be conducted to ascertain the reasons for that and add up to knowledge and either approve or disapprove what seems to be the reality.

Again, the study recommends future research to carefully consider the extent at which deregulation has impacted other aspects of banking in Ghana. This will aid in assessing, to a large extent, the overall impact of deregulation on the banking sector in order to enable researchers and practitioners to accurately measure the success or otherwise of deregulation

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