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**Abstract**

The Banks play a major role in fostering the economic well-being of a State. Their basic objective is to bridge the gap between the people who have surplus funds and the ones who have the scarcity of funds. The role of financial institutions as financial intermediaries is well established and is highly regulated throughout the world. After the financial turmoil of 2008 which was triggered due to the non-performing mortgages loans of US and had a spill over affect throughout the world. The regulators as well as the researchers have focused on the menace of non-performing loans in order to unveil the factors which should be curtailed in order to avoid any such situation in the future.

This study analyzed the bank specific factors which had an impact on the Non-Performing Loans (NPL). The objective was to provide the factors which significantly influence the non-performing loans and such elements can be controlled by the Bank’s management. The impact of ROA, ROE, LAT (Loan to Asset ratio), NII (Non-Interest Income), CAR (Capital Adequacy Ratio) and Ownership concentration with a level of more than 10%, 25% and 50% was analyzed by using Fixed Effect Method and the validity was tested by Hausman test.The data of 14 Pakistani Commercial Banks which were included in the KSE 100 Index was gathered for the period 2008-2014.

The results revealed that the NII and ROE has a significant and negative impact on the non-performing loans. It was also observed that ownership concentration more than 10% and less than 25% was significant but was inversely related to the NPLs. On the contrary the ROA, LAT, CAR, and ownership concentration more than 25% and 50% failed to imply any significant impact on the non-performing loans.

**Keywords:** Non Preforming loans, Pakistani Banks, Bank specific

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# **1. Introduction**

* 1. **Background Of This Study**

The Banks play a major role in fostering the economic well-being of a State. Their basic objective is to bridge the gap between the people who have surplus funds and the ones who have the scarcity of funds. The role of financial institutions as financial intermediaries is well established and is highly regulated throughout the world. As the basic objective of a Bank is to collect money from depositors and lend money to the borrowers therefore the need for a healthy credit portfolio is always needed to retain a good earnings stream. Since the Banks are the Custodians of Public money and when they lend money to potential borrowers even after rigorous scrutiny the chances of loan default cannot be neglected. The loan defaults are not always wilful it has been observed that the loan defaults are also circumstantial where in the borrower has little control on the externalities. The Banks have to suffer huge losses due to their non-performing loans therefore it is very necessary to dig out the factors which determine the non-performing loans. When a loan is defaulted by a borrower not only the capital is impaired, profitability is also hurt and in addition the extension of credit to the deserving borrowers is also restricted due to concentration of bad loans in a particular segment.

The assets of a Bank are the loan extended to its borrowers and the deposit taken from its Customers. The insolvency surfaces when the asset value deteriorates with respect to its liabilities mainly due to its incapacitated borrowers. Moreover by introducing foreign banks in the local market the competition in the local financial sector can be boosted and the regulatory authority can be compelled to induce banking reforms for provision of progressive banking ([Demirgüç-Kunt & Detragiache, 1998](#_ENREF_10)). As per the world Banks Economic indicator the ratio of non-performing loans to gross loans of Pakistan as of 2014 was 12.8%.Although there is consistent improvement in the ratio from 16.20 % as in 2011 but still there is a dire need to probe in to the elements which contribute to the portfolio of non-functioning loans. Pakistan is a progressive Country with annual GDP Growth of 4.41% ([Al-mulali, Fereidouni, Lee, & Sab, 2013](#_ENREF_3)). In order to keep a pace with its development a vibrant and Profitable Banking System is needed. In this perspective there is a need to focus on how to minimize the Non-Preforming loans of Banks to retain maximum profitability the banking sector.

In Pakistan the Banks are regulated by the Central Bank, State Bank of Pakistan (SBP) and it issue directives from time to time for maintenance of Credit Discipline by the Banks. The SBP has issued Prudential Regulations (PRs) for the Banks in order to regulate the borrowers falling in different business segments. At present the SBP has issued Prudential Regulations for Consumer financing, Small and Medium Enterprises and Commercial and Corporate Clients of Banks wherein the minimum criteria for extension of credit facilities to the borrowers is explicitly narrated. The Classification Criteria of the loans is also provided in the said Regulations. As per the SBP PRs a loan is termed as non-performing where mark-up/ interest or principal is overdue by 90 days or more from the due date. Therefore a stringent monitoring of loan portfolio is needed in order to maintain a healthy credit portfolio.

The research on the determinants of Non-Performing loans has widely been conducted throughout the world. The financial turmoil of 2008 has drawn the attention of the entire world to establish a vibrant banking system in order to avoid the failure of Banks due to subprime lending.

[Keeton and Morris (1987](#_ENREF_23)) highlighted that there is a need to probe that the cause of loan losses are either due to economic conditions or risk appetite of the Banks. If the economic conditions are fostering the bad loans then geographical expansion should be done to curtail it. On the contrary if the risk appetite is contributing to the non-performing loans then necessary steps should be taken to restrict it.[HU, Li, and CHIU (2004](#_ENREF_21)) highlighted that the loans are the major products of a bank and every advance has the probability of conversion into a non-performing loan thus impairing the Bank’s performance. Moreover during the macroeconomic instability the risk of NPLs further magnifies.

The non-performing loans not only lead to monetary losses but also have fiscal impacts, restrict credit to the private sector and distress the government revenues by extending financial relief to the struggling banks ([Fofack, 2005](#_ENREF_15)).The gigantic default of sub-prime mortgage loaning in US during 2007-2010 activated the monetary crisis and it had a spill over effect on the world economy as well. The governing institutions are also inspecting the stuck up loans as an element to restrict risk ([Park & Zhang, 2012](#_ENREF_31)).

The stuck up advances of the Banks adversely affect the borrower, the financial institution it itself and the economy. It is the prime duty of the Banks to make comprehensive investigation of the Credibility of the borrower at the initial stages of loan processing in order to minimize the bad loans.([Warue, 2013](#_ENREF_42)) . The financial crunch in East Asia and Sub Saharan African Countries were triggered by the growth of non-performing loans. Due to this reason the non-performing loans to gross loans ratio is an important measure to judge the monetary strength of the financial institution and the state of economy ([Vatansever & Hepsen, 2013](#_ENREF_41)). The Non-Performing loans are the prime cause of economic downturn and they drag the Concern to financial constraints and deficit ([Messai & Jouini, 2013](#_ENREF_29)). The constant mushrooming of the NPLs pushes the Banks to increase the provision against the delinquent advances due to which the dividends are restricted by the Banks which had a negative impact on the stock prices. The rise of NPLs can be detrimental for the banking sector but with the help of growing profitability their impact can be curtailed ([Ahmad, 2013](#_ENREF_1)).

[Castro (2013](#_ENREF_7)) suggested that the aftermath of the economic crisis of 2008 directed to probe not only the factors which affected the economy but also the elements which triggered the banking crunch. Prior to a Banking crisis the financial institutions are combating with the non-performing loans which start accumulating and consequently steer them to monetary distress. In such case the weightage should be given to unveil the causes of credit risk in the first place in order to comprehend the pecuniary disturbance.

The deregulation of the banking sector triggered competition among banks and led them to adopt lenient lending practices which contributed to the deterioration of their healthy loan portfolios ([Makri, Tsagkanos, & Bellas, 2014](#_ENREF_27)). According to [Rawlin, Sharan, and Lakshmipathy (2012](#_ENREF_34)) the asset worth of a Bank can be appraised by the observation of the non-performing assets. The Banks should take this in to account and watchfully track the health of their loan portfolio in order to produce revenue and maintain credit discipline. Whereas [Warue (2013](#_ENREF_42)) noticed that in addition when a borrower defaults on a loan the access of credit to other borrower is restricted due to non-adjustment of the principal amount. The inflated loan losses deprive the Banks to meet their lending targets and also impair the profitability. The classified loans provoke financial volatility and leads to economic deceleration. Therefore the Banks need to place a stringent recovery process to avoid compilation of bad loans for speedy recovery and to forecast the loan default at the preliminary stage.

The financial crisis of 2008 which spread from US to the rest of the world was activated by a sharp increase in the mortgage loans. The impaired repayment capacity of the debtor, deviation of funds from the purpose of loan and high price of the loan contribute to the stuck up loans ([Saba, Kouser, & Azeem, 2012](#_ENREF_35)). The Banking sector is the main strength of an economy and it takes support of the banking system for accomplishment of various developmental projects. The Banks provide the resources which are acquired in the form of deposits from the depositors and the retained earnings. The prime challenge of Banks is to combat the menace of bad loans which hampers the progress of the institution specifically and the economy generally ([Uppal & Juneja, 2012](#_ENREF_40)). The intensification of NPLs immediately after the international monetary unrest halted the free flow of credit. Prior to the financial strife the newly progressive European Countries were following unstable credit growth due to the provision of capital by non-native banking segments and this episode concluded with the financial crisis of 2008-2009 ([Erdinç & Abazi, 2014](#_ENREF_11)).

The Pakistani financial market is dominated by 5 public sector banks, 2 specialized banks, 17 private sector banks, 7 foreign banks, and 5 Islamic banks. The Non-performing loans as a % of Gross loans of Pakistani Banks have a consistent decreasing trend from 16.2% in 2011 to 12.8 % in 2014 ([Rashid, Azid, & Malik, 2014](#_ENREF_33)).

Since the improvement in the classified loans of Pakistani Banking Sector is evident from the statistical data but it is the need of the hour that further exploration be done to restraint the mushrooming of stuck up loans for maintenance of credit discipline and to avert an infected advances portfolio.

There are a few studies conducted in Pakistan to expose the underlying sources of NPLs. With the passage of time the researchers have recognized that the importance of a healthy loan portfolio is vital for the development and financial well-being of the financial institutions. The Banks are prohibited to take exposure in avenues where the infected portfolio exceeds to a certain limit. Such embargos are very beneficial for the limitation of bad loans. For provision of uninterrupted finance facilities to the borrowers the periodic monitoring and containment of non-performing loans is indeed very essential. In this study we have tried to unfold the illustrative influence of various factors on the bad loans. The factors relating to the internal environment of financial institutions have been analysed for exploration of root causes of loan losses. The loan losses drain the bank’s capital and leave the institutions on the verge of Bankruptcy and forceful closure. The bailout packages are not always available for each and every falling or failing Bank.

It is the need of the hour to address the problem loan at early stages in order to avoid their accumulation as the same can lead to forceful closure or forced mergers and takeovers by peer Banks. The banks who have consistent and swift growth of stuck up finances have a great hit on their capital as they impair the profitability of the banks.

## 1.2 Contextual Analysis

One of the main pillars of Pakistan’s financial health is its banking industry. For a smooth flow of funds to the developing sectors is vital for vigorous growth. Therefore if the banking industry is confronted with the threat of the loans becoming bad at a swift pace then its survival will be at stake. Consequently this may lead to bailing out of Banks by the Government not just causing financial plunge but also investor panic and this again can fuel another monetary mayhem for the rest of the world.

## 1.3 Identification of Gap

The research on the derivers of non-performing loans is at embryonic phase. Few studies have been done on the internal and external elements which are detrimental to the stuck up advances of Pakistani Banks. The study has focused on the elements which are in the ambit of the monetary institutions and they can control their infected portfolio by identifying the relevant causes. In Pakistan the Banks are focusing on income other than markup due to continuous cut on the discount rate by the Central Bank. Moreover the ownership concentration has also been identified as a significant determinant in research for controlling of bad advances. In Pakistan no published research has been evidenced where in the diversification and concentrated ownership is taken as determinants of classified loans.

## 1.4 Problem Statement

The monetary turmoil of 2008 which spilled over from US to the world over was ignited by the default of mortgage loans ([Saba et al., 2012](#_ENREF_35)). The Pakistani Banks system due to their stringent measures survived and no bailout of any banking institution was required. However the menace of infected loan portfolio eats up the profitability of the Banks and needs to be addressed. The need arise to probe that why the Banks in Pakistan are not gearing up the efforts to increase their income other than mark-up as the Central Bank has continuously been decreasing the discount rate and in addition how the concentration of ownership can assist in curtailing and restricting the healthy loan portfolio to become problematic.

## 1.5 Significance of Study

This research is a further insight to diagnose the elements which derive the non-performing loans in the banking horizon of Pakistan. The study took into account the factors responsible for the birth of stuck up loans which are in control of Banks. The internal environment factors which have contributed to the infected portfolio can be curtailed as the same are in the control of the management and they know how to manipulate them. Moreover the external environmental factors in which the Banks operate and have no control upon them and the same are not accounted for. The results of the study are beneficial for all stake holders to visualize the contribution of the internal factors in the mushrooming of stuck up loans. On the basis of the results at the institutional level particularly the financial institution’s management at the Board level can devise strategies to promote the healthy loan portfolio.

Furthermore the shareholders can raise their voice in the annual general meetings for taking corrective measures for rehabilitation of the infected portfolio. In addition it is also productive for the researchers to supplement the findings of this research with the addition of other explanatory variables. As there are only few studies which have been conducted on the causes of loan losses in Pakistan and this study has identified this gap and has tested certain variables which have not been verified yet.

## 1.6 Research Objective (s)

1. To examine the bank specific determinants of nonperforming loans (NPLs) of commercial banks in Pakistan.

## 1.7 Research Question (s)

1. What are bank specific determinants of non-performing loans?

## 1.8 Delimitation of the Study

* The study was conducted only in Islamic Republic of Pakistan.
* The sample of this study is limited to the financial sector of Islamic Republic Pakistan only and the Banks offering Commercial Banking Services were accounted for.
* The sample size was taken from the year 2008-2014

Due to the scarcity of time and the availability of requisite information the data collection was limited to 7 years from year (2008-2014).

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# **2. Literature Review**

There has been considerable research done on the determinants of non-performing loans. The Researchers have examined the causes of NPLs in a single country and have also performed across the countries comparison of the factors having the explanatory power of delinquent advances. In addition few studies have taken the institutional factors only which had an impact on the non-performing loans while others have incorporated the influence of macroeconomic on NPLs. Moreover some scholars have simultaneously studied the both the internal and external aspects of defaulted loans.

## 2.1Research Work on Macroeconomic Variables as Determinants of NPLs in a Specific Country

A panel data study was conducted by [Gizycki (2001](#_ENREF_16)) where in quarterly data for 35 Australian banks for the period June 1990 to September 1999 was gathered and the significance of macroeconomic variables on delinquent loans was tested. The healthy GDP growth rate tended to curtail the non-performing loans and the increased interest rate and credit growth rate lead to increased NPLs. The exchange rate variation was no non-detrimental during the period. The influence of macroeconomic indicators on the non-performing loans implied that sufficient responsibility rests on the shoulders of the macroeconomic policy makers to formulate the policy in such a manner that a conducive atmosphere is available to the Banks to function effectively.

[Saba et al. (2012](#_ENREF_35)) gathered data from 1985-2010 of US banking sector and analysed the illustrative power of GDP per capita , interest rate and total loans on Non-Performing loans. It was revealed that all the factors have a significant influence on bad loans. Moreover it was recommended that at the time of granting loans the GDP per capital must also be taken into account.

A novel research was undertaken by [Farhan, Sattar, Chaudhry, and Khalil (2012](#_ENREF_14)), where in primary data was collected from more than two hundred bankers employed by the top ten commercial Banks of Pakistan regarding the influence of selective systemic indicators on the stuck up loans . The response of only those employees was sought who were engaged in processing and approving of loans, monitoring and managing of regular and the infected loan portfolios. The bankers opined that the energy crisis, rising interest rates, joblessness and price fluctuations magnify the non-performing loans and with the improvement in economic conditions the non-performing loans are restricted.

[Badar, Javid, and Zulfiquar (2013](#_ENREF_4)) acquired quarterly data of macroeconomic variables from 2002 to 2011 to discover their explanatory power toward the non-performing loans. It was observed that in the long run the delinquent advances are influenced by the money supply and interest rate and in the short run have a fragile association with inflation and exchange rate. The abundance of money supply puts inflationary pressure and the rise of interest rate weakens the repayment capacity of the borrower.

In another study conducted in Pakistan by [Ahmad and Bashir (2013](#_ENREF_2)) in which a large number of macroeconomic indicators during the period 1990-2011 were regressed to discover the extent to which they derive the stuck up loans in the Pakistani Banking Zone. The selected variables explained the dependent variable up to 60%.It was established that with the progression of economy the overall financial health escalates and the frequency of loan defaults declines. Moreover the inflationary pressures lead to lower NPLs and contrary to the existing research the interest rate is negatively associated with NPLs which means that with the increase in interest rates the stuck up loan deteriorates. The justification is that with the increase in interest rate the borrower pay timely to obtain future loans on discounted interest rate.

In progressive countries for better containment of the loan losses priority should be extended to selective macroeconomic indicators. The macroeconomic conditions must be taken into account while assessing the loan application as Lithuania since 2009 has the highest contribution in NPLs in European Union and the impairment of repayment capacity of the defaulters has widely been recognised due to macroeconomic instability ([Mileris, 2014](#_ENREF_30)).

[Zaib, Farid, and Khan (2014](#_ENREF_43)) gathered data of Selective macroeconomic indicators and eight banks from the Pakistan was collected for the period of 2003-2011 in order to find their explanatory power on non-performing loans. The model showed an explanatory power of 61%. The study findings showed that the foreign banks operating in Pakistan were better able to manage their advances portfolio. Moreover the GDP growth and the greater the risk craving of banks measured by advances to asset ratio the lower are the stuck up loans.

## 2.2 Research Work on Bank Centric Variables as Determinants of NPLs In A Specific Country

[Ahmad (2013](#_ENREF_1)) attempted to establish the relationship of corruption and information sharing on stuck up loans of Pakistani Banks for the period 2001 to 2010. The study revealed that the corruption had a positive association with the bad loans but it failed to prove any significance likewise the information sharing had a negative association with stuck up loans but had no significance.

[Rashid et al. (2014](#_ENREF_33)) analysed the microeconomic elements which had an impact on the credit management of Banks. For this purpose quarterly data from 2002 to 2010 was retrieved from the Pakistani Banking Sector and it was concluded that proficiently approved loans, capable management, responsible and proper scrutiny of loan applicants supports in efficiently managing the advances portfolio.

## 2.3 Research Work on Macro Economic and Bank Related Variables as Determinants of NPLs In A Single Country

[Rajan and Dhal (2003](#_ENREF_32)) analysed the contribution of Lagged GDP growth, banks’ exposure to priority sector, business cycle effect with three scenarios, Bank’s Size calculated separately by total asset and capital, Credit Deposit ratio, Operating expense and interest cost of deposit to total assets, the loan maturity, and collateral value by proxy of expected stock market return as the rise in stock of the firms will indicate high collateral value and business cycle on nonperforming assets of Indian Public Sector Banks. It was found that the improved economic activity leads to reduced NPLs .The bank size in terms of total assets is negative and significantly related to npls and bank size measured in terms of capital is positively and significantly related to NPls. The Credit deposit ratio has negative and significant impact on NPLs showing that the positive divergence from the credit deposit ratio from the industry will lead to lower NPLs.

With the purpose of finding out the factors responsible for loan losses in the Australia and New Zeland was done by ([Hess, Grimes, & Holmes, 2009](#_ENREF_20)). Data of loan loss expense as percentage of total loans was taken as dependent variable. The period for which data was gathered ranged from 1980 to 2005 and involved monetary statistics of thirty two Banks. The factors both bank specific and macroeconomic indicators were analysed. It was established that the economic advancement tends to reduce the loan losses whereas with the escalation of joblessness the credit losses also rise.

The banks with better credit management practices were able to restrict the growth of their non-performing assets. The high cost income ratios depicted the operational inefficiency and result in increased loan losses. The Net interest margin also proved to be a beneficial for in controlling the stuck up loans. It was disclosed that the Larger Banks have a healthy income stream from other than mark-up income whereas the smaller banks rely more on the mark-up income. The fast growth of advances also fosters the delinquent advances as due to underestimation of the enhanced provisioning requirements.

[Glogowski (2008](#_ENREF_17)) took a sample of 108 Polish Commercial Banks for the period of 1997-2006. The loan loss provisions was regressed on macro and bank specific variables .It was concluded that the diminishing GDP, surging interest rate and unemployment lead to increased loan losses of banks. Whereas the exchange rate impact was negligible and banks with inadequate capital base tend to have increased loan losses. The outcome also revealed that a higher contribution of household loans in the portfolio leads to increased bad loans.

[Khemraj and Pasha (2009](#_ENREF_24)) performed the empirical study on the determinants of Non-performing loans in the Guyanese banking sector using fixed effect model. The study focused on both the macroeconomic and bank specific factors**.** The impact on NPL of the variable GDP was negative and significant, Real Effective Exchange Rate was positive and significant, Real interest rate positive and significant. The growth of loans was negative and significantly associated with NPLs and the inflation was found to have negative relationship with the NPLs both results are contradictory to the literature. In addition the banks with more risk appetite measured by Loan to Assets ratio have higher NPLs and the size of the banking company has no impact on the non-performing loans.

[Park and Zhang (2012](#_ENREF_31)) explored the implications of selective bank and macroeconomic indicators in determining the non-performing loans category wise in two diverse time spans. Since the sub-prime mortgage lending defaults provoked the recession therefore the authors took into consideration the pre-crisis tenure of 2002- 2006 and the time of crisis 2007-2010. It was concluded that before and during the economic downturn the GDP growth rate has a negative impact on all the loan types i.e. Consumer, Mortgage and Business loans. Whereas the federal fund rate had no explanatory power. The non-interest income showed a mixed behaviour in the pre and during the crisis period. It had a positive impact during the pre-crisis period and during the crisis period it depicted negative relationship with the stuck loan losses.

[Louzis, Vouldis, and Metaxas (2012](#_ENREF_26)) gathered quarterly data of nine Greek Banks for the period 2003 to 2009 with the objective to gauge the impact of macroeconomic and bank related variables on segment wise NPLs of Mortgages, Business and Consumer. Apart from the inclusion of the prime macroeconomic causes of NPLs i.e. GDP, Interest rate, and unemployment, the Public Debt was also included .All the macroeconomic variables were significant and positively related except the real GDP growth rate. The bank specific factors of ROE, Solvency, inefficiency, size, non-interest income, ownership concentration and leverage ratio and size were tested. The ROE found to be significant and negatively associated with all NPL categories except the business NPL.

ROE was negatively associated with all NPLs types and statistically insignificant only for business loans. Inefficiency was positive and significant for all loan types where as Solvency, Size and Non-Interest Income is insignificant and the ownership concentration is found to be positively associated with Business and Consumer NPLs.

[Warue (2013](#_ENREF_42)) determined that the bank specific factors better explain the non-performing loans as compared to selective macroeconomic indicators. The study was based on the data collected from 44 Kenyan banks for the period 1995-2009.The author has emphasized that additional concentration needs to be paid in managing the internal key indicators like ROA and ROCE in order to deter the non-performing loans. Furthermore by adopting an appropriate ownership pattern the non-functional loans can be controlled. As the manipulation of internal elements are in the ambit of the organization.

In a research done by [Vatansever and Hepsen (2013](#_ENREF_41)) in Turkey on the Banking Sector to expose the causes of non-performing loan ratio by collecting monthly data from January 2007 to March 2013. It was resolved that micro and macro both factors tend to cause the non-performing loans whereas the global factors have no explanatory power. The results indicated that ROE, Capital adequacy Ratio and unemployment rate have an affirmative impact on NPL ratio. On the contrary the operational efficiency assists in containing the bad loans.

[Mehmood, Younas, and Ahmed (2013](#_ENREF_28)) exposed the relationship between the institutional and non-institutional determinants of non-performing loans. Data for the period 2003-2012 of 13 Pakistani Commercial Banks was analysed and the result showed that the model had low explanatory power of 38%.It was also found that the market share has a negative association with the non-performing loans it means that when the loan share of a bank rises in the total loan share of all the banks the non-performing loan tend to decrease. Likewise with the rise in the statutory liquidity reserves the stuck up loans show a decreasing trend. In addition the stability of GDP, ROA and ROE also curtails the stuck up loans. Whereas the inflationary pressures and interest rate hike contribute to the addition of non-performing loans.

[Jameel (2014](#_ENREF_22)) regressed the non-performing loans of Pakistani Banking Sector Data for the period of 200 to 2010 on firm centred and macroeconomic indicators. It was observed that with of advancement of economy the classified loans tend to decrease and the Banks which have sufficient capital to combat the non-performing loans were also able to reduce their infected credit portfolio. The increase in lending rate also impairs the repayment capacity of the borrowers. It was also postulated that the performing loans with lesser maturity period have low chances of conversion into non-performing.

A study was conducted in [ETHIOPIA (2014](#_ENREF_13)) wherein the underlying causes of non-performing loans both bank centred and macro-economic were analysed. Data of 12 banks for the period of 2002-2013 was accumulated and it was concluded that when the return on equity is high, lending rate increases and the capital is adequate the non-performing loans decline. In addition the increase in tax rate and return on assets augments the stuck up loans.

## 2.4 Research Work Macro Economic Variables as Determinants Of NPLs Across Countries

[Espinoza and Prasad (2010](#_ENREF_12)) took the data of eighty banks of six Gulf Cooperative Council countries for the period 1995-2008 and found out that the advancement in financial health of the economy brings prosperity and the non-performing loans tend to decrease. It was concluded that both internal and external factors contribute to the stuck up advances of the Banks. For more realistic and transparent results the non-oil GDP growth was included as independent variable instead of growth in overall GDP.

The feedback effect of delinquent advances on economic growth was loans also estimated and it was determined that the stuck up advances effect the economic activity in the short run. It was also revealed that the increased credit sanctioned in the past leads to greater NPLs and the Banks who efficiently manage their portfolio are in a better position to restrict their bad

[Castro (2013](#_ENREF_7)) probed into the determinants of default risk of five struggling countries of the European Union. A few countries of the Eurozone have been experiencing sluggish economic development and monetary volatility. The external environment variables were tested which were beyond the control of the financial institutions. For this purpose quarterly data was gathered from 1997 to 3rd quarter of 2011 as during the recent economic plunge the macroeconomic scenario of some Eurozone Countries was severely disturbed. Since the countries are linked with one currency therefore the economic downturn in one country affects the growth of other neighbouring countries as it has the spill over impact. The results proved that the improvement in employment rate reduces the risk of loan defaults as the people have the income to meet their expenses. In addition the economic prosperity also boosts the repayment capacity of the obligors. Therefore when the governments focus on increasing the economic stability and controlling the unemployment rate the probability of loan defaults decreases. The increase in loan pricing puts pressure on the borrower as the loan instalment increases and during the weakening financial health of economy the chances of the performing loan to become non performing also increases.

The financial health of the company gauged by the movement of share prices also helps in containing the stuck up loans when the share prices of the company increases. The default of mortgage loans decreases when the real estate prices are stable as the value of collateral remains steady. The growth of loans also contributes positively to the delinquent advances as in order to achieve the loan targets set by the institutions risky loans are also approved. The fluctuations in the exchange rate also adversely impacts the export reliant firms. Consequently the goods produced in the country become expensive and the obligors who are engaged in export have to price their product competitively in order to compete in the international market. Due to this the repayment capacity suffers and chances of loan default increases.

## 2.5 Studies Conducted On Macro Economic and Bank Related Variables as Determinants of NPLs across Countries

Apart from country specific exploration of elements contributing to the infected portfolio of Banks various cross country studies have been conducted to analyse their impact in different countries.

A study of NPL was conducted by [Klein (2013](#_ENREF_25)) for Central Eastern and South Eastern Europe. He gathered data from 1998-2011 of ten largest banks of 16 countries. He introduced Bank level, country Level and Global Variables to gauge their explanatory power of NPLs. His findings suggest that the banks with strong equity to asset ratio have lesser NPLs likes wise with increased ROE the NPLs are low as the Banks are better managed. The aggressive lending is appraised by loan to assets ratio and past growth rate and both contribute to the increase in NPLs. The upsurge in unemployment, inflation, and exchange rate deterioration also contribute to increase NPLs .He also found that with the decline of economic activity the NPLs rises as the repayment capacity of the borrowers’ gets impaired and the higher stock market volatility index leads to increased NPLs as the external financial avenues are contracted. In addition the study also analysed the feedback effect between the banking system and the real economy. It was observed that the NPLs in the CESSE area have a significant impact on Credit as Share of GDP, Real GDP Growth, unemployment and inflation in the coming years affirming that a sustainable growth is not possible in the absence of a robust banking system.

[Erdinç and Abazi (2014](#_ENREF_11)) took the data of twenty emerging European Countries for the period 2000-2011 to find the connection between the key performance indicators of banks and key economic indicators on the NPLs. The foremost reason for the selection of that particular area was that in one currency Eurozone countries the profitability of the banking sector was severely hurt due to phenomenal increase in the infected loan portfolio of the financial institutions. The sample was segregated into before and after the crisis of 2009 in order to narrow down the effect of crisis on NPLs and to obtain a more realistic picture of the NPL determinants in the aftermath of the financial distress. The results demonstrated that economic uplift tends to reduce the NPLs and similarly the price hike lessens the actual worth of outstanding loans and comforts the obligors to settle their obligations. In order to stabilize inflation the monetary policy manipulates the interest rate and with the increase in the loan pricing and the spread the NPLs also proliferate. The better credit management also leads to lower NPLs as cushioned by provisioning for loan defaults. Moreover the profitability indicator also proved to contain the stuck up loans as the institutions are well managed.

The credit crunch of 2008-2009 jeopardized the survival of monetary institutions. The growth of non-performing loans was at record heights in that period .A data of both macroeconomic and institutional factors affecting the non-performing loans for the period 2006-2013 was collected Central Europe, Eastern and South Eastern Europe was selected. The main reason was the extensive growth of infected portfolio of advances after the crisis of 2008. It was established that the share of lending in non-native currency and the exchange rate fluctuations contribute to the increase in bad loans. However the economic development measured by GDP tends to decrease the NPLs ([Tanasković & Jandrić, 2015](#_ENREF_39)).

## 2.6 Theoretical Framework

OWNERSHIP CONCENTRATION

NON PERFORMING LOANS

RETURN ON ASSETS

RETURN ON EQUITY

LOAN TO ASSET RATIO

NON MARKUP INCOME

CAPITAL ADEQUACY RATIO

**Equation**

Where

ROA = denotes the earning on assets and is derived by After Tax Profit / Total Assets

ROE =denotes the earning on equity and is derived by After Tax Profit / Equity of Shareholders

NMI =denotes the non-mark-up / non-interest income and is derived byNon-Mark-up Income / Gross Income

CAR = represents Adequacy of Capital and is derived as Eligible Capital of the Bank as per the requirements regulatory authority / Risk Weighted Assets

OWC = denotes the Concentration of Ownership for which three dummy variables i.e. D1, D2& D3are introduced to capture the share of ownership at more than 10%, 25 % and50%

LAT = indicates the contribution of loans in the total assets and is derived as Gross Loans / Gross Assets

## 2.7 Statement of Hypotheses

H1: The ROE affects the Non-Performing loans

H2: The ROA affects the Non-Performing loans

H3: The Non-Mark-up Income affects Non-Performing loans

H4: The CAR affects Non-Performing loans

H5: The LAT affects Non-Performing loans

H6: The OWC affects Non-Performing loans

## 3. Research Methodology

There are numerous methods which have been applied in previous research works where in the constituents of delinquent advances were analysed. The data which we have gathered comprised of both time series and cross sectional therefore the selection of methodology was adopted while taking into account this important factor. The data consisted of balanced panel data and we have employed Fixed Effects / LSDV (least square dummy variable). The same method was recently employed by ([Bateni, Vakilifard, & Asghari, 2014](#_ENREF_5)).

## 3.1 Population Frame

From the Commercial Banking horizon of Pakistan the institutions which are actively trading in Karachi Stock Exchange and are included in the KSE 100 index were made the part of the sample.

## 3.2 Sampling

The Banking Canvas of Pakistan is dominated by 5 public sector banks, 2 specialized banks, 17 private sector banks,7 foreign banks, and 5 Islamic banks. The Banks which are in loss and the ones which are not included in the KSE 100 index are dropped from the sample. There are 14 banks which were included in the KSE 100 index have been selected. We have chosen the convenient sampling technique.

## 3.3 Unit of Analysis

Unit of analysis is bank as we are going to investigate the determinants of NPLs pertaining to Bank and to the economy for Pakistani Banking Sector.

## 3.4 Time Frame

The research was contained for the period of seven years ranging from 2008-2014 and restricted to the commercial banks only. The frequency of data is annual in nature.

## 3.5 Data Collection

The sample comprised of the Commercial Banks of Pakistan and are listed on the Karachi Stock Exchange. All the information was available in the audited financials of the institutions therefore the retrieval of data for the institutional related variables was done by the annual reports.

## 3.6 Study Type

This is a quantitative study and a deductive approach was used. The data under investigation comprised of both time series and cross section. The variables used in the study were adopted after a rigorous review of theoretical and empirical literature.

## 3.7 Data Analysis Techniques

The study had balanced panel data for investigation where in the data of 14 banks for a time period of 7 years was gathered. In order to capture the Key performance indicators for determining delinquent advances of the Banks the necessary econometric tests were undertaken. The exercise started with the incorporation of data into Eviews. As evidenced by the previous research and the nature of data the Fixed Effect Model was used to examine the effect of each explanatory variable on non-performing loans of the selected banks. The data was an amalgamation of both time series and cross section and comprised of a balanced panel. The number of cross section were 14.Furthermore the model appropriateness was judged by the application of Hausman Test which was used to validate the hypothesis that the Fixed Effect Method estimators and Random Effects Estimators are substantially alike ([Damodar N Gujrati, 2012](#_ENREF_9)).

## 3.8Variable Measurements

The details of variables involved in the study are narrated as under

## 3.8.1 Explained Variable

## 3.8.1.1 Non-Performing Loan (NPL)

The regressand is non-performing loan and it represents the loan extended to borrowers where in the mark-up / interest or actual loan amount is not deposited within 90 days. Such loans are termed as non-performing loans and are narrated under different classes on the basis of the criterion set by the Central Bank of Pakistan. The present study derived the response variable as share of non-serviced loans to the gross loans. The researches which embraced the same were done by([Castro, 2013](#_ENREF_7); [Louzis et al., 2012](#_ENREF_26); [Makri et al., 2014](#_ENREF_27); [Rajan & Dhal, 2003](#_ENREF_32)).

NPL = Classified loans / Gross loans

## 3.8.2 Regressor (s)

Various Institutional related factors have been tested in earlier work done in various countries to unveil the factors determining the delinquent loans. We have selected the factors which are the mandatory and have been tested repeatedly. In addition we have included regressors which were previously not part of research conducted in Pakistan which derive the non-performing loans.

## 3.8.2.1 ROA

Return on Assets is the widely used measure to test how the profitability can assist in the restriction and containment of infected loan portfolio. The previous work showed mixed results wherein the ROA was influencing the bad loans in both positively and negatively. The basis for selection were the studies which investigated the said variable as an independent variable and included the work of([Boudriga, Taktak, & Jellouli, 2009](#_ENREF_6); [ETHIOPIA, 2014](#_ENREF_13)).

## 3.8.2.2. ROE

The proficient management tends to control the bad loans. The Return on Equity is used as proxy for management efficiency in controlling the infected loans. With the enhancement of return on shareholder’s wealth the non-performing loans are decreased. This has been confirmed by the work of([Louzis et al., 2012](#_ENREF_26); [Shingjergji, 2013](#_ENREF_37)).

## 3.8.2.3 Non-Interest Income (NII)

The Banks are also focusing to increase the income from avenues of other than the interest earning. The banks are continuously devising new products to improve their non-mark-up income. The banks are focusing more on revenues from on line banking, mobile banking, and Banca-assurance. The banca-assurance is a product introduced by the collaboration of banks with insurance companies and the Banks normally park the forty percent of the premium of the first year as per the agreement with the company. This explanatory variable was previously tested by([Louzis et al., 2012](#_ENREF_26); [Park & Zhang, 2012](#_ENREF_31)).The studies have complied that the variable has an inverse relations with the stuck up loans but the study done in Greece refuted its significance while the study done in US confirmed its significance in the post crisis era.

## 3.8.2.4 Loan to Asset Ratio (LAT)

This variables detects the risk craving of the Banks. The higher ratio signifies the bank’s willingness to comprise on the award of loans which are other than on merit just to foster the earnings in the period of recession ([Khemraj & Pasha, 2009](#_ENREF_24)). The research which established the affirmative link with the dependent variable was conducted ([Keeton & Morris, 1987](#_ENREF_23); [Klein, 2013](#_ENREF_25)).

## 3.8.2.5Capital Adequacy Ratio (CAR)

The variable has been the concern of various studies and has proved its significance in the findings. However the results have shown diversity of being showing a positive relation with the non-performing loans and also constraining the same with the sufficiency of capital. We postulated that the abundance of Capital controls the stuck up loans. The Banks are under regulator pressure to attain a certain level of capital adequacy ratio and it is mandatory for the Banks to disclose the same in the audited financials. The earlier work which formed the basis of our hypothesis was done by([Jameel, 2014](#_ENREF_22); [Makri et al., 2014](#_ENREF_27)).

## 3.8.2.6 Ownership Concentration

The selection of borrowers also rest on upon the fact that who has the supremacy to sanction loans. The institutions where the shareholding is concentrated either with one individual or entity the chances of manipulation and being monopolistic in decision making cannot be ignored. The discretionary powers to authorize loans may be vested with ownership concentration as the majority rules and might is right. Recent research has also paid attention to this element and it was found that with the high concentration of ownership the non-performing loans in a particular country increase for a certain level of ownership ([Louzis et al., 2012](#_ENREF_26)). We have introduced a dummy variable with three level of ownership where it is vested with on shareholder either individual or an entity. The concentration of ownership where it exceeds 10% is represented by 1 and beyond 25% it is assigned number 2 and over 50% it is characterized by as number 3. The Banks are bound to disclose their share holder pattern in their audited financials.

# **4. Data Analysis and Results**

## 4.1 Quantitative Analysis

This Research has endeavored to unveil the derivers of NPL ratio which are internally generated by the institution. The Hypothesis developed was result oriented and was based on importance granted to the variables in the available literature. To test the hypothesis the Fixed Effects Model was used and various tests were run to measure the effects of the explanatory variable on the dependent variable. Due to the reliability of the method and its wide usage in previous research the same also been adopted. Various studies have adopted the Fixe Effect method in research work to name a few([Erdinç & Abazi, 2014](#_ENREF_11); [Mehmood et al., 2013](#_ENREF_28); [Tanasković & Jandrić, 2015](#_ENREF_39); [Zaib et al., 2014](#_ENREF_43)).

The research included three dummy variables for the representation of the OWC i.e. concentration of ownership in the financial institutions. The three dummy variables were represented by D1, D2 and D3.The three dummy variables represented three levels of ownership concentration. The concentration means the shares held by one share holder more than 10%, 25% and 50% respectively. To initiated the research findings the selective descriptive statistics are narrated first.

## 4.2 Descriptive Statistics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 1: Descriptive statistics:** | | | | | |
| **Variables** | **Mean** | **Median** | **Maximum** | **Minimum** | **Std. Dev.** |
| NPL | 0.122085 | 0.104350 | 0.515486 | 0.08504 | 0.093583 |
| LAT | 0.476735 | 0.47 | 0.81 | 0.31 | 0.103044 |
| ROA | 0.011327 | 0.01 | 0.04 | -0.05 | 0.01257 |
| ROE | 0.105918 | 0.17 | 0.31 | -1.99 | 0.342402 |
| CAR | 13.32194 | 12.835 | 22.25 | 1.05 | 3.712668 |
| NII | 0.188980 | 0.175000 | 0.430000 | 0.060000 | 0.086828 |

**Note: N = 98**

The main descriptive statistics of the variables were calculated to understand the features of the tested variables. It can be observed that the variation between the maximum and minimum variation of the NPLs. It can be observed from the results that the delinquent advances of a financial institutions comprised of halt of its portfolio. Moreover the average stuck up loans averaged at 12.00% of the total gross loans. The minimum and maximum threshold of banks to take on risk can also be gauged by the Loan to Assets ratio. It is evident form the figures that the banks in the sample had approximately 50% of their assets as advances. The maximum limit of holding loans as a part of the total assets has witnessed to be 80% which sounded very alarming and must be addressed by the concerned financial institution because in case of massive default either circumstantial or wilful the stability of the institution will be sacrificed. In order to retain a reasonable liquidity and a capital base the asset mix is very important and the financial institution must follow a prudent asset composition in order to remain profitable.

Likewise it was also observed that the earning on equity of a particular Banks was negative soon after the crisis period however the same was overcome by the financial institution. Since the focus on non-interest income is new in the Banking sector however a few Banks have touched the benchmark of generating the 40% non-interest income from the gross income. It is also noteworthy that the capital adequacy ratio is at 13.32% which mean that the banks in the sample have collected adequacy ratio above 10% of the regulatory requirement of CAR of 10%.

## 4.3 Correlations Matrix

**TABLE 2**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | NPL | CAR | LAT | NII | | ROA | | ROE | |
| NPL | 1 |  |  | |  | |  | |  | |
| CAR | -0.49355 | 1 |  | |  | |  | |  | |
| LAT | 0.337333 | -0.66277 | 1 | |  | |  | |  | |
| NII | 0.008171 | 0.286216 | -0.07677 | | 1 | |  | |  | |
| ROA | -0.48563 | 0.783381 | -0.45028 | | 0.205272 | | 1 | |  | |
| ROE | -0.62171 | 0.626026 | -0.47052 | | 0.059224 | | 0.813484 | | 1 | |

The correlation matrix was used to investigate the strength of relationship between the variables. The range between negative 1 to positive 1 shows the relationship strength and the 0 shows no relationship. The excessive lending represented by LAT (Loan to Asset Ratio) was positively related the non-performing loans and same was confirmed by the findings of ([Khemraj & Pasha, 2009](#_ENREF_24); [Klein, 2013](#_ENREF_25)). The higher LAT indicates the banks appetite for risk by lending more and taking extra risk ([Keeton & Morris, 1987](#_ENREF_23)).The improved earning on the equity assist in reducing the non-performing loans([Fofack, 2005](#_ENREF_15); [Louzis et al., 2012](#_ENREF_26); [Makri et al., 2014](#_ENREF_27)). Likewise the improved earning on assets reduces the growth of stuck up loans. The inverse relationship is proved by ([Boudriga et al., 2009](#_ENREF_6); [Erdinç & Abazi, 2014](#_ENREF_11)).

The financial stability of an institution rests on its capital base. The Banks are under regulator pressure to attain a certain level of capital adequacy ratio and it is mandatory for the Banks to disclose the same in the audited financials. The CAR was negatively associated with the NPLs and the same was proven by ([Jameel, 2014](#_ENREF_22); [Makri et al., 2014](#_ENREF_27); [Shingjergji & Hyseni, 2015](#_ENREF_38)). It is evident from the correlation matrix that the multicollinearity problem is non-existent as the maximum correlational values are less than 0.8. The problem of mulitcollinearity can be present if the values are above the threshold of 0.8 or larger ([Damodar N Gujrati, 2012](#_ENREF_9)). In this case the correlation of ROA and ROE is slightly above 0.8 and is far less than 0.9 so it can be ignored. However the ROA has proven to be insignificant.

## 4.4 Fixed Effect Model

The data gathered in the sample is a balanced panel data which means that each bank has the same number of observations for the number of years reported. Of the various methods used for the analysis of panel data the FEM has been selected as we have used a dummy variable.

The fixed model is the relationship of characteristics within each entity with the independent variables.

## Table 3

**Fixed Effect Model**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Variable*** | ***Coefficient*** | ***t-Statistic*** | ***Prob.*** |
| C | 0.287404 | 3.651153 | 0.0005 |
| D2 | -0.02776 | -1.10067 | 0.2745 |
| D3 | -0.03246 | -1.20269 | 0.2328 |
| ROA | 0.472678 | 0.499976 | 0.6185 |
| ROE | -0.05427 | -2.01982 | 0.0469 |
| CAR | -0.00183 | -0.58846 | 0.5579 |
| NII | -0.26164 | -2.46953 | 0.0157 |
| LAT | -0.1431 | -1.84808 | 0.0684 |

a. Dependent Variable: NPL

b. Note: R2 = 0.88; Durbin Watson = 1.805941; F stat 30.45832\*

\*significant at level 1 %

As note by [Damodar and Dawn (2004](#_ENREF_8)) the most reliable test of gauging the autocorrelation is Durbin Watson and the value should be near to 2. In this case the value is 1.81 approximately heading to 2 therefore the problem of autocorrelation is ignored.

## 4.5 Hausman Test

After the results have been obtained by the application of FEM it is needed to ensure that it is the appropriate model used for testing. Then, [Hausman (1978](#_ENREF_19))test controls whether the unobservable heterogeneity is linked with the explanatory variables by testing for systematic differences in the random effects and fixed effect coefficient vectors.

The null hypothesis is that the estimator used in the test are not different noticeably. The H1 is that In order to verify the null hypothesis the estimates from both model are compared. It is noteworthy that the consistency of Random Effect model remains there under the null and H1.

In the event of non-acceptance of Ho the Random Effect model is not used which means that the random effects are correlated with one or more independent variables ([Gujarati, 1970](#_ENREF_18)). But in this case the sig value is significant and the null hypothesis is non-accepted and therefor the Fixed Effect Model will be used due to greater effectiveness.

**Table 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Summary** | **Chi-Sq. Statistic** | **Chi-Sq. d.f.** | **Prob.** |
| Cross-section random | 83.723760 | 7 | 0.0000 |

***Hausman Test***

## 4.6 Random Effect Model

Random Result reports for connection that exists amid characteristics across entities alongside the consequence variable. Disparate characteristics amid entities could have substantial impact on reliant variable. Random Result ideal can additionally incorporate time-invariant variables in the ideal whereas such variables are embodied at interrupt in the fixed result models.

## Table 5

**Random Effect Model**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Coefficient** | **t-Statistic** | **Prob.** |
| C | 0.268226 | 4.288123 | 0 |
| D2 | -0.01867 | -1.08328 | 0.2816 |
| D3 | 0.033572 | 2.054262 | 0.0429 |
| ROA | 0.94337 | 1.167987 | 0.2459 |
| ROE | -0.08606 | -3.6057 | 0.0005 |
| CAR | -0.00573 | -2.1702 | 0.0326 |
| NII | -0.12543 | -1.67769 | 0.0969 |
| LAT | -0.12125 | -1.85294 | 0.0672 |

a. Dependent Variable: NPL

b. Note: R2 = 0.253; Durbin Watson = 0.993894; F stat 4.361781\*

\*significant at level 1 %

The results revealed that ROE, LAT, NII and Ownership concentration up to a specific level are significantly determine the non-performing loans. . It was interesting to note that the regressors negatively influenced the non-performing loans and the results were in conformity with the previous research findings. The Capital Adequacy ratio was not significant but its inverse relationship with the stuck up loans was proved. The work which also proved that with the sufficiency of capital the non-performing loans of the banks are cut down was done by ([Makri et al., 2014](#_ENREF_27); [Shingjergji, 2013](#_ENREF_37)).

The results of our research revealed a negative and significant relationship of ROE with the non-performing loans and it supported the belief that with the decline in profitability the infected portfolio tends to rise. This also signifies the risk appetite of the banks where the banks are eager to advance on soft terms. The proficient management tends to control the bad loans. The Return on Equity is used as proxy for management efficiency in controlling the infected loans. With the enhancement of return on shareholder’s wealth the non-performing loans are decreased. This has been confirmed by the work of ([Louzis et al., 2012](#_ENREF_26); [Shingjergji, 2013](#_ENREF_37)).

The NII (Non-Interest Income) also proved its negative and significant impact on the classified loans. The findings of this research were in line with the earlier work done by ([Louzis et al., 2012](#_ENREF_26); [Park & Zhang, 2012](#_ENREF_31)).

With the changing focus of the banks on ancillary business other than the markup income is gaining importance. The banks are now swiftly shifting their concentration from the reliance on markup income to the NFI (Non-Financial Income). Various innovative products have been devised in order to augment the ancillary income. Another reason for that is the shrinking income spread which is obtained from the difference of lending rate and profit rate paid to the depositor. In Pakistan the Central Bank has continuously decelerated the discount rate due to which the rate of return to the depositor and the rate at which the banks lend also comes down.

The institutions where the shareholding is concentrated either with one individual or entity the chances of manipulation and being monopolistic in decision making cannot be ignored. The discretionary powers to authorize loans may be vested with ownership concentration as the majority rules and might is right. Recent research has also paid attention to this element and it was found that with the high concentration of ownership the non-performing loans in a particular country increase for a certain level of ownership ([Louzis et al., 2012](#_ENREF_26)). We have introduced a three dummy variables D1,D2 and D3 with three level of ownership where it is vested with on shareholder either individual or an entity. The concentration of ownership where it exceeds 10% is represented by 1 and beyond 25% it is assigned number 2 and over 50% it is characterized by as number 3. The Banks are bound to disclose their share holder pattern in their audited financials.

This study confirmed that the ownership concentration of greater than 10 % and less than 25% is significant and tends to increase the non-performing loans. Whereas when the ownership concentration is concentrated from 25% and above 50% the non-performing loans tend to decrease. This was also postulated by [Shehzad, de Haan, and Scholtens (2010](#_ENREF_36)) where he extensively tested by gathering data of 500 banks located in 50 different countries. The data had the range from 2005-2007 it was the period just before the financial plunge of 2008 which ignited the liquidity crunch throughout the world. The need to explore the ownership concentration was aimed to diagnose that to what extent the menace of delinquent advances can be controlled.

A similar study was done in Greece by [Louzis et al. (2012](#_ENREF_26))where the ownership concentration was tested to determine its impact on the loan portfolio segregated into consumer, mortgage and commercial loans. Due to the dynamics of Greece the findings showed that the greater concentration of ownership above 25% and 50% tend to increase the non-performing loans which shows the discretionary practices of power vested owners in the extension of loans. In such cases the owners advanced to the borrowers on softer terms. Consequently resulted in the proliferation of non-performing loans.

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# **5. Conclusions, Recommendations and Future Research**

## 5.1 Conclusion and Recommendations

To ensure the survival of the Banking Sector of any Country is the prime responsibility of the Central Bank of a Country. We have witnessed many cases globally where the Central Banks have to bail out not only the financial institutions but also to the whole country. One such example is Greece where in the European Central Bank has taken corrective measures to assure that the country default must be avoided. Our study therefore focused on the factors liable for the mushrooming of stuck up loans of Banks with emphasis on the elements which are in the ambit of the Banks. Since the individual institutions do not have control on the externalities of the economy. We regressed various variables on the dependent variable and found that the ROE, Non-Interest Income and Ownership concentration have significant impact on the non-performing loans. The analysis was in compliance with the earlier research done at in various Countries.

We have discovered that in Pakistani Banking Sector the Non interest income and ownership concentration have a considerable impact. As with the advent of technology the online banking is a commonplace and Banks are focusing more to motivate account holders to operate their accounts electronically and this will reduce the operational cost of the banks manifold. The concept of smart branches with two person will likely to place the thickly staffed bank branches in future. This will prove to be very cost effective for the Banks and will help them in reducing their general and administrative costs. Moreover with the introduction of innovative products the banks are also focusing more on the income of other than interest.

The Pakistani Banking sector has the examples of Banks being owned by families to name a few MCB Bank, Bank Al Habib, and Habib Metropolitan Bank. There are Banks which are also owned by Government entities at Provincial and Federal levels. It is noteworthy that the highly concentrated banks have lowest level of NPLs. This signifies that when the concentration of ownership is focused upon the owners become very concerned for curtailment of the infected portfolio. The non-performing loans eat up the bank’s capital, impair its liquidity, and destabilize its income stream. Therefore the concentrated ownership tends to focus its lending practices, borrower’s quality, the collateral held to safeguard the default of the borrower. It is therefore need of the hour that the banks with less concentrated ownership i.e. more than 10% and less than 25% must revisit their credit policy and monitoring behaviour toward prospective as well as delinquent borrowers. It signifies that the less concentrated ownership has little on stake and thus follows liberal credit and recovery policy which results in growth of non-performing loans. Furthermore Corrective measure should be taken in order to control the non-performing loans. In addition it was reinforced by the findings that the capable management can play a vital role in the reduction of infected portfolio as the ROE was not only significant but was negatively influencing the classified loans. The study thus concludes that efficient management, prudent lending practices and sufficiency of capital will lead the Banks to have a healthier and resilient credit portfolio along with a smooth income stream.

## 5.2 Future Research

There is always scope for future research to fill the research gap owing to time and data constraints at a given point of time. The future research with enlarged sample size and the extended time frame can come up with more reliable results. Our study focused on the institutional related factors of gross NPLs i.e. which represent the overall loan portfolio. No study has been conducted in Pakistan where in the determinants of NPLs segment wise have been explored. It is needed that in future research the determinants of non-performing loans should be explored segment wise like the impact of bank centric factors categorically on Consumer, Small and Medium and Corporate loans.

The impact of explanatory variables on different non-performing loan classes will support the Bank’s management to initiate corrective measures needed in the extension and monitoring of a particular loan segment. The accumulation of non-performing loans in a certain category will guide the Bank’s Policy makers to set the future risk appetite for consumer and commercial borrowers. In order to maintain healthy loan portfolio the need to review the loan portfolios by the Bank’s is indispensable and the target oriented research will contribute to expose the unaddressed determinants of stuck up loans. The future research must also focus on inclusion of the public debt as percentage to GDP as a regressor. This external determinant of NPLs is yet to be researched in Pakistan. The growing public debt of Pakistan is very alarming and the public debt also restricts the extension of credit to the private sector. The findings of the future research can direct the attention of the national policy makers to address this issue and recognize its positive and significant impact on the non-performing loans as discovered by ([Louzis et al., 2012](#_ENREF_26); [Makri et al., 2014](#_ENREF_27)).

The loan defaults are not always wilful it has been observed that the loan defaults are also circumstantial where in the borrower has little control on the externalities. The Banks have to suffer huge losses due to their non-performing loans therefore it is very necessary to dig out the factors which determine the non-performing loans. When a loan is defaulted by a borrower not only the capital is impaired, profitability is also hurt and in addition the extension of credit to the deserving borrowers is also restricted due on concentration of bad loans in a particular segment. Therefore the loans should be properly collateralized so that the bank can take the advantage of Forced Sale Value of the collateral. When the loans are properly collateralized than the Banks can auction the property held as collateral in order to recover the default amount. The future research can also check the significance of loan collateral in reducing the non-performing loans.

In addition the research on the determinants of NPLs before and after the crisis period of 2008 can also be considered in order to gauge the intensity of each determinant in the pre and post crisis period of 2008. The results can be utilized to identify then variables which are volatile and positively impact the NPLs. An important limitation of our study was that we have not taken into account the economic variables. Therefore a more robust and comprehensive model could not be made the future research can also induct macro-economic variables to also gauge their explanatory power towards the non-performing loan

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