Crucial Factors of Nonperforming loans Evidence from Pakistani Banking Sector

Kiran Jameel

Abstract— The purpose of conducting this study is to examine the impact of bank's significant determinants on nonperforming loans in the Pakistani banking sector. To accomplish this purpose 11 years (2000-2010) time series data have been collected which has explained the relationship between non performing loans and several bank's determinants. Quantitative data examined by using Econometric models with the help of Eview 6.0.The study occupy time series data multiple liner regression model. For this purpose, bank's specific indicators such as Gross domestic Product, Weighted average lending rate, loan's maturity time period, Credit deposit ratio, and Capital adequacy ratio are regressed against amount of nonperforming loans to total advances. The study found that GDP growth rate, maturity time period of loans, capital adequacy ratio and credit deposit ratio have negatively associated with NPLs in Pakistan banking sector. While weighted average lending rate has positive relation with NPLs in Pakistan.

Keywords— Non performing loans, Pakistan banking sector, Capital adequacy ratio, Credit deposit ratio.

1. INTRODUCTION

Among various indicators of financial stability bank's nonperforming loans assume critical importance since it contemplates on the asset quality, credit risk and efficiency in the allocation recourses to the productive sector. A non performing loan is any loan in which interest and principle payments are more than 90 days overdue. (*IMF, 2005).* In other words borrowed money upon which the debtor has not made his schedule payments for at least 90 days. Rising trend of NPL ratio impairs asset quality of banks which eventually hindering solvency position of a bank. The main function of banks is credit creation through mobilization of deposits. Economic growth cannot prosper without strong financial sector. If financial soundness is week it can trim down credit flow in country which ultimately hampers the efficiency and productivity of growing industries. Increase non performing loans as the result of ultimate failure of credit policy. It is also observed that the financial crisis is also affected of high NPLs rate in the banking sector. The reason behind the bad debts is the low repaying capacity of the borrower. The rising trend of

NPL is not new for a country like Pakistan where powerful debtors has significant influence on credit policy of banks.

Nonperforming loans are mass critical phenomena first came into the spotlight in the USA in 1980.When retail banking sector faced difficulties due to the rising trend of rising prices. The state bank of Pakistan has acknowledged the increasing mass volume of infected loans as a cause for distress for the Pakistan banking industry over the last three decades. The rising NPLs could prove incurable for the banking sector as well as for the economy. This mounting trend not only hampering the profitability of Pakistani banks, but as well shows the weakness of financial condition in the state.

The total NPLs stood at Rs.585 billion for all banking sector in Pakistan, according to data furnished by State bank of Pakistan (SBP) on Dece.31.2013.Out of total NPLs 69% come from the balance sheet of private sector banks, nearly 27 % reside on the public sector bank's balance sheet, almost 6% come from the specialized banks and foreign banks are holding very minimal 1% of the total NPLs in Pakistan. On the other hand cash recovery for the first quarter against NPLs reached to Rs.23.8 billons, with major recovery by the private banks of Rs.14.2 billions.

The study is organized into five sections. Sec.1. Introduction in which brief introduction of topic, history, current facts about NPL in Pakistan, research problem, research question, objective of study, and scope of study. Sec. 2. Discussed literature review in which previous theories regarding NPL are explained. Sec.3. Draft modeling framework in which econometric model and research methodology are explained. Sec.4. Estimated results Sec.5. Is Explained conclusion.

1.1 Problem Statement

Although non performing loans are a worldwide incident which is hampering the profitability of any financial institution, but in Pakistan case during the 2000 to 2010 NPLs showed an alarming increase due to unexpected variation in bank's specific

- *Kiran Jameel is currently pursuing M.Phil degree program in Commerce, University of Karachi, Pakistan, PH- +923126626659. E-mail: kiranjuw88@gmail.com.*

determinants which is a matter of concern of banking sector of the country.

1.2 Research Question

Q. What is the impact of bank's critical determinants on non performing loans in Pakistan?

1.3 Objective of Research

The purpose of conducting this study is to examine the impact of bank's crucial determinants on nonperforming loans in the Pakistan banking sector. To accomplish this purpose 11 years (2000-2010) time series data have collected which explained the relationship between non performing loans and several bank's determinants which may have crucial effect on heighten trend.

1.4 Scope of Study

The study focused on commercial banks in Pakistan. The banks almost lend all the sectors of the economy and government as well but rising defaults on these loans are a matter of concern of this sector. The study presents an opportunity for commercial banks working in Pakistan to change their lending policy, according to changes in specific determinants which has an impact on rising default rates.

2. LITERATUER REVIEW

Rising levels of nonperforming loan have been an obsession of fear all over the world since last 10 years. This phenomenon caused to be concerned of several researchers to examine the reason behind this heightened trend. It to mention that the uprising trend of NPL is the most significant element of the economy stagnates. Different researches are related NPLs and specific variables such as Keeton (1987) Observed that banks can cause high losses because of complete chance, weak process of credit management specialization and economic condition, while Robert T. Clair (1991) Examine the relationship between credit growth and loan quality. Loan quality is measured by credit loss to total loan ratio and NPL to total loan ratio.

The study empirically analyses that a rapid credit growth leads towards the deterioration of credit quality and conclude that low credit portfolio quality can cause the bankruptcy of the banks. Khemraj and pasha (2005) explained some macroeconomic and specific variables which affect NPLs ratio. The survey concludes that loan to asset ratio and real interest rate has a positive impact with NPLs while credit growth and GDP have a negative relationship with NPLs. Furthermore Fofack (2005) brings out that the upward trend in NPLs ratio will lead to unrestrained growth of credit risk. The subject area has come after the real effective exchange rate, real interest rate and GDP growth per capita as independent variables which have statistically significant impact of NPLs ratio. In this study interest rate is measured by weighted average lending rate of interest.

The interest rate is one of the bank's specific indicators of nonperforming loans. There is empirically significant that interest rate and NPLs are positively correlated. (Nkusa 2011; Adebola, Yusof and Dahalan 2011; Berge and Boye 2007; Louzis Voulis and Metax 2011). An increase in lending rate hurts the loan repayment capacity of the borrower therefore NPLs level increase by the increase in interest rate, thus bank lending policy play an important role in NPLs growth in an economy. Hoque and Hossain (2008) observed that NPLs are highly correlated with interest rate which enhance the debt burden of the borrower and cause loan defaults. Furthermore Bloem and Gorter (2011) studied that frequent changes in interest rate policy cause an increase in the bad loans.

Farhan, Ammara, Abrar and Fareeha. (2012) critically examine the perception of Pakistani bankers about economic factors that merely caused elevated trend of NPLs from 2006 to 2012.Top ten banks of Pakistan has been selected as sample and the study acquire primary data for this study. The study focused on economic factors such as interest rate, energy crisis, unemployment, inflation, GDP growth and exchange rate. According to their findings sample bankers perceived that interest rate; exchange rate, unemployment, inflation, and energy crisis have positive association with NPLs while GDP growth has negative relationship with NPLs. There is empirical negative relationship between GDP's growth and Nonperforming loans. (Louzis, Vouldis and metax 2011; Khemraj and Pasha 2009; Rajan and Dhal 2003; Fofack 2005; Jimenez and Saurina 2005). The growth in GDP usually increases the economic activities in the country which ultimately enhance the repayment capacity of borrower which in turn contribute downfall in the level of bad loans.

3. MODELLING FRAMEWOREK

3.1 Research Methodology

Data has been composed of secondary sources. The data collected from economic survey of Pakistan and financial stability review issued by state bank of Pakistan during 2000 to 2010.Quantitative data examined by using Econometric models with the help

of Eview 6.0. The study occupy time series data multiple liner regression model. For this purpose, bank's specific indicators such as Gross domestic Product, Weighted average lending rate, loan's maturity time period, Credit deposit ratio, and Capital adequacy ratio are regressed against amount of nonperforming loans to total advances.

3.2 Econometric Model

The liner multiple regression models developed for this study is as follows:

NPL = f (GDP, WALR, MAT, CDR, CAR)

3.21 Equation

$NPL = \beta 0 + \beta 1GDP + \beta 2WALR + \beta 3MAT + \beta 4CDR + \beta 5CAR + \mu$

Whereas:

NPL = Non performing loans

GDP = Gross domestic Product

WALR = Weighted average lending rate

MAT = Maturity time period

CDR = Credit deposit ratio

CAR = Capital adequacy ratio

μ = Error /Residuals

3.3 Research Hypothesis

Ho1: There is no negative relationship between Gross domestic product growth rate and Nonperforming loans in commercial banks in Pakistan during 2000 to 2010.

Ho2: There is no positive relationship between Interest rate and Nonperforming loans in commercial banks in Pakistan during 2000 to 2010.

Ho3: There is no negative relationship between Maturity period of loans and Nonperforming loans in commercial banks in Pakistan during 2000 to 2010.

Ho4: There is no negative relationship between credit deposit ratio and Nonperforming loans in commercial banks in Pakistan during 2000 to 2010.

Ho5: There is no negative relationship between Capital Adequacy Ratio and Nonperforming loans in commercial banks in Pakistan during 2000 to 2010.

4. ESTIMATION RESULTS

Table I presents descriptive statistics of this survey. The value of mean, median, standard deviation and lower limit, maximum ranges of all variables of commercial banks in Pakistan are calculated through E-view software from 2000 to 2010. Mean explain the average value of observations and standard deviation indicates deviation /change of data from mean. The dependent variable NPL to total advances average 14.2% and range from 6.90% to 23.40%. The GDP growth rate had an average of 4.62% and rage from 2.00%to 8.00%.furthermore, weighted average lending rate average was 0.113% and rage had 0.05 to 0.14%. Maturity level of loans average was 0.29% and range 0.25to 0.33%. Capital adequacy ratio average was 0.10% and ranged 0.075 to 0.14%.The credit deposit ratio showed an average 0.718% and range 0.59% to 0.80%.

Table II indicates the result of correlation matrix of six variables (NPL, GDP, WALR, CAR, CDR and MAT). NPLs ratio has negatively associated with GDP, CDR, MAT and CAR which is -0.50, -0.26, -0.84 and -0.67 respectively. This indicates that as GDP, CDR, MAT and CAR decreases NPLs with Pakistan commercial banks increases. While the weighted average lending rate has positively related with NPLs which is 0.166. As banks lending rate increases, it merely caused defaults to borrow. WALR and GDP are inversely correlated. MAT has positive relationship with GDP (0.14) and WALR (0.30) but relationship between them are weak. Capital adequacy ratio negatively correlated with GDP -0.113 while weak positive relationship with WALR (0.31) and moderate related with MAT (0.71).The credit deposit ratio has a negative relationship with WALR and CAR which is -0.01 and -0.12 respectively. While positive correlated with GDP (0.04) and MAT (0.30) but correlation is weak between them. It is clear that no two variables are highly correlated .Thus; there is no multicollinearity problem in this data set.

Table III depicts the summary of the regression result which is received from ordinary least square method. The adjusted R-square is 95%. This means that 95% of the changes in the dependent variable (NPL) are due to variation of the independent variables used in this study. The Durbin – Watson statistics are equal to 2.57 indicating that there is no correlation between the variables and residual in this study. Thus there is absence of autocorrelation problem. F statistics probability 0.000 indicates that overall model is good fit.

The study examines impact of bank's specific variables on non performing loans in Pakistan using time series data from 2000 to 2010. According to findings:

NPLs ratio and GDP growth showing negative relationship .The beta coefficient is (-0.75) and is statistically significant (0.040) at 5% level of significance, Hence the Ho1 is rejected. WALR is positively correlated with NPL ratio (54.97) with (0.041) level of significance. The study shows that an increase in interest rate causes a hike in NPL ratio as well. Thus H02 is rejected.

Maturity period of loan has negative relationship with NPL ratio (-130.59) and statistically significant with (0.018) at 5% level of significant. This shows that lower the maturity period of loans leads towards high level of NPL ratio. Hence, Ho3 is also rejected.

Capital adequacy ratio has negatively correlated with NPL ratio (-101.73) and statically significant (0.020).Thus Ho4 is rejected.

Credit to deposit ratio is negatively correlated with NPL ratio (-14.0) but not statically significant (0.184) at 5% level of significant. Thus Ho5 is accepted.

5. CONCLUSION

The study concludes that Nonperforming loans have associated with bank's specific indicators in Pakistan. In this study time series data are regressed by multiple liner regression on model from 2000 to 2010.Ordinary least square estimation found that the adjusted R-square is 95%. This means that 95% of the changes in the dependent variable (NPL) are due to variation of the independent variables used in this study. The Durbin – Watson statistics are equal to 2.57 indicating that there is no correlation between the variables and residual in this study, thus no autocorrelation problem. F statistics probability 0.000 indicates that overall model is good fit. The study further concludes that bank's nonperforming loans can be affected by variation in GDP, weighted average lending rate, maturity period of loans, capital adequacy ratio and credit deposit ratio in Pakistan.GDP growth rate, maturity time period of loans, capital adequacy ratio and credit deposit ratio has negatively associated with NPLs in Pakistan banking sector. While weighted average lending rate has positive relation with NPLs in Pakistan. To beat the towering trend of bad loans, banks can overview their lending policies according to expected variation in several crucial indicators of Nonperforming loans in Pakistan.

5.1 Direction for further Research

The study has explained only five independent variables to analyze the effect of bank's specific determinants on non performing loans with reference to Pakistan from 2000 to 2010. For future studies, researcher may also consider long time horizon and more variables like level of loan disbursed, collaterals value, and terms of credit, credit culture of society and bank ownership structure.

REFERNCES

1. Adebola, S.S.,Wan Yusoff, S.B., and Dahalan, D.J.(2011) An Ardal Approach to the determinants of NPLs. Kuwait chapter of Arabian Journal of Business and Management Review , Vol.1, No.2.

2. Dash, M., and Kabra, G. (2010). The determinants of nonperforming assets in Indian commercial banks: An empirical study. Middle Eastern finance and economics journal pp.94-106.

3. Farhan, Ammara, Abrar and Fareeha (2012).Economic determinants of NPL: Perception of Pakistani bankers. European Journal of Business and Management. Vol.4, NO.19, 2012.

4. Fofack, H., 2005. "Nonperforming loans in sub-Saharan Africa: Causal analysis and macroeconomic implications." World Bank policy research working paper No.3769.

5. Hoque, M.Z. and Hossain, (2008).Flawed interest rate policy and loan defaults: Experience from developing countries. International review of business research papers, Col.5, No.5, 235-246.

6. Khemraj and Pasha 2009. "The determinants of Nonperforming loans: An econometric case study of Guyana."Munich Personal RePEc Archive Paper No.53128.

7. Masood, O. (2009). Determinants of Nonperforming bank loans and bank loan recovery in Pakistan. Survey approach. Euro- Mediterranean economic and financial Review, 89-104.

8. Rajiv R. and S.C. Dhal (2003). Nonperforming loans and term of credit of public sector banks in India: An empirical assessment. Reserve bank of India occasional papers Vol.24, No.3, winter 2003.

9. Richard, E. (2011). Factors that cause NPL in commercial banks in Tanzania and strategies to resolve them. Journal of management policy and practice. Vol.12, pp.50-58.

10. Robert T. Clair. 1992. "Loan growth and loan quality: Some preliminary evidence from Texas banks."Journal of economic and financial policy review.

11. William R. Keeton, 1999. "Does faster loan growth lead to higher loan losses?" Economic review, Second quarter Federal reserve bank of Kansas City.

Appendix

Table I **Descriptive Statistics**

	NPL	GDP	WALR	MAT	CAR	CDR
Mean	14.12727	4.627273	0.113118	0.295182	0.109182	0.718455
Median	12.60000	4.800000	0.118000	0.295000	0.110000	0.722000
Maximum	23.40000	8.000000	0.145000	0.333000	0.140000	0.800000
Minimum	6.900000	2.000000	0.056800	0.254000	0.075000	0.590000
Std. Dev.	5.804669	2.208661	0.029661	0.024891	0.023357	0.054930
Skewness	0.276593	0.208993	-0.645865	-0.050351	-0.094107	-0.916693
Kurtosis	1.714457	1.598891	2.217116	1.834888	1.625244	4.066955
Jarque-Bera	0.897708	0.979834	1.045676	0.626829	0.882465	2.062360
Probability	0.638359	0.612677	0.592836	0.730947	0.643243	0.356586
Sum	155.4000	50.90000	1.244300	3.247000	1.201000	7.903000
Sum Sq. Dev.	336.9418	48.78182	0.008798	0.006196	0.005456	0.030173
Observations	11	11	11	11	11	11

Table II **Correlation Matrix**

	NPL	GDP	WALR	MAT	CAR	CDR
NPL	1.0000					
GDP	0.504411	1.00000				
WALR	0.16669	-0.621419	1.00000			
MAT	-0.848781	0.14487	0.30017	1.00000		
CAR	-0.670265	-0.113116	0.31047	0.71030	1.00000	
CDR	-0.268101	0.04753	-0.011784	0.30528	-0.128285	1.00000

Table III **Regression Results**

Dependent Variable: NPL
Method: Least Squares
Date: 04/27/14 Time: 15:38
Sample: 2000 2010
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	71.14556	6.075772	11.70972	0.0001
GDP	-0.758761	0.275507	-2.754052	0.0401
WALR	54.97870	20.08894	2.736765	0.0409
MAT	-130.5974	33.05075	-3.951419	0.0108
CAR	-101.7362	30.29421	-3.358271	0.0201
CDR	-14.01435	9.111224	-1.538141	0.1846

R-squared	0.977732	**Mean dependent var**	14.12727
Adjusted R-squared	0.955464	**S.D. dependent var**	5.804669
S.E. of regression	1.224996	**Akaike info criterion**	3.546204
Sum squared resid	7.503079	**Schwarz criterion**	3.763238
Log likelihood	-13.50412	**Hannan-Quinn criter.**	3.409395
F-statistic	43.90714	**Durbin-Watson stat**	2.571412
Prob(F-statistic)	0.000392		