

# **NON-PERFORMING LOANS & THEIR IMPACT ON MARKUP EARNINGS: ASSET EQUITY RATIO ANALYSIS FROM BANKING SECTOR OF PAKISTAN**

**Hafiz Waqas Kamran** 

Head of Department, Accounting and Finance, University of Central Punjab, Faisalabad, Pakistan

[hafizwaqaskamran@gmail.com](mailto:hafizwaqaskamran@gmail.com)

**Hina Arif**

University of Central Punjab, Faisalabad, Pakistan

**Ifrah Sadaf**

University of Central Punjab, Faisalabad, Pakistan

**Taneer Johnson**

University of Central Punjab, Faisalabad, Pakistan

**Fatima Abdul Khaliq**

University of Central Punjab, Faisalabad, Pakistan

## **Abstract**

*Globally financial institute have faced disasters due to the non-performing loan and its causation. This study scrutinizes the non-performing loan and its impact on markup earning, asset equity ratio analysis from banking sector of Pakistan. We have functioned on variables which are industry explicit like Unemployment, Inflation, Growth domestic product (GDP) and bank explicit which includes Asset to equity ratio, Funding cost, Tier1capital, Markup, Risk based asset and Reserves. The consequence classifies that there is significant association of markup and asset to equity ratio with the both firm explicit and industry explicit elements accordingly. Our study suggests that banks and financial institute should consider the significant*

*factors which are directly and indirectly affect them. To find out the impact of these variables we have followed the panel data approach from 2003 to 2011 that helped to recognize which factor need to more attention.*

*Keywords: Asset to equity ratio, Tier1 capital ratio, Markup, Inflation, Growth domestic product*

## INTRODUCTION

Financial sectors has great influence on economic development of the country. They are the backbone in enhancing national income as well as the stability of country. Efficient performance of these institutes is very much important for maintaining the economic growth. Nobody can refuse the great value of financial institute. The flow of loan from richest to poorer, in addition productivity increase due to investment and it is not be happen without the sound position of financial sector. Likewise banks are major player of financial market, emerging economies like Pakistan has to face financial crises due to non-performing loan. Banks are financing the customer by loan and advances according to customer demand, personal or commercial.

A major problem in banking sector is bad loans for not only the underdeveloped countries but also for developed countries Defaulting loan is main problem which is faced by all the banks. The impact of nonperforming not only destruction of the bank's profitability but also affect the economic growth of country. 1990's period was very tough time for banks because the financial institutes, leasing banks and investment campiness unable to pay debts and loan. The government took noticed on these financial institute, it allowed to write off the billions of rupee (Falak Sher Malghani). Globally, formula adopted to privatize the banks but problem still there. Banks makes some money aside to cover their losses on loans. Banks sale their best assets at the discount price to get some money which face the difficulty of losses. Due to this the non-performing loan effected by the markup. Markup is extra amount which is charge from customer for a good (cars, securities, loans) markup may be a percentage or a flat fee of selling price.

The basic objective of our investigation is to checks the effect of non-performing loan on markup earning and asset equity ratio. There are so many ways to find out the performance of banking sector like assets to equity ratio, markup earnings and profitability. The asset equity ratio tell us about the relationship between firm's total asset and the portion owned by shareholders. From this measures we targeted to Non Performance loan and its impact on markup and asset to equity ratio.

## Research objectives

- To find or know about the key determinants of non-performing loan
- To find the effect of non-performing loan on banking sector.
- To find the impact of non-performing loans on markup earning and asset equity ratio
- To examine the reason of loan nonappearances in banking sector of Pakistan and its effect on Pakistani banks profitability.
- To investigate the various method through which reduced the loan nonappearances in Pakistani banks.

## LITERATURE REVIEW

Rottke and Gentgen (2008) states that banking sector has just faced the problems in the bank's balance sheet of debt of real estate, because of non-payment rates with more real assets loan. To solve the problem banks took action of sub and non-performing loan real asset. by undertaking this activity the bank has to decide whether go outside or get regulate in their divisions for loan activites.To perform the workout responsibilities the level necessary depends on the uniqueness of the security and condition of basic credit engagement. Results show that banks and workout manager should use both scenarios.

Klein (2013) took the data over the sample period 1998 to 2011 of Central, Eastern and South-Eastern Europe (CESEE). He suggest in his article that non-performing loan is determine by both banks explicit and country explicit variables in which financial factors affect intensively. On the other hand country's explicit factor like GDP, inflation and unemployment affect nonperforming loan. The CESEE countries presently facing negative impact on economic factors.

Messai and Jouini (2013) investigate that GDP growth and ROA has the inverse relationship for non-performing loan. But non-performing loan has the direct association for banks internal indicator like unemployment and real interest rate.He also analysis that non-performing has increase with bank's provisions and it can be regulator by offering interest on giving loan.

Vogiazas and Nikolaidou (2011) study and for rules and regulation gave the many recommendation. Decrease in credit risk the external factors are initial indicators for this. For growth scenario the financial sector is ground by SEE economies, checker should monitor the monetary stability of our country and as well adjacent countries'. Due to Greek twin crises the risk increasing and from this the nonperforming loans of Romanian badly affected.

Rasool and Raashid (2014) narrowed the study which verify that size of the bank is completely related to success. This show that large banks are get more as compare to small banks. It can also be concluded that large bank can control their investments better. The existence of high focus show that large banks also have market power as focus ratio is much high. On the basic of above observed result it is suggested that monetary improvement must be more matter. There must be improved service delivery provided by Government to attain strong competition.

Haneef et al. (2012) describe the Credit, market, liquidity, and operational risks are the main threat to which the financial institutions can be showing. Study for discovery, measurement, checking, and calculating of these risks as experienced in Pakistani banks is given by State Bank of Pakistan. In 2008 state bank get independence in the area of banking management by doing few improvements in banking laws. It is the duty of State Bank to systematically check the performance of each banking business to make sure its fulfillment with the legal standards, and banking rules & regulations. Managing surplus Liquidity and Profitability in case of different Geo-political and Economic changes and rising inflows of payments there is an overloaded supply of loan able funds at the removal of the banking system. To manage this, banks have get on insistent promotion to sell their loans.

Beck, Jakubik, and Piloiu (2013) suggested non-performing affected by exchange rate, GDP, share price and lending interest rate.in exchange rate factor loan given to foreign borrowers is specifically high in countries. Share price greater in the countries which have grater stock market against GDP. The outcomes suitable in various economic circumstances.

Ahmad and Bashir (2013) explain that the Profitable banks of Pakistan must give notice to a number of bank exact issues in order to decrease the level of NPLs. First, lending banks must think about their loans to deposit ratio and riskiness of their loan collection. Second, banks must think about the riskiness level of their loan portfolio before providing high risky projects to low quality borrowers and must give the correct information involving the future performance of financial system and future plans as the chance of high risk project failure is high and leads to the growth in NPLs.

Finally the positive connection between reserve ratio and NPLs can be used by the banks when they already have lend funds to the low quality borrowers and calculate that borrowers will failure to pay than banks should stop lending in order to control the level of NPLs by controlling the NPLs only to the existing borrowers.

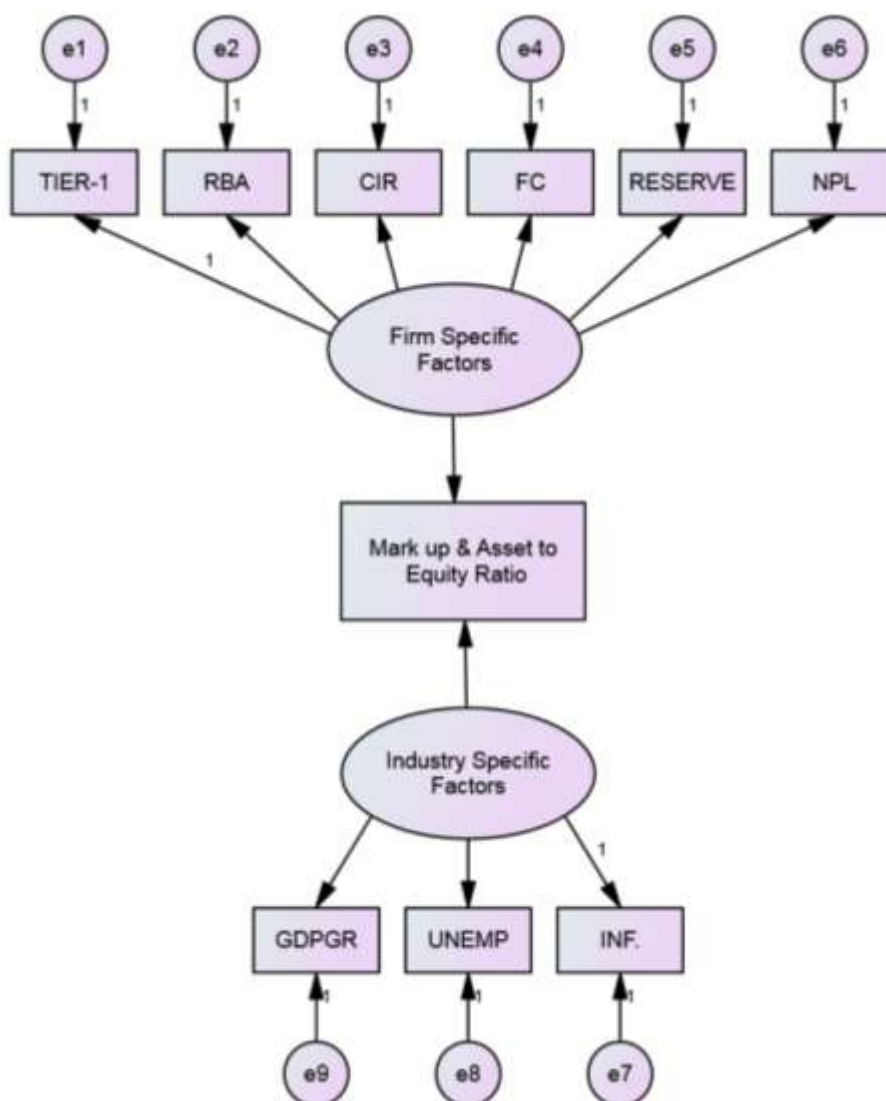
Nkusu (2011) worked on two different approaches that NPL and macroeconomic performance. His result revealed insignificant impact on NPL by applying panel regression model. Also suggest that rapid increase in NPL will have effects on both macro and microeconomic factors

Espinoza and Prasad (2010) describe Investigation show that the response result of growing NPLs on expansion using a VAR model. According to the panel VAR, present might be a strong, although brief response result from losses in banks' balance sheets on monetary activity, with a semi-elasticity of around '34.

### Theoretical framework

The diagram show the internal factors in which we define the bank specific factors and external factors in which we define the industry specific factors. These Factors are important for explaining the effect of non-performing loan on the banking sectors.

Figure 1. Non-Performing Loan Determinants Model



## Significance of the Research

Our research is helpful for the bankers to know about the effect of non-performance loan on markup. Our research proposal mainly focus how to remove these problems and there is remedies for recovery of non-performance loan. We also find that how Pakistan economy will improve or overwhelm these issues. Our proposal helpful for the bankers what the impact of non-performance on markup. Mostly they target to agriculture loan, energy crises, and inflation and education sector. The banks performance impact by this sector. In our research we also identify the relation between our variables and how these variables impact on our banking sector.

## Study Variables

Nonperformance loan is greatly impact by the Inflation, GDP, Agriculture sector, unemployment, CPI and energy crises, if we talk about unemployment, unemployed is high in Pakistan because business man don't invest in their business, they are not expanding their business and they are not hiring new employees. For the investment they need loan but the banks are in this position to give loan, already they have non-performing loan issues.

## GDP

GDP is the market value of all goods and services a country produce. If we see GDP rate of the south region countries Pakistan has less GDP with rest of other countries. Recently Pakistan GDP is 4.4%, Bangladesh 6.0%, India 5.0%, Srilanka 7.3%.due to have less GDP foreign investor avoid to invest. On the other hand Pakistan also low in cost leadership, cost effective, cost of production is low, businessman is not getting the output what they should maintain.in the result they don't give loan back to the banks.

After 3 month SBP renew its monetary policy, previously years Pakistan has high discount rate set by State Bank of Pakistan, ultimately effect on interest rate that effects on Market, campiness reduced investment that also impact on banks.by high discount rate the banks interest cost high and non-performing loan is also high.

## GDP Formula

Consumption + Investment + Govt. expenditure + (export – import) = GDP

## Unemployment

Unemployment explain that individuals who shows their willingness to do work but they have no job. It proxy in percentage simply is that total workforce over no. of unemployed individuals.

**Risk Based Assets**

Risk based asset has great significant on Banks and other institute as it the minimum amount of capital that should have for carry on business.it is depends on the riskiness of bank's asset.

It's also known as Capital to Risk Weighted Assets Ratio (CRAR)

$$CAR = \frac{\text{Tier 1 capital} + \text{Tier 2 capital}}{\text{Risk Weighted Assets}}$$

**Markup**

Markup is the difference between the cost and selling price of the product.it means that the cost of product and in how much price it will sell that will not only cover the price but also earn profit.

*Formula*

$$\text{Selling Price} - \frac{\text{cost}}{\text{selling price}} \times 100$$

**Tier 1**

Tire 1 is the core strength of banks.it consist of capital of bank (common stock and retained earnings, bank's shareholder equity)

*Formula*

$$\text{TIER 1} = \text{Total} \frac{\text{Equity}}{\text{Risked Based Asset}} \times 100$$

$$\text{Risk Based Asset} = \text{Total Asset} - \text{Cash and Cash Equilent} - \text{Fixed Asset}$$

**Funding Cost**

It's the core input of financial institute. The lower the cost batter will the return. Funding cost is the interest rate of the financial institute that will help to run the business's transactions

**Inflation rate**

The action of inflating something or the condition of being inflated.

*Formula*

$$CPI = \frac{CPI2 - CPI1}{CPI1} \times 100$$

\*CPI1 in the previous year \*CPI2 in the second year.

**Cost to Income ratio**

It is very important financial tool to evaluate the value of the company or bank, where the organization standing right now? It's also tell the income and the cost of company, how much

bank earning income in respect of cost. It's very helpful for the investor or shareholder, is he/she invest or not invest in particular bank or organization as cost to income ratio tells the efficiency of bank or company. If the ratio is lower bank getting higher profit and investor like to invest. If it is increasing from one period to another period it means company's cost become more than the income, or we can say cost is increasing with higher rate than income.

*Formula*

$$\text{Asset to Equity ratio} = \frac{\text{Assets}}{\text{Equity}}$$

### **Reserves**

It is the amount deposit to the central bank (SBP) by the banks, its benefit goes to these banks or commercial institutes because central bank give surety that the bank is able to provide cash to customer on demand. A mini requirement from SBP is 5%. Battering of the economy on the hand of Central bank more the mini requirement slow economy will be and vice versa.

*Formula*

$$\begin{aligned} \text{Bank Reserve} &= \text{Bank Deposit at Central Bank} + \text{Value Cash} \\ \text{Bank Reserve} &= \text{Required Reserve} + \text{Excess Reserve} \end{aligned}$$

### **Development of Hypotheses**

#### **(D.V1)**

H0 = There is no impact of markup on non-performing loan.

H1 = There is a significant impact of markup on non-performing loan.

H0 = There is no impact of markup on capital ratio.

H2 = There is a significant impact of markup on capital ratio.

H0 = There is no impact of markup on reserve.

H3 = There is a significant impact of markup on reserve.

H0 = There is no impact of markup on GDP.

H4 = There is a significant impact markup on GDP.

H0 = There is no impact of markup on Inflation.

H4 = There is a significant impact of markup on Inflation.

H0 = There is no impact of markup on unemployment.



H5=There is a significant impact of markup on unemployment.

H0= There is no impact of markup on risk based asset.

H5=There is a significant impact 1of markup on risk based asset

H0= There is no impact of markup on funding cost.

H6=There is a significant impact of markup on funding cost.

H0= There is no impact of markup on Cost to income ratio.

H7=There is a significant impact of markup on Cost to income ratio

### **(D.V 2)**

H0 = There is no impact of Asset to Equity Ratio on non-performing loan.

H1 = There is a significant impact of Asset to Equity Ratio on non-performing loan.

H0=There is no impact of Asset to Equity Ratio on capital ratio.

H2=There is a significant impact of Asset to Equity Ratio on capital ratio.

H0=There is no impact of Asset to Equity Ratio on reserve.

H3=There is a significant impact of Asset to Equity Ratio on reserve.

H0 = There is no impact of Asset to Equity Ratio on GDP.

H4=There is a significant impact of Asset to Equity Ratio on GDP.

H0 = There is no impact of Asset to Equity Ratio on Inflation.

H4=There is a significant impact of Asset to Equity Ratio on Inflation.

H0 = There is no impact of Asset to Equity Ratio on unemployment.

H5=There is a significant impact of Asset to Equity Ratio on unemployment.

H0= There is no impact Asset to Equity Ratio on risk based asset.

H5=There is a significant impact of Asset to Equity Ratio on risk based asset

H0= There is no impact of Asset to Equity Ratio on funding cost.

H6=There is a significant impact of Asset to Equity Ratio on funding cost.

H0= There is no impact of Asset to Equity Ratio on Cost to income ratio.

H7=There is a significant impact of Asset to Equity Ratio on Cost to income ratio

## EMPIRICAL RESULTS AND DISCUSSIONS

Table 1: Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum	Count
NMU	9470204	12443033.35	-3380662	56398203	153
AER	2003.172	2121.917758	0	23327.65724	153
NPL	0.047511	0.079425541	0	0.45867611	153
RES	6577133	8955734.232	0	42186467	153
RBA	2.17E+08	226223912.3	0	1198736543	153
TIER1	10.50437	11.88087609	0	78.77864203	153
FC	3.71E+16	1.5287E+17	0	1.28205E+18	153
CIR	51.7151	23.83996154	0	121.6129543	153
GDPGR	4.56427	2.415891509	0	7.667304	153
CIP	10.38427	4.945426871	0	20.28612109	153
UE	5.955556	1.082752881	5	7.7	153

Table above show the explained variable of descriptive statistic. In this table we can see that the mean value of overall banks for cost to income ratio is maximum which is 51.7151 and non-performing has a minimum value of overall mean of banks which is 0.047511. The standard deviation is minimum for non-performing loan which is 0.079425541. The min value for most of the variables is zero and the maximum value is 121.6129543. Net markup has the overall mean of observed banks is 9470204. The central point of collected data banks 4151389 and the most repeated value in data in zero. The NMU mean should deviate from 12443033.35, it is add or subtract from the mean. NUM range 59778865 shows the differences between the maximum value 56398203 and minimum value -3380662.

Table 2: Correlation Matrix (D.V 1)

	MUP	NPL	RES	RBA	T_1	FC	CIR	GDP	CPI	UEM
MUP	1									
NPL	-0.0043	1								
	0.9581									
RES	0.8739	0.0073	1							
	0.00***	0.9286								
RBA	0.878	-0.0161	0.7263	1						
	0.00***	0.8438	0.00***							

TIER	-0.2836	0.1749	-0.2031	-0.3429	1					Tab...
	0.0004***	0.0306**	0.0118**	0.00***						
FC	0.5213	-0.1334	0.405	0.4531	-0.1174	1				
	0.00***	0.1002	0.00***	0.00***	0.1484					
CIR	0.3312	0.0685	-0.2881	-0.2629	0.389	-0.117	1			
	0.00***	0.4002	0.0003***	0.001***	0.00***	0.1498				
GDP	-0.2351	-0.0598	-0.9137	-0.1642	-0.1569	-	-0.1872	1		
	0.0034***	0.4624	0.0164**	0.0425*	0.0527**	0.2414	0.0205			
CPI	0.2499	0.1043	0.257	0.2296	0.1463	0.0728	0.3653	-0.5572	1	
	0.0018***	0.1994	0.0013***	0.0043***	0.0711*	0.3709	0.00***	0.00***		
UEM	-0.3043	-0.0946	-0.2896	-0.238	-0.1484	-0.088	-0.430	0.6587	-0.702	1
	0.0001***	0.245	0.0003***	0.0031***	0.0672*	0.2783	0.00***	0.00***	0.00***	

\*, \*\*, \*\*\*explains that correlation value is significant at 10,05 and 01% correspondingly.

The above table shows the relationship between all the variables. The level of association between the Non-performing loan and markup is negative which is 0.0043 and level of strength is low but perfectly insignificance because it is not lie in level of significance. There is positive and high correlation between mark up and reserve because the correlation value is 0.00 which lie in 1%.

Table 3: Correlation Matrix (D.V 2)

	AER	NPL	RES	RBA	TIER1	FC	CIR	GDPGR	CPI	UNEMPLOY
AER	1									
NPL	-0.1249	1								
	0.1239									
RES	0.0402	0.0073	1							
	0.6214	0.9286								
RBA	0.5437	-0.0161	0.7263	1						
	0***	0.8438	0***							
TIER1	-0.3584	0.1749	-0.2031	-0.3429	1					
	0***	0.0306**	0.0118**	0***						
FC	0.0942	-0.1334	0.405	0.4531	-0.1174	1				
	0.247	0.1002	0***	0***	0.1489					
CIR	-0.0714	0.0685	-0.2881	-0.2629	0.389	0.117	1			
	0.3517	0.4002	0.0003***	0.001***	0***	0.1498				

GDP	0.01726	-0.0598	-0.9137	-0.1642	-0.1569	-0.0953	0.1872	1		Tab...
	0.0329**	0.4624	0.0164**	0.0425**	0.0527*	0.2414	0.0205			
CPI	0.0174	0.1043	0.257	0.2296	0.1463	0.0728	0.3653	-0.5572	1	
	0.8309	0.1994	0.0013***	0.0043***	0.0711*	0.3709	0***	0***		
UNMPL OY	0.1258	-0.0946	-0.2896	-0.238	-0.1484	-0.0882	-0.4303	0.6587	-0.7029	1
	0.1213	0.245	0.0003***	0.0031***	0.0672*	0.2783	0***	0***	0***	

\*, \*\*, \*\*\* explains that correlation value is significant at 10, 05 and 01% correspondingly.

The correlation matrix shows the relationship between all the variables. There are negative relationship between the asset to equity ratio and non-performing loan by 0.1249 which shows the negative level of association. Level of strength is weak. But there are perfectly insignificant relationship between these variables because the value 0.1239 is not lie in the level of significance. The level of association of asset to equity ratio and reserve is positive by 0.0402 but their level of strength is very weak. And its level of significant is perfectly insignificant because it is not lie in 1%, 5%, 10%. The risk base asset shows the variation in asset to equity ratio by 0.5437, its level of strength is moderate and it correlation perfectly significant in 1%. The tier 1 ratio show the inversely variation in the asset to equity ratio 0.3584 and it is perfectly significant. The level of association between the funding cost and asset to equity ratio is positive 0.0942 but it level of strength is weak. And 0.247 shows the insignificant. Cost to income ratio shows the inverse variation in the asset to equity ratio which shows the level of association negative and level of strength is low. Its shows the no correlation between them. GDP shows the 0.01726 variation in asset to equity ratio and its level of significant is 0.0329 which is lie in the 5%. CPI shows the inflation the relationship of strength between them is very weak and its level of significant shows the perfectly insignificant. The level of association between the unemployment and asset to equity ratio is positive by 0.1258 but there is weak level of strength. And the value of significance 0.1213 shows the perfectly insignificant.

Table 4: VIF

Variable	VIF	1/VIF
Unemployment	3.12	0.320601
RBA	2.54	0.39314
RES	2.48	0.403929
CPI	2.18	0.458735
GDPGR	1.93	0.518386

CIR	1.86	0.537497
Tier 1	1.36	0.73293
FC	1.32	0.755495
NPL	1.06	0.93931
Mean VIF	1.98	

The mean value of variance inflation factor (VIF) is 1.98 which is not more than 0.5 .Which shows that we have include all the variables for the further data analysis.

Table 5: Regression Outcome (D.V 1)

Number of obs = 153		
F ( 9, 143) = 161.86		
Prob > F = 0.0000		
R- Squared = 0.9106		
Adj R-squared = 0.9050		
Root MSE = 3.8e+06		
Mark up	Coef	P> t
NPL	2235384	0.581
RES	0.596919	0.000***
RBA	0.025167	0.000***
TIER 1	687.3152	0.982
FC	9.58E-12	0.000***
CIR	-61232.9	0.001***
GDPGR	-151663	0.398
CPI	-67132.5	0.471
UNEMPLOY	-1254778	0.015**
Cons	1.16E+07	0.003

The value of R-square shows that nonperforming loan, reserves, risk based asset ,Tier 1,funding cost ,cost to income ratio, gdpgr, cpi, unemployment have change by 0.9106 %in markup. The change in one unit in nonperforming loan will change by 2235384 in markup which have insignificant impact. The change in one unit in reserve than change in asset equity ratio by 0.596919 which has significant impact. The adjusted R square show that the better the sample size better value of r square will be.

Table 6: Regression (D.V 2)

Number of obs = 153		
F( 9, 143) = 30.61		
Prob > F = 0.0000		
R-squared = 0.6583		
Adj R-squared = 0.6368		
Root MSE = 1278.8		
AER	Coef	P> t
NPL	-2437.926	0.073*
RES	-0.000148	0.00***
RBA	0.0000104	0.000***
TIER 1	-22.90967	0.026**
FC	-1.92E-15	0.015**
CIR	14.08384	0.019**
GDPGR	120.0216	0.046**
CPI	42.75385	0.169
UNEMPLOY	426.3248	0.013**
Cons	-3106.498	0.015

The value of R-square shows that nonperforming loan , reserves, risk based asset ,Tier 1,funding cost ,cost to income ratio, gdpgr, cpi, unemployment have change by 0.6583%in nonperforming loan. The change in one unit in nonperforming loan will change by 2437.926 in asset equity ratio which have significant impact. The change in one unit in reserve than negative change in asset equity ratio by -0.000148 which has significant impact. The adjusted R square show that the better the sample size better value of r square will be.

Table 7: Regression Predicated (LSDVM) (D.V 1)

Number of obs = 153	
F( 25, 127) = 87.18	
Prob > F = 0.0000	
R-squared = 0.9449	
Adj R-squared = 0.9341	
Root MSN = 3.2e+06	

	Coefficients	P-value
Mark up		
Intercept	11652726.83	0.00248931
NPL	2185701.129	0.589700467
RES	0.597029011	1.41735E-20**
RBA	0.025163476	5.2958E-22*
Tier 1	671.5085606	0.982530254
FC	9.57632E-12	7.1644E-05*
CIR	-61232.9546	0.000762477***
GDPGR	-151602.7335	0.397854006
CIP	-67059.71477	0.471349631
UNEMPLOY	-1255042.619	0.014509336***

The predicated variables disclose the reality that in this model, the value of prob is less than 0.05. In LSDVM we have created dummies to control the effect of different entities and spread the effect of individuals entities. The value of prob in LSDVM is 0.00 which show significant impact. Reserve, risk base asset, cost to income ratio, fc, and unemployment have significant impact on markup. There is significant impact of non-performing loan on markup.

Table 8: Regression Predicated (LSDVM)(D.V 2)

Number of obs =153		
F( 25, 127) = 23.50		
Prob > F = 0.0000		
R-squared= 0.8222		
Adj R-squared = 0.7873		
Root MSE = 978.73		
AER	Coefficients	P-value
intercept	-3106.483429	0.014959532
NPL	-2479.995999	0.067815587*
RES	-0.000147838	2.00822E-13**
RBA	1.03891E-05	3.96296E-29**
TIER1	-22.76185096	0.02723465**
FC	-1.92789E-15	0.014654681**

CIR	14.07104931	0.01902237**
GDPGR	119.9806711	0.045907977**
CIP	42.74881571	0.16929733
UNEMPLOY	426.3841946	0.012743087**

The predicated variables disclose the reality that in this model, the value of prob is less than 0.05. In LSDVM we have create dummies to control the effect of different entities and spread the effect of individuals entities. The value of prob in LSDVM is 0.00 which show significant impact. Reserve, risk base asset, cost to income ratio, gdp and unemployment have significant impact on asset to equity ratio. There is significant impact of non-performing loan on asset equity ratio.

Table 9: Regression Predicated (FE) (D.V1)

Number of obs	=	153
Number of groups	=	17
Obs per group: min	=	9
Avg	=	9.0
max	=	9
F(9,127)	=	59.51
Prob > F	=	0.0000

Mark up	Coefficients	P-value
Intercept	5888835	0.239
NPL	0.695509	0.000***
RES	0.0127353	0.000***
RBA	-61260.98	0.164
Tier 1	5.73E-12	0.119
FC	-33705.27	0.077*
CIR	-242159.4	0.133
GDPGR	-13713.75	0.862
CIP	-1193315	0.009***
UNEMPLOY	1.24E+07	0.001***

Our fixed effect model control the effect of different entities which may or may not affect our outcome. The Reserve, funding cost, inflation, on-performing loan and unemployment have significant impact on markup. So we have to control the effect of these variables. The value is less than 0.05 so our model is good fit.

Table 10: Regression Predicated (FE) (D.V2)



Number of obs	=	153
Number of groups	=	17
Obs per group: min	=	9
Avg	=	9.0; Max = 9
F(9,127)	=	45.25
Prob > F	=	0.0000
AER	Coefficients	P-value
intercept	-3581.311	-3.37
NPL	-688.7892	-0.45
RES	-0.001985	-9.15*
RBA	0.0000149	18.57
Tier 1	-11.95343	-0.89
FC	-1.34E-15	-1.2**
CIR	9.629173	1.66**
GDPGR	132.0538	2.84**
CIP	18.59769	0.77
UNEMPLOY	430.6531	3.14**

F test that all u i=0:  $F(16, 127) = 7.32$  Prob > F = 0.0000

Our fixed effect model control the effect of different entities which may or may not affect our outcome. The Reserve funding cost, cost to income ratio, gdp and unemployment have significant impact on asset to equity ratio. So we have to control the effect of these variables. The value is less than 0.05 so our model is good fit.

Table 11: Regression Predicated (Random) (D.V 1)

Mark up	Coefficients	P-value
Intercept	1.20E+07	0.001
NPL	4664441	0.289
RES	0.6499973	0.000***
RBA	0.0201552	0.000***
Tier 1	-34707.97	0.327
FC	8.40E-12	0.002***
CIR	-52548.36	0.004***
GDPGR	-185479.7	0.255
CIP	-45384.51	0.592
UNEMPLOY	-1223153	0.009***

Table 12: Fixed or Random: Hausman Test (D.V 1)

Coefficients				
	(b)	(B)	(b-B)	Sqrt(diag(V_b-V_B))
	Fixed	random	Difference	S.E.
NPL	5888835	4664441	1224394	2327344
RES	0.695509	0.6499973	0.0455118	0.0358291
RBA	0.0127353	0.0201552	-0.0074199	0.001111
Tier 1	-61260.98	-34707.97	-26553	25611.23
FC	5.73e-12	8.94e-12	-3.21e-12	2.32e-12
CIR	-33705.27	-52548.36	18843.09	5735.126
GDPGR	-242159.4	-185479.7	-56679.67	.
CIP	-13713.75	-45384.51	31670.76	.
UNEMPLOY	-1193315	-1223153	29838.17	.

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\chi^2(6) = (b-B)[(V_b-V_B)^{-1}](b-B)$$

$$= 69.17$$

$$\text{Prob}>\chi^2 = 0.0000$$

(V\_b-V\_B is not positive definite)

The result show that we accept the alternative hypothesis. The value is Prob > F = 0.0000. In houseman test we compare fixed effect model and random effect model. To find out either we except fixed effect model or random effect model.

The houseman test shows we should accept fixed effect model. Here we have to develop Ho or H1.

H0=The difference in coefficients is not systematic.

H1=The difference in coefficients are systematic.

The hausmen test show that we can accept the fixed effect model because the value of prob is less than 0.05.

Table 13: Regression Predicated (Random) (D.V 2)

AER	Coefficients	P-value
intercept	-3573.414	-3.24**
NPL	-1579.776	-1.11**
RES	-0.0001828	-9.15*
RBA	0.0000132	17.3
Tier 1	-11.65257	-0.99
FC	-1.82E-15	-1.89**
CIR	13.3163	2.36**
GDPGR	124.9975	2.55**
CIP	26.61713	1.05**
UNEMPLOY	443.0831	3.1**

Table 14: Fixed or Random:Hausman Test (D.V 1)

	Coefficients			
	(b)	(B)	(b-B)	Sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
NPL	-688.7892	-1579.78	890.9873	545.9627
RES	-0.0001985	-0.00018	-0.0000157	8.43E-06
RBA	0.0000149	0.000132	1.71E-06	2.49E-07
Tier 1	-11.95343	-11.6526	-0.3008585	6.301116
FC	-1.34E-15	-1.82E-15	4.75E-16	5.72E-16
CIR	9.629173	13.3163	-3.687129	1.25709
GDPGR	132.0538	124.9975	7.056303	.
CIP	18.59769	26.61713	-8.019432	.
UNEMPLOY	430.6531	443.0831	-12.42997	.

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\chi^2(6) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 34.86$$

$$\text{Prob} > \chi^2 = 0.0000$$

(V\_b-V\_B is not positive definite)

The result show that we accept the alternative hypothesis. The value is Prob > F = 0.0000

In houseman test we compare fixed effect model and random effect model. To find out either we except fixed effect model or random effect model. The houseman test shows we have to accept fixed effect model. Here we have to develop Ho or H1.

H0=The difference in coefficients is not systematic.

H1=The difference in coefficients are systematic.

The hausmen test show that we can accept the fixed effect model because the value of prob is less than 0.05.

## CONCLUSION

In the above conversation it is clear that there are many factors which affect at markup or asset equity ratio. Refinement is required for the regulation of nonperforming loan, asset equity ratio and markup. NPL's effect is not only reduce profitability of financial market but also stimulus on gross domestic product and ultimately its influence on state.

Our exploration determine that improvement is needed to financial sectors as well as government regulation, implementation, evaluation and renovation on non-performing loan patterns. This investigation indicates that there are major factors which have a significant contribution both from firm explicit and industry explicit are funding cost, cost to income ratio, gross domestic product growth rate, Reserve and risk based assets. So, the financial institutions, Government and decision makers must considers these outcomes. The key determinant of non-performing loans are Asset to equity ratio, Tier1capital ratio, and reserve, Markup, Inflation, and Growth domestic product.

Non-performing loan could be improve by trimming down the requirement loan loss provision. Banks should strengthening the provision, credit policies and management control by the settlement of NPL will have the positive impact on the banks market and will also effect on properly change the growth of the economy. This development will help to improve the growth domestic product and Unemployment, ultimately the cycle of bank to industry will move appropriately.

## REFERENCES

- Ahmad, F., & Bashir, T. (2013). Explanatory power of bank specific variables as determinants of non-performing loans: Evidence form Pakistan banking sector. *World Applied Sciences Journal*, 22(9), 1220-1231.
- Beck, R., Jakubik, P., & PiloIU, A. (2013). Non-performing loans: What matters in addition to the economic cycle?
- Espinoza, R. A., & Prasad, A. (2010). Nonperforming loans in the GCC banking system and their macroeconomic effects. *IMF Working Papers*, 1-24.

Haneef, S., Riaz, T., Ramzan, M., Rana, M. A., Ishaq, H. M., & Karim, Y. (2012). Impact of risk management on non-performing loans and profitability of banking sector of Pakistan. *International Journal of Business and Social Science*, 3(7), 308-315.

Klein, N. (2013). Non-performing loans in CESEE: Determinants and impact on macroeconomic performance.

Messai, A. S., & Jouini, F. (2013). Micro and macro determinants of non-performing loans. *International Journal of Economics and Financial Issues*, 3(4), 852-860.

Nkusu, M. (2011). Nonperforming loans and macrofinancial vulnerabilities in advanced economies. IMF Working Papers, 1-27.

Rasool, S. A., & Raashid, M. (2014). Investigation of Profitability of Banking Sector: Empirical Evidence from Pakistan. Available at SSRN 2514141.

Rottke, N. B., & Gentgen, J. (2008). Workout management of non-performing loans: A formal model based on transaction cost economics. *Journal of Property Investment & Finance*, 26(1), 59-79.

Vogiazas, S. D., & Nikolaidou, E. (2011). Investigating the determinants of nonperforming loans in the Romanian Banking System: An empirical study with reference to the Greek crisis. *Economics Research International*, 2011.