

Effect of Monetary Policy and Selected Macroeconomic Variables on Risk Taking Appetite and Performance of Banking Sector of Pakistan.

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Abstract:

This study attempts to investigate the impact of monetary policy and macroeconomic together with bank specific variables on bank performance and bank risk taking on their loan portfolios. In this study, reserves and loan loss provision are selected as a proxy to measure bank risk whereas return on assets is selected as a proxy for bank's performance. The study also include the two bank specific control variables such as bank size and bank capitalization, and macroeconomic variables such as consumer price index and gross domestic product. This study used fixed effect and random effect panel data estimation techniques on dataset of top twenty Pakistanis banks from 2006 to 2020. This study confirms that bank risk taking positively linked with gross domestic product, consumer price index but nothing to do with interbank offer rate. However, the bank size have negative relationship with bank risk, and bank capital have no role in changing bank risk. Whereas, bank performance is positively linked with the interbank offer, gross domestic product and bank specific variables. The consumer price index don't have any effect on bank performance. Study findings will be helpful for banks management to mitigate associated risks and enhance profitability in a more effective manner. However, for researchers it helps to understand critical areas dealing with banks risk taking appetite and performance.

Keywords: GDP, Consumer Price Index, Monetary Policy, Interbank Offer Rate, Return on Assets.1.
Introduction

1.1 Background

The banking sector is an essential part of an economic development and inevitable role in economic activity. The bank's core role is to works as a financial intermediary to mobilize public

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funds efficiently towards the badly needed economic segments. The bank financial statements are vital tool to assess the financial position of banking industry based on which banks performance can easily be calculated. The profitability is widely used as performance indicator derived through return on assets (ROA). It represent bank's ability to generate profit in a specified period of time. The financial crisis of 2008 and subsequent sovereign debt crisis raised several questions on role of banking system in the global economy (Anggari & Dana, 2020).

The bank risk-taking channel represents how a variation in monetary policy can affects the bank's risk appetite to loan portfolio. In the times of low interest rates banks tends to take more risk on credit portfolios which resulted in low loan quality with higher risk. The monetary policy stance has tendency to alter bank's incomes, cash flows, and risks and interest rates which could made banks aggressive in order to achieve profit targets. There are several justifications which endorsed to study risk-taking channel with respect to the monetary policy as historically it has been witnessed that after crises interest rates have decreased to low levels in various countries (Aboyadana, 2020).

There are several bank risk theories such as financial intermediation theory which stats that banks take advantages of information about borrowers based on which they made capital decisions and earn profits (Acharya, 1988). The expected bankruptcy hypothesis states that undercapitalized banks have higher expected bankruptcy costs, hence additional capital have a positive impact on the bank's earnings (Berger, 1995). Another study found a positive relationship between the bank capital and its performance, increased bank capital reduced moral hazard of shareholders and debt holders (Mehran & Thakor, 2011)

The study on US banks in late 1980s found two way granger causality among bank's earnings (return on equity) and capital (equity book value over assets). Whereas signal hypothesis explained that bank's management signals good private information such as lower costs, higher revenues or reduced risk by increasing capital. Empirical studies followed by Berger's work found a positive relationship between bank capital and profitability (Berger, 1995). The empirical analysis on Chinese banks reveals that their low profitability can be derived through scarce capitalization. (Garcia, Gavila, & Santabarbara, 2009). Similarly, bank size has a significant and positive effect on return on assets (Sarwar et al., 2018; Rahman et al., 2015), however it is analyzed

that size of the banks have substantial negative effect on ROA (Ali & Puah, 2018). Another research confirmed that bank size did not have any impact on profitability, like return on assets (Kedia, 2016; Parvin et al., 2019). There are studies which used total assets as bank size with natural logarithm of total assets (Kim & Sohn, 2017).

The financial crisis of 2007-08 was triggered by subprime mortgage crises of the USA which emerged as an international banking crisis caused failure of Lehman Brothers Bank. It was criticized that the excessive banks risk-taking was the reason which magnified the adverse effect of financial crises. The governments gave massive bails to financial institutions and new monetary policies were implemented to avert possible failure of global financial system (Vanecia & Laeven, 2017).

The central banks were criticized due to implementation of loose monetary policy which ignite the crises. Therefore, it is emphasized that there is need to rethink the global financial system in order to address loopholes such as excessive bank risk taking and central bank governance. There are many theories that explain the banks behavior in the period of low interest rate such as managerial compensation scheme, low credit screening standards and nominal objective theory; all leads to higher risk taking by the banks (Anginer, Kunt & Zhu, 2014).

In this paper we shall assess the significance of monetary policy stance, selected macro-economic variables (GDP and inflation) and bank specific variables (bank size and capitalization) on banks risks and performance.

The core objectives of the study is to assess the impact monetary policy stance (variation in interbank offer rate), GDP, CPI and bank specific variables (size & capital) on banks risk taking and on their performance. In September 2015 State Bank of Pakistan (SBP) reduced the benchmark interest rate to six percent (6%) historically low in last forty two years of Pakistan history aimed to enhance investment activities and achieve price stability. It settled the Karachi Interbank Offer Rate (KIBOR) at its lowest level which urged policy makers to assess its possible impact on the financial sector.

There is no denying the fact that monetary policy, macroeconomic and bank specific variables plays a decisive role to affect the bank performance and risk. This study will provide valuable

information to financial sector that how to manage risk and earn significant profit, provide better management alternatives to promote financial sector.

2. Literature Review

2.1 Bank Risk Taking Channel

The US global financial crisis with the collapse of subprime mortgages market and after the failure of the Lehman Brothers investment bank converted into international banking crisis. The excessive bank risk taking was identified which magnified the adverse impact and massive bail-outs were given by the government to financial institutions. Similarly, the European debt crisis of 2009 badly effect banking system of several eurozone member states as banks take excessive risk (Anginer, Kunt, & Zhu, 2014)

Eid (2011) utilized the data of thirty seven (37) banks of France and analyzed the banks risk-taking behavior during the low interest rate period, confirmed the existence of risk taking channel in French banking system during the period of low rate of interest. The empirical findings showed that liquid banks were prone to decrease in interest rate as compare to less liquid banks. Additionally, the banks with much reliance on fee and commission base income were more exposed to risk. Another study suggested that lower real interest rate as compare to natural rate for longer period, then banks suffer solvency issues when crisis hit the economy (Altunbas, Gambacorta, & Ibanez, 2012). The panel data of 2442 banks of twenty eight European Union countries from 2011 till 2017, study investigated that the negative rates significantly affect bank profitability and risk-taking, significantly reduced banks margins and bank enhanced non-interest income through higher fees and commission. Therefore, in the periods of negative rates banks tend to take less risk and reduces share of non-performing loans. Another study also found that negative rates effect banks profitability and risk -taking based on their balance sheet specific characteristics (Boungou, 2019). The low interest rates decreased profitability and NIM, as it found hard to transfer interest rates to deposits. The low profitability can enhance bank risk taking appetite so that the low profitability could be compensated (García, 2020). The higher profit relaxes bank borrowing constraints which induced banks to take risk on large scale. The effect enhanced when bank leverage constraints relaxed or investments can be financed with senior

funding (Natalya, Lev, & Vlahu, 2019). The panel dataset of almost 9,421 banks from 59 countries from 2009 till 2018, concluded that the banks' risk-taking have been witnessed in those countries where negative rates were applied (Whelsy, 2019).

The study on Europe, North America and Africa found that monetary policy stance has significant effects on bank risk-taking, the effect varies across the types of risks. The monetary authorities must analyze bank's risk responses prior to implementation of monetary policies. Gabriel (2020). After analysis of traditional and new tools of monetary policy it is emphasized that the traditional monetary tools such as policy rate and bank lending channel has significant role in the transformation and effectiveness of monetary policy, requires in depth analysis by policy makers before implementation of any monetary instrument by the central bank. (Bernanke, 2020).

2.2 Macroeconomic Variables

The bank's specific variables such as loan loss provision, reserve, return on equity and asset and macroeconomic variables such as GDP and inflation was analyzed in order to measure bank's risk and performance and found a positive relationship. It is found that ROE, ROA, return on capital employed and NIM have positive relationship with bank size, capital, deposit, loan, GDP, inflation and market capitalization in banking sector (Eid, 2011).

The study on profitability determinants of domestic and foreign banks of banking industry of Pakistan confirmed that deposit growth is not the determinant of profitability i-e ROA and ROE of foreign banks but it is correct for domestic banks. Whereas, external determinant includes GDP growth and inflation which have positive effect the bank profitability (Khalid, 2011). The study on Tunisia banking industry stated that concentration of foreign bank ownership has negative impact on bank profitability whereas macroeconomic variables such as GDP growth, inflation have no significant impact on ROA and on NIM (Ameur & Mhiri, 2013). Subsequently, the research on bank performance of Kenya commercial banks was aimed to achieve stability in bank performance and identified key factor that may affect bank performance. The macroeconomic variables which include GDP and inflation, were inconclusive with no significant effect over bank performance (Ongore, 2013). The market variable such as GDP growth have positive effect on bank performance and risk taking (Garcia, 2020)

2.3 Bank Specific Variables

The study on fifteen top Pakistani banks analyzed impact of bank's internal and external factors on their profitability. The study analyzed that there is positive impact of equity, loan, deposits, inflation, economic growth and market capitalization on banks profitability which is reflected through ROA, ROE and NIM. The study found that there is a strong relationship between the banks specific factors which include size, capital, deposit, loan, on bank's ROE, ROA, return on capital employed and NIM (Khalid, 2011). Another study stated that well-capitalized and more liquid banks suffered less solvency issue during 2007-09 financial crises than other banks (Altunbas, Gambacorta & Ibanez, 2012). The study on Pakistan showed that independent variables such as credit risk, capital adequacy ratio, NIM, liquidity ratio and loan & deposit growth have positive impact on bank profitability (Saddique, 2012)

The study on Tunisia banks performance stated that capital adequacy have positive significant relationship with bank profitability as compare to banks with less capital, however bank size have negative substantial relationship with bank profitability (Ameur & Mhiri, 2013). The net interest margin, return on assets and independent variables such as interest rate, slop of the yield curve (diff b/w 1 on 10 year bond and 3 month IBOR) to assess the monetary stance, and bank specific variables such as market power, bank size, credit risk, degree of risk aversion, operating expenses, implicit interest payments, liquid reserve, and efficiency have significant relationship with bank performance and risk behavior (Garcia, 2020)

The study on Indian banks performance found that in crisis period bank age & size and labor productivity and revenue diversification had vigorous impact bank's performance. The more non-government interest and capital adequacy the good bank's performance, whereas larger found to be less profitable (Neeraj & Jitendra, 2020). The bank study of one hundred twenty five countries of 19 years from 2000–2018, which has normal and abnormal time, suggested that bank capital have positive relationship with bank profitability. It is also established that the positive risk relationship relied on environmental situations and bank size, stronger in the period of, in lesser and middle income countries and for big banks (Paolo & Girardone, 2020).

The study analyzed the effect of Capital Adequacy Ratio (CAR), Third Party Fund, Loan to Deposit Ratio (LDR), and Bank Size to Profitability of Indonesian banking sector from 2016 to

2018. The study utilized the data set of 44 banks. The study confirmed that third party funds, capital adequacy ratio, and bank size have a positive and substantial effect on profitability (Anggari & Dana, 2020). The panel dataset of almost 9,421 banks from 59 countries from 2009 till 2018, concluded that the low banks' risk-taking relied on the properties of country's banking system, specifically bank capitalization and size (Whelsy, 2019). The study on Europe, North America and Africa found that bank size and profitability have a vital role for monetary policy to influences positive bank risk-taking. The monetary authorities must analyze bank's risk responses prior to implementation of monetary policies (Gabriel, 2020).

2.4 Hypothesis of the Study

First Model Hypothesis

- a) Interbank Offer Rate, decrease has negative relationship with bank return on assts.
- b) Inflation has positive relationship with bank return on assets.
- c) Gross Domestic Product has positive relationship with bank return on assets.
- d) Bank Size and Capital has positive relationship with bank return on assets.

Second Model Hypothesis

- a) Interbank Offer Rate, decrease, has negative relationship with bank loan loss provision.
- b) Inflation has positive relationship with bank loan loss provision.
- c) Gross Domestic Product has positive relationship with bank loan loss provision.
- d) Bank Size and Capital has positive relationship with bank loan loss provision.

Dependent variable LLP and Independent variables GDP, CPI, KIBOR, BS and BC.

Third Model Hypothesis

- a) Interbank Offer Rate, decrease, has negative relationship with bank reserves.
- b) Inflation has positive relationship with bank reserves.
- c) Gross Domestic Product has positive relationship with bank reserves.
- d) Bank Size and Capital has positive relationship with bank reserves.

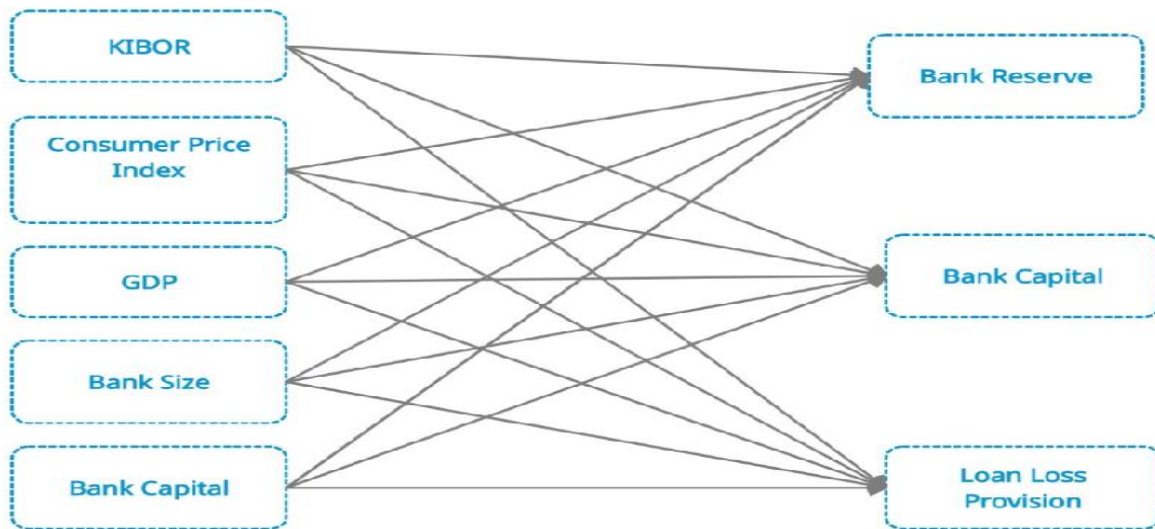
Dependent variable BR, Independent variables GDP, CPI, KIBOR, BS and BC.

Dependent variable ROA, Independent variables GDP, CPI, KIBOR, BS and BC.

2.5 Conceptual Framework

The conceptual framework of the study stated that all the dependent variables are effected by the all explanatory variables, presented hereunder in figure No1.

Figure No.1



3. Methodology

3.1 Sample and Data

The study use the sample of top twenty (20) Pakistani banks for the period of fifteen years from 2006 till 2020. In this way, total number of observations for 20 banks and 15 years become 300. The banks performance is measured through return on assets and data is collected from banks unconsolidated annual financial reports. Similarly, the bank risk assessment data such as loan loss provision and reserve, and bank specific data such as bank seize and bank capitalization is collected from banks unconsolidated annual financial reports. The macroeconomic variables data such as CPI, GDP and KIBOR is collected from official data bank of World Bank and Thomson & Reuters respectively. The data is cross sectional and time series therefore panel data analysis is employed.

Three different mathematical equations are tested, each represents a unique model with its own causal relationship. The first two models represents bank risk taking appetite;

$$\text{Loan Loss Provision} = \text{LLP}_{i,t} = \beta_0 + \beta_1 \text{GDP}_t + \beta_2 \text{CPI}_t + \beta_3 \text{KIBOR}_t + \beta_4 \text{BS}_t + \beta_5 \text{BC}_t + \epsilon_t$$

$$\text{Bank Reserves} = \text{BR}_{i,t} = \beta_0 + \beta_1 \text{GDP}_t + \beta_2 \text{CPI}_t + \beta_3 \text{KIBOR}_t + \beta_4 \text{BS}_t + \beta_5 \text{BC}_t + \epsilon_t$$

Whereas, third model represent bank performance;

$$\text{Return on Assets} = \text{ROA}_{i,t} = \beta_0 + \beta_1 \text{GDP}_t + \beta_2 \text{CPI}_t + \beta_3 \text{KIBOR}_t + \beta_4 \text{BS}_t + \beta_5 \text{BC}_t + \epsilon_t$$

4. Results and Discussions

The descriptive statistic represent pattern or properties of all dependent and independent variables. The outcome of descriptive statistics states the normal behavior of the data with no abnormalities. Subsequently, no element of multi collinearity found amongst explanatory variables.

4.1 Diagnostic Testing

4.1.1. Unit Root Test

The stationarity of the variables is checked through Harris-Tzavalis stationarity test, specifically designed for panel data. After OLS results, model is analyzed to predict and decide is it best or not. The model is good when high value of R square along with F statistics value and p value less than 0.05. Secondly the residual should not serial correlated and thirdly there should be no heteroskedasticity and fourth they must be normally distributed. When OLS has these four properties than model is finest and has enough power to forecast to predict change in dependent variable.

Table 1. Unit Root Test.

Variables	Harris-Tzavalis Unit Root Test (STATA)		
	I(0)	I(1)	I(2)
GDP	0.62* (0.00)	--	--
LLP	-11.93* (0.00)	--	--

CPI	-5.95* (0.00)	--	--
KIBOR	0.62* (0.00)	--	--
BS	2.92 (0.998)	-19.65(0.00)	--
BR	0.907* (0.00)	--	--
ROA	-13.940* (0.00)	--	--
BC	0.507* (0.00)	--	--

*Significance at 5 percent.

In table 1 the results have been derived from the summary stat of Panel Unit Root Test by regressing each dependent and independent variable. The null hypothesis represents the panel contain unit roots of selected variable and alternative hypothesis states that all panels are stationary. The significant P-value rejects the null hypotheses and made the series of selected variable stationary at level and at first difference.

After unit root tests the Jarque Bera test is performed separately for all three model to confirm the normality. All of the three models were normal, as they satisfy the null hypothesis of normality as chi square value for the models are not more than 5%, therefore we cannot reject the null hypothesis. The results of diagnostic tests confirmed the presence of heteroscedasticity in all three models which is addressed through Cross-section White Test. To check the correlation, all dependent variables are regressed and tested for the existing of multicollinearity. The rule of thumb is when the value of VIF is grater then 10 percent then there is high multicollinearity among the variables. However, we are unable to find multicollinearity in explanatory variables of all three models as values lies below ten percentage.

4.2. Data Analysis of Pakistani Banks.

The panel data estimation research methodology has been employed as data consist of time series and cross sections. Before estimations, recognition of the more appropriate model is imperative. Therefore, Hausman Specification test (1978) applied to find out which model, either fixed effect or random effect, is most significant. The null hypothesis of the Hausman test states random effect model is appropriate. The p-value for the first model is 1 which is greater than 0.05. So, we failed to reject null hypothesis, hence random effect model is appropriate.

4.2.1. First Model- Bank Performance.

Results of the Hausman test confirmed that the Random Effect Model is appropriate to interpret relationship among the dependent and explanatory variables for Pakistani banks. Results from “Random Effect Model” is reported here under,

Table 2. Random Effect Model.

Dependent Variable	Independent Variable	Co-efficient	Std. Error	t-Statistic	Prob.	F-Stat	R-square
ROA	CPI	0.00276	0.000353	0.36.	0.718	81.05	0.36
	KIBOR	0.00155	0.000551	2.83	0.005	P. Value 0.00	
	GDP	0.00276	0.0007	3.85	0.000	Constant Value 0.15	
	BC	0.05328	.008176	6.52	0.000		
	BS	0.00686	.00113	6.04	0.00		

In table 2. CPI, KIBOR, GDP, BC and BS are explanatory variables represents the slopes of the model and ROA is a dependent variable. The first model hypothetical equation is mentioned here under,

$$ROA_{t,i} = \beta_0 + \beta_1 CPI_t + \beta_2 KIBOR_t + \beta_3 GDP_t + \beta_4 BC_t + \beta_5 BS_t + \epsilon$$

Theoretically, hypothesis of the study states that gross domestic product and consumer price index are positively relate with return on asset of the banks. Similarly, bank size and bank capitalization also have positive relationship with the ROA. Additionally, theory and study hypothesis states that interbank offer rate is negatively related with ROA of the banks. Empirically it's concluded that there is no significant relation between CPI with ROA as P-value of CPI 0.718 which is insignificant with coefficient value of 0.00276. Whereas empirical results from the table states that

KIBOR, GDP, BC and BS has significant effect on ROA of the banks with a P-value of is less than 5 % along with a positive coefficient values. It indicates that one-percent increase of KIBOR will increase the return on asset for banks by 0.155 percent. Similarly, one percent increase in GDP, BC and BS will increase ROA by 0.27, 5.3 and 0.68 percent respectively. Whereas the value of R-Square 0.36 shows that dependent variable is 36% explained by the explanatory variables. The F-Stat explain the joint hypothesis of independent variable, weather CPI, IBOR, GDP, BC and BS jointly influence the ROA. Since the P-value is 0.00 which is significant, so explanatory variables can jointly effect dependent variable.

4.2.2. Second Model- Bank Risk Taking.

In second model of the hypothesis the risk-taking appetite of the banks operating in Pakistan has been analyzed by setting loan loss provision as a dependent variable. The null hypothesis of the Hausman test states that random effect model is appropriate. The p-value for the second model is 0.0001 which is less greater than 0.05, hence null hypothesis rejected. The fixed effect model is appropriate for the model. The results of “Fixed Effect Model” are here under.

Table 3. Fixed Effect Model.

Dependent Variable	Independent Variable	Co-efficient	Std. Error	t-Statistic	Prob.	F-Stat	R-square
LLP	GDP	1.9660	0.6327	-3.11	0.002	9.50	0.36
	CPI	-0.2736	0.2864	-0.96	0.340	P. Value 0.000	
	KIBOR	0.0447	0.4379	0.10	0.919	Constant Value	
	BC	-10.4564	6.522	-1.60	0.110	115	
	BS	-4.9354	1.280	-3.86	0.00		

In table 3, GDP, CPI, KIBOR, BC and BS are explanatory variables represents the slops of the model and LLP is a dependent variable. The second model hypothetical equation is,

$$LLP_{t,i} = \beta_0 + \beta_1 GDP_t + \beta_2 CPI_t + \beta_3 KIBOR_t + \beta_4 BC_t + \beta_5 BS_t + \epsilon$$

Theoretical hypothesis states that gross domestic product and consumer price index positively relate with LLP of the banks. As such an increase in gross domestic product and CPI will enhance banks LLP and vice versa. Additionally, theory hypothesis states that interbank offer rate is negatively related with LLP of the banks, whereas the bank capital and bank size are also positively related to the loan loss provisions. Empirically it's concluded that CPI, KIBOR and BC have no significant relation with LLP as P-value of all those are greater than ten percent confidence level. Whereas empirical results from the table states that GDP and BS has significant negative effect on LLP of the banks with a P-value of less than one percent confidence level. It indicates that one-percent increase of GDP will increase the loan loss provision for banks by 19.66 percent, and one percent increase in BS decrease LLP by 49 percent. The value of R-Square 0.36 which shows that dependent variable is only 36% explained by the explanatory variables. The F-Stat explain the joint hypothesis of independent variable, weather CPI, IBOR, GDP, BS and BC jointly influence the LLP. Since the P-value is 0.00 which is significant, so independent variables can influence dependent variable.

4.2.3. Third Model- Bank Reserve

In third model of the hypothesis the risk-taking appetite of the banks operating in Pakistan has been analyzed by setting bank reserve as a dependent. The null hypothesis of the Hausman test states that random effect model is appropriate. The p-value for the third model is 0.98 which is greater than 0.05, hence we fail to reject null hypothesis. Therefore, random effect model is appropriate for the model. The results of “Random Effect Model” are here under.

Table 4. Random Effect Model.

Dependent Variable	Independent Variable	Co-efficient	Std. Error	t-Statistic	Prob.	F-Stat	R-square
BR	GDP	0.0826	0.03257	2.54	0.01	724	0.76
	CPI	0.0380	0.15021	2.53	0.01	P. Value	
	KIBOR	0.0028	0.0230	0.13	0.90	0.00	
	BC	0.19047	0.3450	0.55	0.58	Constant Value	

	BS	1.250	0.6322	19.78	0.00	-9.9	
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In table 4, GDP, CPI, KIBOR, BC and BS are explanatory variables represents the slopes of the model and BR is a dependent variable. The third model hypothetical equation is,

$$BR_{t,i} = \beta_0 + \beta_1 GDP_t + \beta_2 CPI_t + \beta_3 KIBOR_t + \beta_4 BC_t + \beta_5 BS_t + \epsilon$$

Theoretical hypothesis states that gross domestic product and consumer price index positively relate with reserves of the banks. As such an increase in gross domestic product and consumer price index will enhance banks reserve and vice versa. Additionally, theory and study hypothesis states that Karachi interbank offer rate is negatively related with reserve of the banks. Similarly, the bank capital and bank size have a positive relationship with the bank reserves. Empirically it is concluded that there is no significant relation between the KIBOR and BC with bank reserves as P-value is greater than 5 percent significant level. Whereas empirical results from the table states that GDP, CPI and BS has significant effect on BR as they have P-value less than 5% percent. It indicates that one-percent increase of GDP will increase the reserve for banks by 8.2 %, one percent increase in CPI increase BR by 3.8 percent and one percent increase in BS increase BR by 12.5 percent. Whereas the value of R-Square 0.76 shows that dependent variable is only 76% explained by the explanatory variables. The F-Stat explain the joint hypothesis of independent variable, whether GDP, CPI, KIBOR, BC and BS jointly influence the BR. Since the P-value is 0.00 which is significant, so explanatory variables can effect dependent variable.

5. Results and Discussion

In first model the Housman test selected Random Effect Model which is more appropriate model to interpret the relationship between the independent and explanatory variables. In first model, keeping the ROA as a dependent variable and GDP, CPI, BS, BC and IBOR as explanatory variables, the empirical results confirmed that there is no significant relationship found between the CPI and ROA as P-values is insignificant. Therefore it's concluded that any change in CPI didn't have significant impact on the performance of the banks operating in Pakistan.

Whereas results from the table confirmed that KIBOR, GDP, BC and BS has significant positive effect on ROA of the banks with a significant P-value with positive coefficient value. It indicates that an increase in one percent of KIBOR will enhance the return on assets of banks operating in

Pakistan by 0.15 percent, similarly GDP, BC and BS enhance bank profit by 0.276, 5.328 and 0.686 percent. Whereas the value of R-Square is 0.35 which showed that dependent variable is 36% explained by explanatory variables.

In second model, we kept LLP as a dependent variable and GDP, CPI, IBOR BS and BC as explanatory variables. The empirical results confirmed that there is no significant relationship found between the KIBOR, CPI and BC with LLP as P-value of explanatory variables are more than .05. Therefore, it's concluded that any change in CPI, BC and KIBOR didn't have significant impact on the Loan Loss Provision of the banks. Whereas results from the table confirmed that GDP has positive and significant effect on LLP of the banks with significant P-value. Whereas BS have significant effect on LLP of the banks with a significant P-value with negative coefficients. It indicates that an increase in one percent of gross domestic product will increase LLP by 19.6 percent and one percent increase in BS will reduce the LLP by 49.3 percent of banks operating in Pakistan. Whereas the value of R-Square is 0.36 which showed that dependent variable is 36% explained by explanatory variables.

In our third model, we kept bank reserve as a dependent variable and GDP, CPI, KIBOR, BS and BC as explanatory variables. The empirical results confirmed that there is no significant relationship established between the KIBOR and BC with Bank Reserves as P-value of explanatory variables are insignificant. Therefore, it's concluded that any change in KIBOR and BC didn't have significant impact on the reserve of the banks. Whereas results from the table confirmed that GDP, CPI and BS has significant effect on reserves of the banks with a significant P-value with positive coefficient value. It indicates that an increase in one percent in consumer price index will increase the reserves by 3.80 percent of banks operating in Pakistan, whereas gross domestic product enhance bank reserves by 8.26 percent and BS by 12.50 percent. Whereas the value of R-Square is 0.76 which showed that dependent variable is 76% explained by explanatory variables.

5.2. Conclusion

The result of panel data shows that consumer price index has no significant effective on performance of banks. It implies that variation in inflation rate will not have any effect on the profitability of the banks operating in Pakistan. However, the GDP, KIBOR, BC and BS has a significant positive impact on the performance and profitability of the banks. The result of the

study shows that increase in gross domestic product, KIBOR, BC and BR enhance bank return on assets.

From second model the results confirmed that the KIBOR, CPI and BC don't have any relationship with the loan loss provision of the banks operating in Pakistan. However, GDP has significant and positive relationship with the bank's loan loss provision which represent the risk of the banks. The lastly the BS have significant and negative relationship with the LLP, as bank size increase banks can manage bad debts with good compliant framework.

The third model results confirm the KIBOR and BC don't have any impact on the bank risk taking which is represented by the BR. However GDP and CPI has strong positive role in determination of bank reserve. Similarly, bank size also positively affect the bank reserve, bigger the bank more bank reserves.

Based on aforesaid results top management of the financial institutions can efficiently manage bank performance and bank risk. It is noted from the above captioned empirical evidences that monetary policy stance through interbank offer rate have no effect on bank risk taking but have nominal impact on banks performance. It is also concluded that interbank offer rate and bank capital remained redundant to perform their role in bank risk taking according to the previous studies. However, KIBOR, GDP, CPI along with BS and BC have significant positive effect on bank performance. With respect to risk taking GDP, CPI and banks size have significant role. It is highly recommended for the bank manager to consider every possible effect of gross domestic product and interbank offer rate against bank performance, and for risk management GDP and CPI along with bank size has important role. It is recommended that the central bank of the country must consider the impact of GDP, inflation and bank internal factors in order to attain financial stability for the economy at large.

This study helps banks and central banks to develop strategies to improve bank performance and to manage banks risk taking appetite. It will support the banks about what factors can contribute to overall risk and performance of the banks. It also helps practitioners to identify gray areas for corrective measures. A clear vision out of this study asserts the future direction of the banks management to identify loopholes.

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