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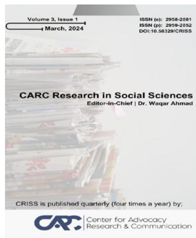

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The Impact of Macroeconomic Factors on Banking Sector in Pakistan

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ABSTRACT

This study is predicated on a range of macroeconomic variable swings that ultimately lead to a decline in Pakistani bank lending practices or performance. These signals, which are the result of macroeconomic variables, have an impact on how financial institutions and the banking industry behave. Positive signals now boost the banking industry, while negative signals eventually lead to subpar lending and performance. Research has also shown that, in comparison to local banks, international banks are more impacted by these signals. The percentage change in bank advances is the dependent variable, while the independent variables are inflation, GDP, money supply, interest rate, and exchange rate. Research indicates that these shocks also contribute to a decrease in the generation of credit by diminishing the creditworthiness of firms or by Destroying bank's capital.

1. INTRODUCTION

When investment opportunities arise, various companies and businesses typically begin investing in various schemes. However, not all companies and businesses have large amounts of capital; some are deficit and require large sums of money to take advantage of those opportunities, which means they will need the services of banks and financial institutions to borrow those funds. As a result, banks and financial institutions are major players in the market to serve various corporations and businesses with various amounts of money. For those companies and businesses, these loans are reinvested in various profitable projects and generate profits; however firms also perform feasibility analyses for all projects to ensure their investments are made in a safe manner.

According to Sandra, Boris, and Andreas (2008), capital obtained through a bank loan or financial institution yields healthy returns when reinvested in the company for further projects that generate profits or returns. This process not only stimulates the business cycle but also boosts the nation's economy as a whole.

When Pakistan was first declared an independent nation, there was a severe shortage of funding because, as a recently formed nation, the outside world changes quickly, and these outside factors can damage the economy at any time in addition to other potential causes. Subsequently, in response to the expansion of the financial sector, a state bank was established on July 1st, 1948. It functions as Pakistan's central bank and houses a number of other banks. The State Bank of Pakistan's 1956 Act states that certain changes were made in order to facilitate the growth of the nation's banking industry.

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Whenever the economy of a state is expanding usually businesses needs loans in order to exploit opportunities. As well as to earn more return on their investment so financial institutions are always there to fulfill those demands and hence economy boosted up. However there is also risk associated with every loan in the form of bad debts, which the bank has to consider. It is not always the case that the economy will expand because3 excessive credit growth can be taken as an indicator or signal to predict crises and financial volatility.

Asian financial crisis (1997) in which many countries suffer great financial losses as well as their economies was dropped towards the earth. It was just because of excess bank credits without realizing that the borrowers cannot pay back their loans.

Furthermore there was a lack of asymmetry information and expertise with poor risk management skills of banks which increases growth of credits and hence the overall economy suffer giant financial losses. It was also because macroeconomic environment was rapidly changing and banks did not pay more attention toward it.

(Salman & Bilal, 2011) the banking sector of Pakistan displays considerable progress in recent years. Although there are some dramatic challenges which banking sector is facing in the form of policies, which are rapidly changing as well as the macroeconomic conditions? Total number of banks, which was operating in Pakistan at the end of December 2016, was 34 and total branches were 12,993. In which Pakistani banks were 30 and foreign banks were 4 with 10 branches. Ismail and said (2007) said the main asset of a bank is advances which are provided to borrowers. From these transactions banks normally earn income in order to run their operations. However if banks are expecting favorable macroeconomic environment so they expect the borrowers to pay back their loans..

Somoye and llo (2009) said the size of loans in a particular year can be fluctuate due to its internal characteristics i.e. size, deposit base, liquidity credit policy and many other factors. This means that lending behavior of financial institutions has a strong relationship with these factors. They also sad that banks will never operate in a vacuum, which clearly means their lending behavior, should be changed if there is any change in a macroeconomic factor. It is also not possible for banks to cope up with systematic risk. Wolfson (1990) further explain that financial volatility has increased in last two decades. It is because of the macroeconomic signals, which are continuously changing. Whereas the term financial instability refers to the financial crisis and all those difficulties, which a financial institution may face while dealing with advances.

2. LITERATURE REVIEW

Function of banking in economy

As it is already discussed the significance of banking in an economy. Banks normally give money to businesses and industries in order to run their operation smoothly and exploit opportunities. Banks also try to create long lasting relationship with industries and business because the objective to the bank is also making profit. These financial institutions take money from investor and lent it to deficit parties on interest so that the investor and deficit parties can achieve their objectives. Apart from that banks are the intermediaries in deficit and investor Krainer and Robert (2011) said banks are the lifeblood of an economy and playing an important role. During resource conversion from investing firm to households there lies asymmetric communication in the decentralized economy. In that condition bank act as intermediary in order to satisfy objective of both parties. Banks decreases asymmetric information b having deposits. Macroeconomic signals are observed when bank lend money to a firm. Those indications raise risk to the bank in the form of bad debts in which the liable party cannot pay their debtEChristopher & M, (2009) Primary role of bank played in the country is financial intermediary. Furthermore it accelerates the payment mechanism to ensure the efficient allotment of fixed deposits, which are under custody of bank. Baum, Mustafa and Neslihan (2002) clarified that commercial banks play vital job in macro economy and they perform an important faction in the economy that is intermediary between different parties. Furthermore they obtain information on borrower and overcome friction in credit market and utilized that information according to market situation.

Economic instability and bank's lending behavior:

When macroeconomic signals are positive in the economy so banks normally increase lending because they expect the borrowers to pay back not only loans but the interest as well on its right time. This also means that the economy of that specific country is also boosting up due to which the macroeconomic variables stay calm and does change rapidly. Whenever the condition of economy is unfavorable banks diminish lending because there is a default risk associated with it. Which can also be known as bank lending behavior.

Baum, Cauglayan and Ozkan (2002) sates that whenever the default threat rises bank try their best to reduce lending to anyone which is mostly related with unfavorable macro environment. Likewise another researcher Quagliariello in 2007 determine that the behavior of bank is mostly connected with the macroeconomic instability mean bank decision can be according to the economy weather it is favorable or unfavorable which also means bank is effected by macroeconomic factors which sometimes banks 8 find very hard to control. As in any industrial sector financing is the only source which

can lead to growth and this source can only be provided by banks most of the times and the policy maker and state is responsible for controlling the macroeconomic factors which can affect the behavior of a bank.

According to Llo and Christopher S.R (2009) there was an observable relationship between the lending behavior of a bank and volatility in macroeconomic environment in longer period of time. For this purpose they conduct a study on Nigerian banking sector and they find that bank is not operating in a vacuum rather there are some factors that can effect on their behavior, which is the regulatory body and the macroeconomic variable. They further determined that the factors such as GDP, exchange rate, interest rate, money supply and employment rate influence the performance of an economy. In reaction bank modify their lending behavior due to these signals from those factors i.e. in favorable signals banks will be lending more rather than unfavorable signals

Mario (2007) states that macroeconomic instability is an important element of the bank's financing decisions. Bank normally obtains deviated expected return on loans in stage of rising crisis. Which means that in more risky environment borrowers may find hard to pay back their loans to bank, which will result in bank loss or bad debts. Furthermore the state bank and all regulatory specialists should be active to adjust the macroeconomic signals, which are entering in the economy because bank is a main source of financing.

Alejendro and Ugo (2006) find out that public sector banks are not much influence by macroeconomic variables as compare to private banks. For that purpose they conduct a detail study in Chile to find out whether private banks and state owned banks go hand in hand with the macroeconomic environment or they react differently from one another in macroeconomic environment. In results they find that all those banks, which are publically owned reduce their lending behavior in recession period and increase lending in growth phase. Which means there is a great risk of default in recession period while more opportunities in growth phase. Furthermore they also determined that state owned banks tend to calm credit policy hence play a useful countercyclical role. This means that they used countercyclical monitory policy in order to stabilize prices. However there are certain reasons why those banks stabilize its credit. The first reason is the state assumes the benefits arises from more favorable macroeconomic environment can lead to favorable profits and therefore credit balance was part of the objective role of public owned banks. Second reason is that all depositors assumes that public owned banks in recession can be less riskier than private banks because the state itself is backing the property and in any of situation sate will be responsible for any loss and hence their saving is in safe hands.

Similarly Alejendro and Ugo (2006) also declared that foreign banks and private banks also act in dissimilar way. In that study the used political volatility and variations in regulation as independent variables and growth rate of loan by banks as dependent variable. They determined that state owned banks also play a significant role in stabilizing the credit. As well as the state owned banks were less disturbed by these signals than private banks i.e. (foreign and private). The reason behind when the trade cycle is correlated with the return of investment in the host country people should imagine foreign banks to be more pro-cyclical than domestic banks. Due to which in favorable macroeconomic conditions the foreign bank may increases it's lending and in bad economic conditions it may leave the country for a while and be on the safe side so that is why it behave differently than sate owned banks and private owned banks. Usually foreign banks try to enter into that economy in which they find many opportunities to exploit as well as the macroeconomic factors remain calm. Moreover they are also less sensitive by the private banks because they have funding not only inside host country but outside in other country as well. So depositors will expect foreign banks to be less risky than private banks because every investor's main concern is to protect its money.

Bank lending and Inflation:

Rogers (2006) states that the (CPI) consumer price index cost is involved when calculating the inflation and it also determined the inflation. Usually when interest rates and inflation rates rise up bank demand for more rewards because end of the day it is an entity, which is operating for profits. When there is a high inflation in a country the bank's lending behavior changes and they demand for greater interest rate on borrowings because there is a great risk involve in it. So bank usually want to be on the safe side that is why thy charge too much interest on loans. On the other hand side borrowers normally affect due to these high rates of interest because it can diminish profits they earn from a project. Smith and Elizabeth (1999) explains that the financial motion of marketplace or advancing size are strongly negatively linked with the inflation in longer period of time while at the similar stage size of dealing in equity the marketplace is powerfully positively correlated with size of bank lending action.

Gross domestic product (GDP) and lending behavior of bank:

Barry and Andrew (1997) stated in growing markets the banking crisis occurs due to critical development in local and international marketplaces. If we examine all those countries, which have overrated exchange rates and unsatisfactory output development for banks this, is unaccepted because mostly it leads to poor performing loans. Now rising in interest rates in financial center the accessibility of funding will interrupt for the bank thus it results in increasing crisis.

Exchange rate and bank's lending:

Thorbecke and Azis (2002) pointed out a circumstance in Nigeria that devaluation in exchange rate and expansion in interest rate lead to diminish the development in loans as well as the capital at private banks as compared to foreign banks. It also means that unfavorable macroeconomic situation will result to decrease credit of banks during the credit crisis in Indonesia. Verification indicated that such effect were important. This means whenever the credit is falling it strengthen the crises. Due to depreciation in exchange rates creates opportunities for all firms to expand their exports but however this business required large amount of finances for manufacturing and operations.

While all external creditors withdrew capitals due to which the credit market of Indonesia suffer, so normally depositors depend on banks. Now whenever bank decrease its lending than business and corporations force to cut their operation and production cost and try to diminish all extra expenses related to production further more they also try to decrease exports because the funds are not available in reaction of reduced exchange rate. Thus most of the times domestic banks are affected due to exchange rate shocks due to which banks normally decrease credit. Furthermore the decline in exchange rate have negative impact on the balance of customers as well as rise risk premium and diminish the loan supply of private bank.

Additionally Aziz and Thorbecke (2002) described that variations in macroeconomic ecosystem can drop credit formation by diminishing credit worthiness of a business or cutting bank wealth. It was also determined that foreign banks were less affected toward credit limits as native bank did in Indonesia. This is because the foreign banks were less open to disintermediation as well as their clients were using defensive techniques. While they also explain that foreign banks were control group and exchange and interest rates badly decrease the investment and advancing of domestic banks but more than foreign banks. This means that decrease in interest and exchange rates have greater influence on domestic banks but less effect on foreign banks. In short their research showed that the crises forces to decrease loan supply of domestic banks which leads firm to reduces exports due to fall in exchange rate.

Advances of banks and variations in money supply:

Christopher and M (2009) declared that in longer period of time the money supply behavior was negatively associated to advancing behavior of banks in Nigeria. When there is 1 percent growth it reduce 0.4 percent in lending of banks. Furthermore it was also described that bank size was positively linked to bank's lending behavior. Similarly if there was 1 percent expansion in volume of the bank it produces 54 percent development in bank's lending. Likewise banks normally decrease lending in those times where there is extreme liquidity because they expect less demand of loans which can brings poor revenues. This is because bank is always concern with their profits that is why banks normally try to reduce all kind of risks, which is associated with macroeconomic environment. As well as bank investigates for other resources, which can bring more revenues and profits in such kind of circumstances.

Lending reactions of banks and interest rates:

Aziz I. J. and Willem (2002) verified and conduct a quantitative research on exchange rates and interest rates fluctuations on advance supply of banks in Indonesia. They further analyze weather national commercial banks and foreign banks react differently to exchange rate and interest rate signals. These two researchers also determined that foreign bank's clients are more secure against exchange rate risk as compare to local Some procedure and techniques were used in order to check the relationship among different variables as well as the dependency. Furthermore in research panel data was helpful to analyze the influence of change in inflation, GDP, exchange rate, interest rate and money supply. As research contains many independent variables and is correlational, quantitative research so for that purpose multiple regression has applied using ordinary least square instrument. A model was used to examine data for both foreign and local banks which is following:

$$Y=\alpha+\beta1 (X1) + \beta2 (X2) + \beta3 (X3) + \beta4 (X4) + \beta5 (X5)$$

Whereas Y = Advances

α = (average effect of other unspecified variables) constant

β = slope (shows responsiveness of dependent variables)

X1 = GDP (Gross domestic product)

X2 = Inflation

X3 = interest rate

X4 = money supply

X5 = Exchange rate

Justification of variables:

GDP (Gross domestic product)

World Bank defines GDP, as "GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products." GDP is the worth of almost all products in the country, which is related to a specific period of time. Gross domestic product includes government, total investment as well as consumer's spending while subtracting the amount of imports and adding the value of exports. The development and strength of economy is purely based on GDP in country.

Inflation

According to World Bank "Inflation as measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency." When there is an increase in overall prices of products and commodities than it can be measured under the head of inflation. Most of the times inflation can be measured on annual bases, which are percentage, rise in prices of commodities. Whenever the inflation period occurs than normally consumers try to reduce their consumption because the general prices of products are very high so people cannot afford as such which results in reducing the production of products. Inflation also leads to reduce the purchasing power of consumers. Similarly when inflation occurs banks normally try to reduce their lending because they want to be on the safe side since money will lose its value in coming times. Researchers also claim that inflation and lending of banks are negatively related with each other.

Interest rate

World banks defined interest as "Lending rate is the bank rate that usually meets the short- and medium-term financing needs of the private sector. This rate is normally differentiated according to creditworthiness of borrowers and objectives of financing. The terms and conditions attached to these rates differ by country, however, limiting their comparability. "Interest is one of the most significant variables in order to analyze banks' lending behavior.

More over investment decision can suffer from it because banks are normally very sensitive to fluctuations in interest rate. Whenever there is an increase in interest rate than it becomes very hard for firms to exploit every opportunity because they might pay a higher interest on their loan due to which they will bear additional cost. Many small enterprises lost opportunities and projects due to high interest rates. In research it is computed by taking the average of 12 months.

Money supply

World banks described money supply as “Broad money is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveler’s checks; and other securities such as certificates of deposit and commercial paper.”

It is the amount of overall monetary asset available in an economy for a specific period of time, which is also called money stock. Whenever there is an increase in money supply than the borrowers will expect to pay a very small amount of interest of their loans. In such situations banks try to exploit every opportunity rather than increasing lending because they want to improve their balance sheet. It is taken as percentage of gross domestic product for every period.

Exchange rate

According to World Bank “Official exchange rate refers to the exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange market. It is calculated as an annual average based on monthly averages (local currency units relative to the U.S. dollar).”

Exchange rate is the amount of a currency, which is expressed and calculated in the type of exchange of another currency. When there is a decrease in exchange rates than the exports will tend to rise and production will be increase from firm side. Since due to bank’s loans firms try to adjust the cost of production. While the lending behavior of financial institution suffer from it. Furthermore it is calculated as Pakistani rupees per US dollar in special years.

Advances

Advances in research represent independent variable, which illustrate bank’s lending behavior in dissimilar years in response to instability in external macroeconomic factors. Advances are considered to be major asset of a bank and cant impact balance sheet of a bank. Banks. This is just because foreign banks have more expertise and there management adopt better skills and practices while local banks usually lacks these capabilities. Hence most of the times local banks suffer more than foreign banks because they cannot adjust with macroeconomic fluctuations. Moreover if there is any rise in the interest rate and the exchange rate go down this result in reducing the capital of local bank comparative to foreign banks. The conclusion was huge amount of supply of loan was reduce during financial crunches in Indonesia.

Gambacorta (2004) analyze the dis similarities in the efficiency of bank lending behavior. In his research the size, liquidity and capitalization of banks were taken as independent variables in order to examine the behavior of Italian banks. The conclusion of his study was in financial crises the deposits decreases and banks diminish lending. When a situation arises in which there is financial shrink than the lending behavior of sound capitalized banks becomes stable because the customers supposed all those banks to be less risky. While those banks, which are liquid, used to secure their set of loans against financial shrink usually by cash and drawing securities. However the size element is somehow immaterial in this scenario. His study also concluded that small banks were less sensitive to monetary policy signals while large banks were more affected due to these signals in Italy.

Kashif and Muhammad (2011) explained some of the factors, which examined banks credit to borrowers such as companies or businesses as well as the variations of macroeconomic environment. In his study growth in credit to private sector from bank was dependent variable whereas growth in domestic deposit, real market growth, monetary market rate, exchange rate and inflation as independent variables in order to analyze the performance of banks credit. Furthermore his research mainly emphases on supply side for results and apply econometric methodology or (ARDL) auto regressive distributed lag model. He used annual data of Pakistan, which start from 1971 till 2008.

Furthermore he also analyze in his research that some variables like monitory condition, exchange rate, economic growth, and domestic liabilities had substantial influence on bank credit in Pakistan specially in longer period of time. While the money market and inflation did not influence private credit as such. Moreover he also claims that in short period of time credit to business did not react negatively by domestic deposits. This is because the banks did not allow instant loans from current deposits amount by account owner. Furthermore the economic growth and liquidity of banks had also play an important role in loan determination.

Theoretical Underpinning

Model and analysis procedures

Some procedure and techniques were used in order to check the relationship among different variables as well as the dependency. Furthermore in research panel data was helpful to analyze the influence of change in inflation, GDP, exchange rate, interest rate and money supply. As research contains many independent variables and is correlational, quantitative research so for that purpose multiple regression has applied using ordinary least square instrument. A model was used to examine data for both foreign and local banks which is following:

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Advances

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Hypothesis

- Ho: There is no significant effect of volatility in macroeconomic variables lending behavior of local banks.
- H1: There is significant effect of volatility in macroeconomic variables lending behavior of local banks.
- Ho: There is no significant effect of volatility in macroeconomic variables. Lending behavior of foreign banks.
- H1: There is significant effect of volatility in

macroeconomic variables

3. METHODOLOGY

The total population of banks, which is operating in Pakistan, is 34 according to state bank of Pakistan in which 30 banks are Pakistani and 4 are foreign. For this research study purpose eleven Pakistani banks and four foreign banks are selected. In research there are total fifteen banks nominated as sample, which contains four foreign banks and eleven local banks. Since domestic bank are more than foreign banks that is why research include only four foreign banks. However the data of these banks are collected from World Bank As probability sampling is used for quantitative research, therefore for existing research random sampling method was used. On the basis of which eleven local banks and four foreign banks were selected.

In this research secondary data is used, which was collected from balance sheet of different banks usually from, published annual reports. Beside this the data collected is from 2016 to 2022 and the sources from which the date has been collected is World Bank, state bank of Pakistan, Karachi stock exchange, bureau of statistics business recorder etc. while independent variables data was specially collected from world bank (2016-2022).

Data Analysis

Table 1 shows the summary statistics of the overall data where mean for several independent variables is shown as well as the standard deviation with exchange rate have the higher mean.

Table 1:
Summary Statistics

Variable	Mean	Median	S.D.	Min	Max
GDPI	3.01	4.82	8.10	-23.4	10.7
INFLATION	9.78	7.75	5.77	0.546	20.3
INTEREST	10.6	10.0	2.08	6.83	14.4
MONEYSUPPLY	49.2	49.9	4.47	41.3	57.1
EXCHANGERATE	84.7	85.8	16.4	59.5	105.
adv	0.534	0.114	5.07	-1.00	67.8

Table 2 here shows the correlation coefficients which shows the relation between different variables and helps in comparison of those variables.

Table 2:
Correlation coefficients

GDPI	Inflation	Interest	Moneysupply	Exchangerate	Advances
1.0000	-0.5687	-0.5985	0.1832	-0.0928	0.0199
	1.0000	0.2858	-0.7709	-0.3109	-0.0446
		1.0000	-0.0646	0.5034	0.0450
			1.0000	0.4423	0.0546
				1.0000	0.0720
					1.0000

Significance have been observed in inflation and interest rate 0.2858 the results based on this study's data is evident between the significance of these two variables.

Similarly interest and Money supply 0.4423 are also significant with each other changes in one will change the other as well. Money supply and exchange rates are significant and well effect each other positively. While GDP 0.0199, interest rates 0.0450, exchange rates 0.0720 and money supply 0.0546 are also significant with advances.

Here table three fixed effect regression model is used which is used in which random variables are treated as nonrandom.

Table 3:
Fixed-effects
Dependent variable: advances

	Coefficient	Std. Error	t-ratio	p-value
Const	−5.37045	9.34847	−0.5745	0.5665
GDPI	0.0446518	0.0774335	0.5766	0.5650
Interest	0.169760	0.289479	0.5864	0.5584
Moneysupply	0.0613314	0.159396	0.3848	0.7009
Exchangerate	0.00862275	0.0334003	0.2582	0.7966
Inflation	0.0232955	0.143461	0.1624	0.8712

Mean dependent var	0.534074	S.D. dependent var	5.070417
Sum squared resid	4171.855	S.E. of regression	5.106280
LSDV R-squared	0.093456	Within R-squared	0.009235
LSDV F(19, 160)	0.868133	P-value(F)	0.622549
Log-likelihood	−538.2933	Akaike criterion	1116.587
Schwarz criterion	1180.446	Hannan-Quinn	1142.479
Rho	−0.102194	Durbin-Watson	2.184774

Here in table 3 as advances are taken as dependent variable it is observed through data that GDP 0.0446518, interest rates 0.169760, Money supply 0.0613314 and inflation 0.0232955 are all significant with advances which means a percent change in one of these factors would significantly change the other one.

Table 4 contains ordinary least square regression which is used to estimate any unknown parameters in a linear regression.

Table 4:
Pooled OLS

	Coefficient	Std. Error	t-ratio	p-value
Const	−5.12401	3.99244	−1.283	0.2202
Gdpi	0.0413010	0.0266812	1.548	0.1439
Interest	0.163654	0.133204	1.229	0.2395
Moneysupply	0.0582305	0.0376361	1.547	0.1441
Exchangerate	0.00882523	0.0131991	0.6686	0.5146
Inflation	0.0195738	0.0136003	1.439	0.1721

Mean dependent var	0.534074	S.D. dependent var	5.070417
Sum squared resid	4564.196	S.E. of regression	5.121622
R-squared	0.008201	Adjusted R-squared	-0.020299
F(5, 14)	1.531784	P-value(F)	0.242699
Log-likelihood	−546.3826	Akaike criterion	1104.765
Schwarz criterion	1123.923	Hannan-Quinn	1112.533
Rho	0.000854	Durbin-Watson	1.996120

Pooled ordinary least square also shows evidences that all the macroeconomic factors are mostly positively correlated to advances where it will bring are can be the cause of change in dependent variables.

Table 5 shows Random effect regression model which assumes that the data is gathered from different random populations.

Table 5:
Random-effects (GLS)

	Coefficient	Std. Error	z	p-value
Const	−5.15522	9.30495	−0.5540	0.5796
Gdpi	0.0417254	0.0767687	0.5435	0.5868
Interest	0.164427	0.288329	0.5703	0.5685
Moneysupply	0.0586233	0.158797	0.3692	0.7120
Exchangerate	0.00879958	0.0333116	0.2642	0.7917
Inflation	0.0200452	0.142786	0.1404	0.8884

Mean dependent var	0.534074	S.D. dependent var	5.070417
Sum squared resid	4564.197	S.E. of regression	5.106968
Log-likelihood	−546.3826	Akaike criterion	1104.765
Schwarz criterion	1123.923	Hannan-Quinn	1112.533

Table 5 Random Effect show several variables are significant with the dependent variable which shows strong evidence of the optimistic relation that it has with the one this study is looking for. Such as positive relation between dependent and independent variables is observed. GDPI 0.0417254, Interest 0.164427 etc.

While here in the 6th table weighted least square method is used which helps in minimizing weighted square residuals and provides more constant variance.

Table 6:
WLS

	Coefficient	Std. Error	t-ratio	p-value
const	−0.953264	0.849642	−1.122	0.2634
GDPI	0.0183644	0.00701078	2.619	0.0096
INTEREST	0.0183875	0.0263572	0.6976	0.4863
MONEYSUPPLY	0.0175650	0.0145153	1.210	0.2279
EXCHANGERATE	−0.00222360	0.00304926	−0.7292	0.4668
INFLATION	0.0150253	0.0130418	1.152	0.2509

Statistics based on the weighted data:

Sum squared resid	65.37793	S.E. of regression	0.612972
R-squared	0.051372	Adjusted R-squared	0.024113
F(5, 174)	1.884577	P-value(F)	0.099312
Log-likelihood	−164.2595	Akaike criterion	340.5189
Schwarz criterion	359.6766	Hannan-Quinn	348.2865

Statistics based on the original data:

Mean dependent var	0.534074	S.D. dependent var	5.070417
Sum squared resid	4630.483	S.E. of regression	5.158679

Weighted least square also shows that variables such as GDP, interest rates, Money supply and inflation are positively related to advances which means any change in one of these factor would result even a higher change in the bank advances.

4. CONCLUSION

The implications of this report show that the behavior of lending to domestic and foreign banks has been severely affected by macroeconomic climate change. It is assumed that both gross domestic product and inflation strongly and positively affect the advance payments of local banks. Gross Domestic Product, Rose 1% 0.04130%, and inflation applied 0.0195738% of the local bank's advance. Monetary supply and exchange rates are mainly related to the growth of local banks, with the exchange rate of 1% of the currency supply resulting in 0.0582305% and the exchange rate of 0.00882523% for the exchange of local bank advances. Interest rates show positive and positive effects on advances.

The findings of the results show that banks do react to the volatility of macroeconomic variables.

Limitations and Future Recommendations:

Limitations:

There are banks for which annual accounts for some years are missing. Therefore, there is a problem with data collection, so data is only few years (2016-22). A small sample is selected and this is a limitation for this study.

Future Recommendations

It is recommended that if the government takes corrective measures to regulate some macroeconomic Factors, banks will expect banks to provide more loans to investors. More work is needed through a more macroeconomic analysis of the analysis in order to reach stronger conclusions about the behavior of local and foreign banks. This area should be further explored by taking the corresponding larger sample size so as to obtain more obvious results. There is another gap for further research to analyze the impact of instability in macroeconomic variables on the behavior of commercial and non-commercial banks in Pakistan.

Conflict interests

The authors has declared that no competing interests exist.

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