



Factors Causing Non-Performing Loans in Developing Economy

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Abstract

Financial sector has a vital role to uplift the economy. Financial institute banks are the backbones of the economy through fueling the capital in money and capital market. This study is conducted to find out the impact of financial institutions causing factors of non-performing loans in developing economy. It was found in the study that, political risk, lagged year effective exchange rate, lagged interest rate. It was also found that government ownership and loan growth have positive impact on non-performing loans in the economy of country like Pakistan, while bank size has negative significant effect on non-performing loans. Political risk, real effective exchange rate, interest rate and government ownership presumed to be the common factors for both small and large banks, while the loan growth and GDP showed to be significant positive determinants of non-performing loans for small banks. However, there is a difference in significant level of political risk and real effective exchange rate for both the bank types. Resultantly, Political risk is more significant impact on Pakistani banking as compare to macroeconomic variables risk

Keywords: Determinants, Indicators, Factor, Economy, Non-performing Loans

Introduction

Banks as financial institutions play a key role for the peace of the economy of any country. Moreover, it is the backbone of the economy of the country like Pakistan. It paves the way for prosperity and development. Bank role for the development of economy. Banking sector is not only increasing the credit flow but also enhancing the productivity and efficiency of investment in the country. The basic functions of commercial banks are lending and borrowing. It is accepting deposits and lending for the purpose of investment (Banking companies' ordinance 1962). Banks also play a role of financial intermediaries which shows that they are highly dependent on borrowing and lending in the market. Dealing with financial assets and liabilities is the primary function of banks and these assets and liabilities are affected by different changes occurring in the market, so they react quickly to these changes as compared to any other sector. Now-a-days, the functions of banking sector are not limited. It performs a variety of functions such as lending and borrowing, utilizing depositor's saving in an effective way, sharing risk and providing bases for the economic growth (Allen & Carletti, 2008; Thakor, 2020). Financial institutions play a key role for stabilizing the whole economy by effective utilization of deposits into investment (Allen & Carletti, 2008). Balanced economic growth in the country is only possible with the presence of an efficient and strong banking system (Bhattarai, 2017).

It was evident from the multiple research that, many banking failures due to which regulatory authorities have closed many banks (Akinsola & Odhiambo, 2017). These banking failures reduced the flow of credit in the country, damaged the trust of public on banking system, curtailed the volume of investment and these ultimately reduce the pace of economic growth in the country (Chijoriga, 1997). The failure of banking sector is not only harmful for itself but it is harmful for other sectors as well. Sometime different rules and regulations issued by regulatory authorities are not considered wise and suitable for clients and banking sector. Such inefficient regulations are the basic cause of banking system failure (Duffie, 2019). Inefficient and unrealistic government policies are negatively affecting the performance of economy and banking system and it is the failure of government or regulatory authorities rather than the failure of system. Failure of banking system is not caused by any single factor; it is the joint contribution of different factors like inefficient management, weak credit policy, insufficient credit, poor documentations, political instability, economic recession, and bogus practices, social and political pressure on banks (Sukmana & Kassim, 2010).

Different studies highlighted that non-performing loans (NPLs) is one of the most important factors of banking failure in the world (Waweru & Kalani, 2009). In Kenya, banking failure was mainly caused by non-performing loans (Chege, 2014). NPLs were among the main factors of banking crises in different developing countries of the world and even it contributed to the banking crises of developed countries like USA. During the last three to four decades, NPLs have become the important issue of banking sector and considered as an important factor of banking failure in the world (Messai & Jouini, 2013). That's why NPLs have been considered the main reason which had a worse effect on the performance of financial institutions and ultimately upset the whole economy (Messai & Jouini, 2013). It is cleared from the

previous studies that NPLs is a crucial and important factor of banking failure, hence it is necessary to control NPLs for increasing investment in the country. The basic understanding about NPLs is necessary to control it and reducing its drawbacks in banking sector of any country.

Banking crisis and financial instability in both developed and developing countries is mainly caused by non-performing loans, it means high percentage of NPLs affect the efficiency of banking sector and create instability in financial institutions of the economy, while low percentage of NPLs shows efficient banking system and stable financial institutions in the country.

Over the last several years, the issue of non-performing loans and the productive efficiency of financial institutions have been investigated (Ramli, Mohammed, Hussin, & Khairi, 2018). In many of the researcher, it was found that, the financial institutions failures are the basic cause of the non-performing of the loan. Many of the researches are also reflected that, the multiple problems as describes above are the basic cause of the failures of the financial institutions.

Pakistani Banking Sector

Pakistani banking sector is facing a lot of problems like inefficient management, fake documentations, poor law and order situation, sickness of industries, slow growth in GDP, political instability, non-performing loans, and lack of foreign direct investment, inflation, social and political pressure on banks (Oni, 2019). These problems directly and indirectly affect the performance of banking sector. It is evident from the multiple studies that non-performing loans is rising every year as can be seen that NPLs of Pakistani banking sector were Rs.616.5 billion, havinginfectionratioof14.8 % in June 2013 against Rs.607.1billion in December 2011havinginfectionratioof 16.2% . Highest infection value of NPLs over the last 12 years was 23.40% in 2001, while its lowest value was 6.90% in 2006 (StateBankofPakistan,2013).

Current and previous governments try to recover NPLs by defaulters. They established National Accountability Bureau (NAB) for starting a campaign against loan defaulters for recovery of loans. State Bank of Pakistan (SBP) also adopted comprehensive approach for solving this issue and took different steps in this regard. The government takes multiples steps to over comes this deficiency and resultantly a valuables amount collected in the results of these steps. Details of the steps areas:

- i. Forces the commercial banks for the recovery and resultantly Rs.40 billion received.
- ii. Divisions of the defaulters are categories into two category areas: willful and circumstantial defaulters and resultantly Rs. 17.5 billion recovered.
- iii. Committee was constituted for the improvement of the sick units and recovery of loans.
- iv. Reasonable amount of aged loans which can hardly be recovered due to passage of time and the reduction in their value, the SBP has developed general guidelines for bank's boards of Directors to write-off these loans particularly to help small and medium borrowers

The political influences are one of the important factors for raising volume of NPLs in Pakistan during last year's, because every government put pressure on banks to release loans on political basis and these loans were used for unproductive purposes.

The banking sector as well as the whole economy was not performing well due to political pressure and instability (Taskinsoy, 2019).

Data and Methodology

Data

This study has been conducted, while taking on their basis of market share. The duration of the data collection for the said study is from the year 2009 to 2019. The bank, included in the study were, Habib Bank Limited, Allied Bank Limited, Bank Alfalah Limited, Habib Metropolitan Bank Limited, Bank Al-Habib Limited, United Bank Limited, Askari Bank Limited, MCB Bank Limited, National Bank of Pakistan, Khyber Bank Limited, The Bank of Punjab, Faysal Bank Limited and SME Bank. KASB Bank Limited, JS Bank Limited, Summit Bank Limited, Soneri Bank Limited, Silk Bank Limited, Khushali Bank Limited, NIB Bank Limited. The data about macroeconomic variables has been obtained from the State Bank of Pakistan Reports and International Financial Statistics (IFS).

Model Specification

Multiple empirical models have been used in literature to identify the important factors of non-performing loans. Theoretically, there are no common views about selection of any type of analysis. The selection of analysis is mainly based on the availability of statistical data, variables, time periods etc. (Khan, ur Rehman, Rasli, Khan, & Mehri). An economic literature has given importance to economic variables to identify the determinants of non-performing loans (Wood & Skinner, 2018) as well as ascertained a significant association between non-performing loans and bank specific macroeconomic variables (Sauriana, 2002; Bercof et al., 2002; Jimenez, Salas, and Saurina (2006); Messai and Jouini (2013); Tan and Floros (2012); Rajan and Dhal (2003); Rajan, 2003, Khemraj and Pasha (2009)).

Panel discussions are appropriate methods for the cross section analysis (Tumer, 2012). Mainly two dimensions, time and space are covered by panel data analysis. Moreover, as describe by the (N. Kusu, 2011), that, a balanced panel data has been used for the cross-section analysis and moreover, economics problems occurring during estimation can be reduced with the help of panel data. Fixed and random effect model is used for the regression analysis. Moreover, on the basis of that followings assumptions made about α_{li} . Here α_{li} is assumed to be constant. A country specific effect can be captured by fixed effect Model that includes N-1 countries specific dummies.

A general form of equation for Fixed Effect Model can be written as:

$$y_{it} = \sum_{k=1}^N \alpha_{1k} D_{ki} + \sum_{j=2}^4 \beta_j x_{jit} + \varepsilon_{it} \dots$$

Where D_{ki} represents a dummy variable that take value 1 for k banks and zero for other banks. In the same equation, (Vasani, Selvam, & Selvam) represents the set of explanatory variables t, and D_{ki} represents individual specific effect for all banks. So, our fixed effect model can be specified as:

$$NPL_{it} = \sum_{k=1}^{12} \alpha_{1k} D_{ki} + \beta_1 DPA_{it} + \beta_2 BS_{it} + \beta_3 GOV_{it} + \beta_4 LNG_{it} + \beta_5 NIM_{it} + \beta_6 INSL_{it} + \beta_7 GDPG_{it} + \beta_8 PRI_{it} + \beta_9 REER_{it} + \beta_{10} TB_{it} + \varepsilon_{it}$$

If the Random effect Model, α_{1i} is considered to be random not fixed. This also reflects that, its equal to $\bar{\alpha}_1$ and its variance is equal to δ_{μ}^2 . This will help for the generalization of square estimator. A general form of equation in Random Effect Model can be written as:

$$y_{it} = \bar{\alpha}_1 + \sum_{j=2}^4 \beta_j x_{jit} + \mu_i + \varepsilon_{it}$$

Where $\alpha_{1i} = \bar{\alpha}_1 + \mu_i$

The Random effect Model with our specified variables can be written as,

$$NPL_{it} = \bar{\alpha}_1 + \beta_1 DPA_{it} + \beta_2 BS_{it} + \beta_3 GOV_{it} + \beta_4 LNG_{it} + \beta_5 NIM_{it} + \beta_6 INSL_{it} + \beta_7 GDPG_{it} + \beta_8 PRI_{it} + \beta_9 REER_{it} + \beta_{10} TB_{it} + \varepsilon_{it}$$

Results of the Study

Panel Unit Test Results

Hardi test has been used to check the stationary of the data. As indicated in the Table-1, the data is stationary at level as well as at 1st difference; therefore, the impact of bank specific and macroeconomic variables on non-performing loans can be analyzed with the help of random effect and fixed effect models. These two models help us to identify the followings, as determinant and non-Performing loan. Panel selection is only to be done, with the help of Hausman Test. The said test will be helpful for the determination of the fixed and random effect. In this study the result of said test is reflect in the table-2. This is also reflecting the significant at 5%. On the basis of results of the Hausman test, it is decided that fixed effect or random effect model is more suitable for study the analysis. The below mentioned result are the application of the above said discussed test.

Table-1 Results of Panel Unit Root Test

Variable name	Hadri statistics (z-stat) at Level	Probability	Hadri statistics(z-stat) at 1 st difference	Probability
GDP	3.86	0.00	11.61	0.00
POLR	6.84	0.00	2.01	0.00
REER(Duffie)	3.43	0.04	7.33	0.00
TB(Duffie)	6.54	0.00	9.55	0.00
GOV	4.71	0.06	7.54	0.00
NIM	10.87	0.00	9.43	0.00
DPA	3.66	0.00	11.35	0.00
LNG	7.44	0.00	6.09	0.00
INSL	7.37	0.00	11.44	0.00
SIZE	3.65	0.08	2.85	0.00

Table-2 Hausman Test

Test	Chi-square Chi-sq. d.f.	Probability
Hausman Test	2.063 9	0.03

Bank Specific Variables

This study included the six banks, to identify their specific variables effects on the non-performing loans. The followings attributes of the banks, are taken for the study as, size of bank, deposit assets ratio, insider lending, bank size, net interest margin of the bank and also the ownership. The different attributes of the bank’s areas:

Bank Size

The size of the bank is also effect on the one of the non-performing loans determinant. This also reflect in the in the table -3, which indicted that, as much as the size, of the bank, same as the larger amount of the loans are there. So, these amounts of the loans are also one of the indicators of the non-performance. The banks having large market share are efficient in maintaining their loans portfolio. The studies conducted by the (Raina and Dhal, 2003) also reflected the positive and negative effect linkage between the bank size and its performance.

Deposit to Asset Ratio

Deposit to asset ratio is another main determinant of non-performing loans in Pakistan. The result indicates that deposit to asset ratio has insignificant effect on non-performing loans of the banking sector in Pakistan (Wood & Skinner, 2018). The literature supported positive as well as negative relation between DPA and NPLs. With more deposits, the banks launch more loans in order to increase their profitability exposing themselves into more credit risk (Fofack, 2005). Hou and Dickinson (2007) are also indicated in their studies that, the deposit to assets ratio is also effect the negative impact on performance of the bank.

Insider Lending

The multiple, factors of the lending are also considering another important factor, for the causing non-performing loan. Table-3, of this study also pointed out that, insider lender has only least effect on the non-performance loans.

Moreover, the same was also reflected in the study conducted by the (Wood and Skinner, 2018) as insider lending is not the deterrent of the non-performing of the loan. The results of this study are

supported by most of the earlier studies that insider lending is an important determinant of non-performing loans and INSL has a significant relationship with NPLs in different countries. Most of the local bank’s failures in Kenya we. Moreover, the result due to excessive insider lending (Waweru & Kalani, 2009). The insider loans advances by different banks were mostly used for unproductive projects like construction of houses, hotels, shopping centers. The result of this study proved that insider lending has no considerable effect on non-performing loans. This is due to the instructions given by the State Bank of Pakistan to all commercial banks to consider and obey all rules and procedures at the time of advancing loans to the directors and officers.

Loan Growth

The negative value of coefficient shows that loan growth has inverse relationship with non-performing loan (Atoi, 2019); it indicates that volume of bad loans is not directly attached with amount of loan advancing. Growth in loan varies with the features of the loans and banks. Loan growth has both effects on banks because of their features. If loans advanced by banks are used productively, then it is good news for banks and if loans are not properly used, then these loans will increase the volume of non-performing loans and it will become bad news for banking sector. The study explore that as banks provide more loan to the investors, it decreases the ratio of bad loans and beneficial for the economy. Messai and Jouini (2013) found a significant relationship between loan growth and delinquencies loans in USA and pointed out that credit growth is a major determinant of non-performing loans. The rapid credit growth associated with lower NPLs.

Net Interest Margin

However, one of the factors, Net interest margin is another determinant of non-performing loans in Pakistani banking sector. The result of this study as indicted in the above table show that, it has no effect on the nonperformance of loan in the banking industry of Pakistan.

Government Ownership

Government ownership is also one of the determinants of the non-performing loan in the banking industry of Pakistan. It is insignificant with negative value demonstrating indirect relationship between government ownership and non-performing loans in Pakistan. They also reflect that bank working under government ownership followed the same rules and regulations as followed by private commercial banks for advancing loans. The result also indicates that no political and bureaucratic influence on government owned banks.

Macro- Economic Variables

The study included four macroeconomic variables to test their effect on non-performing loans in Pakistani banking sectors. The macroeconomic variables are political risk, real effective exchange rate, interest rate and gross domestic product growth (Vasani et al., 2019).

Political Risk

Political risk is considered as a major determinant of non-performing loan in Pakistani banking sector. According to Table-4, political risk has an insignificant effect on non-performing loans Pakistani banking sector.

The results show that political risk is significant determinant of non-performing loans in lag year because sometimes macroeconomic variables have significant effects in next year's.(Messai & Jouini, 2013) observed different political and social factors which have impact on banking system. The study found that poor management and weak policies are the main causes of banking failure and rising volume of non-performing loans. Some other political factors and corruption also have negative impact on non-performing loans and banks failure.

Real Effective Exchange Rate

The above said factor is also one of the determinants of the Non-Performance loan factor. It is also indicated by the study conducted by (Fofack, 2005).

Interest Rate

The study shows that interest rate is insignificant as it is proved in the following table 4-7. We have taken one year lag value to explain the impacts of interest rate on non-performing loans because sometime interest rate influences in the next one and two years. The result indicates that lag year value of interest rate is significant with negative value of coefficient.

Gross Domestic Product Growth

GDP is also one of the determinant nonperformance loans. This also shown by the sales (2002) as pointed out that GDP is also one of the indicators.

Table-3 Results of Fixed Effect Model

Variable	POOL MODEL			RANDOM MODEL						FIXED EFFECT MODEL		
	Coeff	Std. E	t-Stat	Prob.	Coeff	Std. E	t-Stat	Prob.	Coeff	Std. E	t-Stat	Prob.
LNG	-0.05	0.05	-0.98	0.33	-0.02	0.05	-0.35	0.73	-0.021	0.05	-0.28	0.08
INSL	-0.06	0.07	-0.88	0.38	0.03	0.07	0.47	0.64	0.071	0.07	1.01	0.31
NIM	0.07	0.30	0.25	0.81	0.13	0.27	0.50	0.62	0.181	0.27	0.65	0.52
DPA	0.25	0.29	0.87	0.38	-0.02	0.26	-0.08	0.94	-0.091	0.26	-0.34	0.74
GOV	-0.07	0.10	-0.67	0.50	-0.06	0.18	-0.31	0.76	-0.061	0.18	-0.31	0.76
GDP	0.16	0.15	1.03	0.30	0.13	0.13	1.05	0.30	-0.271	0.17	-1.63	0.02
BS	-0.21	0.06	-3.57	0.00	-0.23	0.09	-2.45	0.02	0.130	0.13	1.06	0.03
POLR	-12.44	8.76	-1.42	0.16	-13.56	7.47	-1.82	0.07	-13.260	7.80	-1.70	0.09
REER	10.39	6.01	1.73	0.09	11.18	5.06	2.21	0.03	11.181	5.09	2.20	0.03
TB	-0.95	1.60	-0.59	0.56	-0.93	1.35	-0.69	0.49	-0.831	1.37	-0.61	0.05
C	8.22	15.35	0.54	0.59	9.26	12.97	0.71	0.48	8.860	13.23	0.67	0.50
R-squared	0.10				0.10				0.430			
F-statistic	2.39				2.39				5.031			
Prob(F-statistic)	0.01				0.01				0.001			
D-Watson	1.14				1.14				1.470			

Table-4 The Effect of Macro-Economic Variables on NPLs.

FIXED EFFECT MODEL (MACRO-ECONOMIC VARIABLES)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
REER	10.48	9.44	1.22	0.23
TB	-01.77	0.56	-1.38	0.17
GDP	35.60	52.94	0.69	0.49
POLR	-01.50	0.49	-1.03	0.31
C	0.00	0.00	3.53	0.00
R-squared	0.02			
F-statistic	1.35			
Prob(F-statistic)	0.25			
Durbin Watson stat	1.15			
LAGGED VARIABLES				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
REER(Duffie)	23.30	10.87	2.14	0.03
TB(Duffie)	-1.39	0.64	-2.17	0.03
GDP(Duffie)	44.80	62.53	0.72	0.47
POLR(Duffie)	-1.18	0.61	-1.95	0.05
C	0.01	0.00	2.92	0.00
R-squared	0.08			
F-statistic	3.99			
Prob(F-statistic)	0.00			
Durbin-Watson stat	1.24			

Comparison of All, Large and Small Banks

As describe in the table -5, which reflects the result of the small and large banks, only. These reflect the effect of three categories of the banks. The categories are further explaining the below as:

Bank Specific Factors

The above said factors are selected for fixed effect model includes government ownership, deposit to asset ratio, net interest margin, loan growth and insider lending. Table-5 shows the impacts of bank specific variables in case of all, large and small banks on non-performing loans. Government ownership is an important and significant determinant of non-performing loans in all, large and small banks with positive value of coefficient. It shows that commercial banks working under government ownership are facing more ratio of bad loans as compare to private

owned commercial banks. Net interest margin (NIM) is insignificant determinant of NPLs in all, large and small banks. The result shows the weak impact of NIM on NPLs. Deposit to asset ratio (DPA) is another insignificant determinant of NPLs in all, large and small banks. Loan growth (LNG) is significant determinant in all and small banks but it is insignificant in large banks which means small banks have suffered more to the non-performing loans as compared to large banks in Pakistani banking sector. The result shows that large banks have more abilities to handle the issue of NPLs. Insider lending (INSL). The result of above comparison of banks shows that few banks specific variables include loan growth and government ownership is the significant determinants while deposit to asset ratio, insider lending and net interest margin are insignificant determinants of NPLs in Pakistan.

Macro-Economic Variables

There are four macroeconomic variables selected for fixed effect model. These variables include:

- i. GDP growth.
- ii. political risk (POLR)
- iii Real effective exchange rate (REER)
- iv. Interest rate (TB).

However, the Table-5 highlight that GDP growth is insignificant in all and large banks but significant in small banks with positive value of coefficient. The political risk is another important and significant determinant of non-performing loans and it is significant in all, large and small banks with positive value of coefficient. The result indicates that political risk has same effects on small and large banks in Pakistan. The political instability, uncertainty and political pressure have more effects on management of banking system. TB is used as a proxy of market interest rate and it is significant and an important determinant of NPLs in lag year for all, large and small banks. The macroeconomic variables are considered as important determinants of non-performing loans (Greenwalt and Sinkey, 1991; Fofack, 2005; Saurina and Jimenez, 2005).

Table-5 Comparison of Banks

VARIABLES	ENTIR SAMPLE		
	Coefficient	t-Statistic	Prob.
GDP	0.01	1.08	0.11
POLR	0.01	2.10	0.00
REER(Duffie)	-0.01	-2.30	0.02
TB(Duffie)	0.00	2.60	0.00
GOV	-0.01	4.90	0.00
NIM	0.00	-0.94	0.35
DPA	-0.01	-0.99	0.12
LNG	0.01	2.10	0.02
INSL	0.00	-0.12	0.98
C	-138.06	-3.03	0.01
R-squared	0.53		
F-statistic	3.23		

Prob(F-statistic)	0.00		
Durbin-Watson stat	1.99		
Table-5 Comparison of Banks			
LARGE BANKS			
VARIABLES	Coefficient	t-Statistic	Prob.
GDP	0.00	1.99	0.88
POLR	0.04	3.99	0.03
REER(Duffie)	-0.01	-2.10	0.01
TB(Duffie)	0.00	2.69	0.03
GOV	0.09	2.95	0.03
NIM	0.01	1.29	0.19
DPA	0.00	-1.10	0.26
LNG	0.00	0.07	0.32
INSL	-0.35	-0.99	0.99
C	-144.11	-3.03	0.01
R-squared	0.54		
F-statistic	3.23		
Prob(F-statistic)	0.00		
Durbin-Watson stat	1.99		
Table-5 Comparison of Banks			
SMALL BANKS			
VARIABLES	Coefficient	t-Statistic	Prob.
GDP	1.23	2.87	0.05
POLR	2.88	4.99	0.00
REER(Duffie)	-0.01	-2.88	0.03
TB(Duffie)	2.08	4.69	0.01
GOV	0.10	2.10	0.00
NIM	0.01	1.29	0.20
DPA	0.00	-0.79	0.23
LNG	0.00	2.00	0.02
INSL	-0.01	-0.93	0.23
C	-168.34	-3.03	0.01
R-squared	0.53		
F-statistic	4.23		
Prob(F-statistic)	0.00		
Durbin-Watson stat	1.98		

Conclusion

It was concluded from the above statical results and the literature review of the study, about the effect of Factor of Non-performing loans on the banking industry of Pakistan. Various models are used to know about the above factor effect on the non-performing, loans. Six attributes are taken, as variables for the said study. These attributes are, bank, size, deposit assets ratio, insider lending, loan growth, net interest margin, government ownership and four macroeconomics variables. These attributes are used, to identify its effect on non-performance loans.

Some bank specific factors had strong effects on non-performing loans while other bank specific factors had no and weak effect on non-performing loans in Pakistani banking sector. Government ownership specified as an important and significant determinant of NPLs in large and small banks indicating that government banks had faced more amounts of bad loans as compared to the private banks. The large banks have better abilities to tackle bad loans as compared to small banks. The others bank specific factors i.e. net interest margin, deposit to asset ratio and insider lending had comparatively low and insignificant impact on non-performing loans.

The small factor GDP growth had minor effect on NPLs in all and large banks, while substantial impact on NPLs in case of small banks indicating that amount of NPL rises with high GDP growth. These results contradicted with the economic theory as the economic growth has positive significant impacts on firm's performance. This may be due to lack of loan management that may cause serious negative impacts on NPLs. Political risk is another important and significant determinant of NPLs and indicated positive correlation with NPLs i.e. the ratio of NPL rises with political risk and political instability. Real effective exchange rate and interest rate had significant impact on NPLs in lag years. The firms made their loan portfolio for the current years and any abrupt change in macroeconomic variable may have influence in coming year rather than a year in which change is made.

References

- Adebola, S. S., Yusoff, W. S. W., & Dahalan, J. (2011). The impact of macroeconomic variables on Islamic banks financing in Malaysia. *Research Journal of Finance and Accounting*, 2(4), 22-32.
- Akinsola, F. A., & Odhiambo, N. M. (2017). The impact of financial liberalization on economic growth in sub-Saharan Africa. *Cogent Economics & Finance*, 1338851.
- Allen, F., & Carletti, E. (2008). Mark-to-market accounting and liquidity pricing. *Journal of accounting and economics*, 45(2), 358-378.
- Atoi, N. V. (2019). Non-performing loan and its effects on banking stability: Evidence from national and international licensed banks in Nigeria. *CBN Journal of Applied Statistics*, 9(2), 43-74.
- Bhattarai, S. (2017). Determinants of Non-Performing Loan in Nepalese Commercial Banks. *Economic Journal of Development Issues*, 19(1-2), 22-38.
- Bofondi, M., & Ropele, T. (2011). Macroeconomic determinants of bad loans: evidence from Italian banks.
- Chege, M. (2014). Effect of Interest Rates on Non-performing Loans in Commercial Banks in Kenya. *Unpublished Masters. University of Nairobi*.

- Chijoriga, M. M. (1997). *An application of credit scoring and financial distress prediction models to commercial bank lending: the case of Tanzania*: na.
- Duffie, D. (2019). Prone to fail: The pre-crisis financial system. *Journal of Economic Perspectives*, 33(1), 81-106.
- Fofack, H. (2005). Nonperforming loans in Sub-Saharan Africa: causal analysis and macroeconomic implications.
- Hou, Y., & Dickinson, D. (2007). *The non-performing loans: some bank-level evidences*. Paper presented at the 4th International Conference on Applied Financial Economics, Samos Island, Greece.
- HU, J. L., Li, Y., & CHIU, Y. H. (2004). Ownership and nonperforming loans: Evidence from Taiwan's banks. *The Developing Economies*, 42(3), 405-420.
- ti8I(2), 255-281.
- Khan, H., ur Rehman, S., Rasli, A. M., Khan, F., & Mehri, M. Political Risk and Some Other Factors Causing Non-Performing Loans in Pakistan: An Empirical Study of Pakistani Commercial Banks.
- Khemraj, T., & Pasha, S. (2009). The determinants of non-performing loans: an econometric case study of Guyana.
- Messai, A. S., & Jouini, F. (2013). Micro and macro determinants of non-performing loans. *International journal of economics and financial issues*, 3(4), 852.
- Naceur, S. B., & Omran, M. (2011). The effects of bank regulations, competition, and financial reforms on banks' performance. *Emerging markets review*, 12(1), 1-20.
- Nkusu, M. (2011). Nonperforming loans and macrofinancial vulnerabilities in advanced economies.
- Oni, O. O. (2019). *Determinants of Non-performing Loans of Deposit Money Banks in Sub-Saharan Africa*. Kwara State University (Nigeria),
- Rajan, R., & Dhal, S. C. (2003). Non-performing loans and terms of credit of public sector banks in India: An empirical assessment. *Occasional Papers*, 24(3), 81-121.
- Ramli, N. A., Mohammed, N. I., Hussin, S. A. S., & Khairi, S. S. M. (2018). *Investigating the effect of non-performing loans on technical efficiency in Malaysian banking sector*. Paper presented at the AIP Conference Proceedings.
- Siddiqui, S., Malik, K. S., & Shah, S. Z. A. (2012). Impact of interest rate volatility on non-performing loans in Pakistan. *International Research Journal of Finance and Economics*, 84, 66.
- Skiba, P. M., & Tobacman, J. (2019). Do payday loans cause bankruptcy? *The Journal of Law and Economics*, 62(3), 485-519.
- Sufian, F., & Parman, S. (2009). Specialization and other determinants of non-commercial bank financial institutions' profitability: Empirical evidence from Malaysia. *Studies in Economics and Finance*, 26(2), 113-128.
- Sukmana, R., & Kassim, S. H. (2010). Roles of the Islamic banks in the monetary transmission process in Malaysia. *International Journal of Islamic and Middle Eastern Finance and Management*, 3(1), 7-19.
- Tan, Y., & Floros, C. (2012). Bank profitability and inflation: the case of China. *Journal of Economic Studies*, 39(6), 675-696.
- Taskinsoy, J. (2019). Ever More Financial Instability notwithstanding the Basel Standards and the IMF's Financial Sector Assessment Program. *Available at SSRN 3328473*.

Thakor, A. V. (2020). Fintech and banking: What do we know? *Journal of Financial Intermediation*, 41, 100833.

Turner, B. (2012). *Suez 1956: the inside story of the first oil war*: Hachette UK.

Vasani, S. A., Selvam, M., & Selvam, M. (2019). Relationship between Real Exchange Rate and Economic Growth in India. *ZENITH International Journal of Business Economics & Management Research*, 9(3), 19-35.

Waweru, N., & Kalani, V. M. (2009). Commercial banking crises in Kenya: Causes and remedies.

Wood, A., & Skinner, N. (2018). Determinants of non-performing loans: evidence from commercial banks in Barbados. *The Business & Management Review*, 9(3), 44-64.

Xiaogang, C., Skully, M., & Brown, K. (2005). Banking efficiency in China: Application of DEA to pre-and post-deregulation eras: 1993–2000. *China Economic Review*, 16(3), 229-245.