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Non-Performing Loans (NPL) And Return on Asset (ROA): Evidence from Pakistan's Banking Sector

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ABSTRACT

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This study examines the impact of Non-Performing Loans (NPL), Size (SZ), Liquidity (LQ), and Management Efficiency (ME) on the financial performance of commercial banks in Pakistan, with Return on Assets (ROA) as the dependent variable. The study employs secondary data sourced from the annual financial statements of 16 selected commercial banks operating in Pakistan from 2011 to 2020. A quantitative approach is used, and data is analyzed through various statistical techniques, including regression analysis, correlation, and descriptive statistics, using Stata software. The findings reveal that NPL and bank size have a significant impact on ROA, while management efficiency and liquidity do not exhibit a statistically significant influence. The results suggest that higher non-performing loans negatively affect bank profitability, whereas larger banks tend to achieve better financial performance due to economies of scale. These findings provide valuable insights for bank managers and policymakers in formulating strategies to improve asset quality and optimize bank size for better financial stability. Future research could enhance reliability by expanding the dataset to include other financial institutions in Pakistan, enabling a broader perspective on the factors influencing profitability across the financial sector. This study contributes to the existing literature on banking performance and financial stability.

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1.0 Introduction

Banking sector is one an important sector that plays a very important role in the growth of economy if they face any difficulties in financial matters, they cannot provide financial assistance to the businessman of country. It will have a negative impact on the economy. Bank plays a vital role in the improvement of economy (Sultan et al.,2020). The industrial revolution in 20th century gave opportunity to banking institution to facilitate businesses according to their financial needs (Waqas Bahrian, 2019). & It is a bank that provides funds to economy when it needs arises so, the country which have efficient banking system will have an efficient economy because flow of money and fund is regular without any intervals. Banks accept deposits from those who have a surplus fund and lends to those who have a shortage of funds (Nadeem et al., 2018). As concerned to Pakistan we cannot say that the banks are efficient in their operations.

Asset management practices as compared to other developed countries are very low and less supportive in Pakistan banking sector, as a result many of banks in Pakistan had defaulted due to hazards and asymmetric information. When banks performance decreases it is obvious that economic activities decrease. In this paper we examined different factors that creates hurdles in the way of bank performance. The man factor that creates loopholes in lending operation is credit risk. When banks provide loans on the basis of asymmetric information it leads them toward risk of loss. In 2008 financial crisis the main factor that contributed its role in crisis was deficiency in asset management practices. Credit creation is a revenue generation source for bank (kargi, 2011). Credit risk is also attached to this source of income. Credit risk means possibility of losing outstanding loan. Credit risk evaluates the bank performance. The higher the ratio of credit risk higher the chance of bank to default.

According to Ahmad and Ariff (2013) most banks in Nigeria, Thailand and Mexico experienced high credit risk and NPL in financial crisis which resulted close down of banks. Nonperforming loans (NPL) is still a big problem in the banking sector of Pakistan. Because of high number of loans or bad credit it is very difficult for banks to identify which debtor is good and able to return loan (Trisnawati Dewi & Srihandoko, 2018). NPL will affect the other determinants such as liquidity of banks, total assets net income, return on assets, return on equity etc. As NPL increases the capital adequacy is also increases. In accordance with the financial services as the ratio of NPL increases the bad debt reserve cost also increases as a result the banks also need higher capital. NPL negatively affect the ROA in response to that the public trust on bank performance will be affected. It also effected the ROE in response to this the shareholders will go for short position to exit from investment. Mostly researcher it proved that the basic reason of failure of banks was NPL. In this study we want to examine the relationship of NPL to ROA in the context of Pakistan. The objective of this study is to empirically establish the effect of NPL on the performance of commercial banks in Pakistan.

Nonperforming loan is the biggest challenge for banks as it is very difficult for management to achieve their collective goals without effectively dealing credit risk. Asset management is the biggest problem facing by the modern world. Numerous researchers has explained the fact that handling of asset is very important to accomplish the overall objectives of business. When we come to banking sector of Pakistan there has a lack of awareness and understanding about the management and optimal use of resources (El. Ansary et., al 2019) therefore in this study we investigate try to explore the importance of Asset management. Nonperforming loan and asset management have been one amongst the trending topic explored the researcher in past. In past several researchers study the impact of NPL on bank performance. However, there exist a very limited research work performed in Pakistan to explore the relation of NPL and ROA. So, the lack of research in Pakistan on the relation of ROA and NPL is itself a research gap which is needed to be addressed.

This study provides guidance to management and student of research to understand that only having an asset is not sign of profitability but most important is how you utilize your asset in best way. It assists the student and management of banks regarding the importance of asset management. If banks properly managed their asset and minimize credit risk, they prevent the bank from financial crisis.

1.1 Research objective

Following are the important objectives of this study

1: To investigate the effect of NPL on bank performance.

2: To assess the relation of bank size and bank performance

3: To investigate the relation of liquidity and bank performance.

4: To assess the impact of ME on ROA.

2.0 Literature Review

2.1 Impact of nonperforming loans on bank performance

Performing loan can be defined as a loan whose payment and interest are paid according to terms and conditions Nonperforming loans (NPL) can be defined as the deficiency of creditors to repay the loans to lenders due to intentionally or external factors. According to Hariyani (2010) NPL shows the bank inefficiency toward the collection of amounts. Nonperforming loan is a threat for the profitability of banks. A lot of research had been conducted on the role played by nonperforming loans on the performance of commercial banks. The findings of researcher vary from one geographical location to others. Some researcher suggested that only non-performing loans could not affect the firm performance but there are some other factors that mutually affect the firm performance. These factors are lack of capital sufficiency, asymmetric information, bank size shareholder's equity, deposit to loan ratio, availability of liquid asset etc. it is observed that the bank whose asset management system is weak must face the problem of nonperforming loans and credit hazards as compared to other banks. According to Felix, Claudine (2008) the relationship between bank performance and found that return on assets (ROA) which measures the profitability was inversely related to the ratio of nonperforming loan to total loan of financial institutions.

Mohammad Nugraha Yahya & Nariswari (2021) argued that the effect of loans varies with the perspective of geographical location. It is obvious that in developed countries the effect may be differ as compared to undeveloped countries, which support the objective of our research. Mohammad Nugraha Yahya & Nariswari (2021) conducted research that how nonperforming loans affect ROA and bank performance by taking a data of commercial banks from different countries over the period of five years. It was found that there exists a partially negative correlation between nonperforming loans and ROA. In this research we want to find out the relation of nonperforming loans to ROA in the context of Pakistan's commercial banks. ROA shows the actual performance of companies and we think that by using a longer period data the research would reflect better results. According to Anayochukwu Ozurumba (2016) return on assets and return on equity have inverse relationship with nonperforming loans and recommended that high supervision was needed in credit operations to mitigate the impact of nonperforming loans. WAMBUA MU ASYA (2008) carried out the research of nonperforming loans impact on the firm banks performance during the period of financial crisis and found that impact was negative, measured firm performance in terms of ROA whether ROE is also used to measure firm performance. The researcher also observed that bad loan scenario was the main reason of the destruction of Kenyan economy. In 2008 financial crisis occurred researcher also conducted research on crisis period otherwise results may be different.

Amalia, Nugraha, Ramadhanti,& Amaliawiati (2021) argued that among the various profitability ROA is more essential. Inekwe (2010) NPL increases due to providing massive credit opportunities to customers. Banks need to massive care and supervision in credit operations. It is a lack of asset management that arises NPL risk. In our current research we take a large number of periods to analyze the effect of NPL on ROA in the banking sector of Pakistan which may reflect a more authentic result. On the basis of above discussion, we clearly exhibit the objective of our research and loopholes exist in previous research as Mohammad Nugraha Yahya & Nariswari (2021) argued that we can achieved better outcome by using a longer period data this suggestion gives us future direction of research. For more reliability we are also willing to analyze the impact of nonperforming loan to ROA. Which gives us more authenticate results than results of previous research. On the basis of above discussion, we proposed our first hypothesis;

H1; NPL has a significant impact on ROA

2.2 BANK SIZE AND ROA

There exists a different size bank according to their production, capital management infrastructure. Bank size is an important indicator that is helpful to understand how firm operations are financed. Firm size plays an important role during the decision of financing. Firm size arranges the firm assets and liabilities (Mohammad, 2018). When a firm arrange their asset and liabilities in best way it maximize firm profitability. Bank size refers to the resources and assets that a firm possesses to run their business operations. While keeping the importance of firm size the second hypothesis is proposed as

H2: Bank size has a significant impact on ROA of commercial banks.

2.3 Liquidity and ROA

Liquidity means how immediately firms fulfill their obligations. It is the composition of cash in hand, cash at bank marketable securities. If a firm does not hold threshold liquid resources it creates liquidity hazards. So, it has a strong relation with return on asset. These hazards must carry other risks (casubha, 2018). So, we proposed our third hypothesis as follows:

H3: Liquidity has a significant effect on ROA of commercial banks of Pakistan.

2.4 Management efficiency and ROA

Management efficiency means how efficiently management uses its resources. If the firm has a rare resource but does not have capabilities to utilize these resources it cannot achieve a desirable result. So, resources plus capabilities gives a competitive advantage to firms. Efficiency is used as a progress in finance (Usman et al., 2019). Asset allocation, job rotation, marketing, innovation and R&D all are considered as a management efficiency. If management is using assets in a best way, it will result to increase in income. So, our last hypothesis is proposed as follows,

***H4: management efficiency has a significant effect on ROA of commercial banks of Pakistan*.**

3.0 Methodology

3.1 Sample and data collection

Initial sample of this paper includes 20 commercial banks of Pakistan and collected data over the period of 2011 to 2020. The data is collected from the annual reports of banks.

3.2 Research model and variable measurement;

ROA is used as a proxy to measure the performance of bank. The model used in this study is obtained from the model of Kargi (2011). The econometric equation for a model is as follows;

$$\mathbf{ROA = \beta 0 + \beta 1NPL + \beta 2ME + \beta 3LQ + \beta 4SZ + \mu}$$

β1, β2 and β3 are parameter of independent variable which are nonperforming loan, liquidity ratio and total asset.

3.2.1 Dependent variable

We used ROA to analyze the effect of NPL variables. So, in this paper we take ROA as a dependent variable and these variables are measured as;

ROA=NET INCOME/TOTAL ASSETS*100

3.2.2 Independent Variable

NPL, Liquidity and Management Efficiency is taken as independent variable. NPL is calculated as total nonperforming loans/total loans*100, Liquidity= LQ = Total investment/Total Assets (This is adopted from Al-Tamimi & Obeidat (2013) MANAGEMENT EFFICIENCY (ME) =total income/ total expense

3.3 Control Variable

Bank size is used as control variable and it is measured as Bank size = SZ =Natural logarithm of total assets (it is adopted from Rizvi et al. (2019)

3.4 Data Analysis

In this study we use different statistical test including descriptive, correlation and regression. Stata software is used for data examination and relationship between NPL, Liquidity, ME (independent variable) bank size (control variable) with ROA (dependent variable).

3.5 Analytical Model

3.5.1 Panel Data Analysis

Panel estimation techniques are used for examination of relationship between IVs and DVs. In comparison of cross sectional and time series techniques panel estimation technique is effective for reliable research.

3.5.2 Descriptive Statistics

Mean, Standard deviation, least and greatest qualities are portrayed through engaging insights 160 perceptions are read up for explicit variable from 2011 to 2020.

3.5.3 Correlation

It is used to evaluate the Connection between at least two factors. Relationship investigation range is from -1 to +1.

3.5.4 Regression

Statistical tool that is used to check the magnitude between two or more variables.

4.0 Findings and Results

4.1 Data analysis

Table 4.1 Descriptive Analysis

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	160	1.567	2.888	-9.61	13.005
NPL	160	57.148	39.466	2.173	123.269
LQ	160	.473	.311	.1	4.087
ME	160	2.101	.655	.823	3.707
SZ	160	13.282	.93	11.427	14.99

The above table shows that ROA has a mean of 1.567 and standard deviation is 2.88 percent which shows that it deviates 2.8 percent from its mean. Nonperforming loan has a mean 57.148 with a standard deviation 39.466 percent that shows it deviates 39.466 from its mean. Management efficiency has a mean 2.101 with the deviation of 66 percent which means it deviate .66 from its mean. Liquidity has a mean .473 with a 31percent standard deviation. Size has a mean 13.282 with the deviation of 93 percent.

Table 4.2 Correlation Analysis

Variables	(1)	(2)	(3)	(4)	(5)
(1) ROA	1.000				
(2) NPL	-0.283	1.000			
(3) LQ	0.107	-0.006	1.000		
(4) ME	0.253	-0.135	0.017	1.000	
(5) SZ	0.373	0.006	0.081	0.278	1.000

The above table shows that NPL has a negative correlation with ROA with a magnitude of -0.283. Liquidity has a positive correlation with a magnitude of 0.107. ME is correlated with ROE with a magnitude of 0.253 Bank size also has a positive correlation with ROA with a magnitude of 0.372.

Table 4.3 Regression Analysis

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
NPL	-.02	.005	-3.75	0	-.03	-.009	***
LQ	.706	.658	1.07	.285	-.595	2.007	
ME	.535	.326	1.64	.103	-.109	1.179	
SZ	1.046	.231	4.53	0	.589	1.502	***
Constant	-12.677	2.96	-4.28	0	-18.524	-6.829	***

Mean dependent var	1.567	SD dependent var	2.888
R-squared	0.240	Number of obs	160.000
F-test	11.985	Prob > F	0.000
Akaike crit. (AIC)	744.469	Bayesian crit. (BIC)	759.750

**** p<.01, ** p<.05, * p<.1*

The above analysis explores the relation of IVs and DV. Nonperforming loan p value is 00 which is less than 0.05 indicate that NPL affect ROA. Coefficient is -.02 which means that change of 1 in NPL will bring change in ROA -.2 that is -2 percent. Liquidity has a .285 p value which depicts that it has an insignificant impact on ROA. P value of management efficiency is more than 0.05 which means that ME has no significant impact on ROA. P value of bank size is significant it means that size has a significant impact on ROA.

4.2 Data Analysis

Hypothesis	Statement	Accepted/ ejected
H1	Nonperforming loan has a significant impact on ROA of commercial banks.	Accepted
H2	Liquidity has an insignificant impact on ROA of commercial banks.	Rejected
H3	Management efficiency has insignificant impact on ROA	Rejected
H4	Banks size has a significant impact on ROA	Accepted

5.0 Discussion and Conclusion

In this study we analyze that if firm manage their asset in effectively their performance would be bright. In this study we able to understand that if credit worthiness and other determinants is observed during lending operations there may exist a minimal chance of credit hazards. When banks give lending without viewing the credit ratings of creditor they will give result in the shape of NPL. The great goal of this study is to investigate the relation of Nonperforming loan, management efficiency, liquidity and bank size with Return on Asset. We empirically investigate that NPL, LQ and SZ has a significant impact on firm performance. If these determinants are handled with carefully whole the problems of banking sector in Pakistan may be eradicated. Although in our research Management efficiency and Liquidity has an insignificant impact on ROA but we cannot deny the importance of these determinants. Our research shows that ME and LQ has an insignificant impact on bank performance it is because we obtained data from 2011 to 2020 of Pakistan's banks and in this era interest rate highly fluctuated as a result the bank main earning source affected. It is obvious that when income decreases management efficiency which is measured through total income would affect.

5.1 Recommendation & Research limitations

Extended time frame in future could help researcher to collect data from different bank operating in Pakistan. Extended time frame availability in future may encourage the researcher to collect data from majority of banking institution in Pakistan which give more reliable results and reflects truer picture. This research is done on the commercial banks of Pakistan the financial sector can be used to collect data. Sample size can be increased in future but it can be only possible if the given time is sufficient for research. This study has not used mediating moderating variable. In future research can be conduct by including mediating variable. In this research we check the impact of NPL on overall return on asset but future researcher may explore the relation of NPL on return on equity. In this paper we analyze the bank performance by using ROA model but CAMEL model can be used to analyze the bank performance.

Malik Waqar Hassan Awan: Problem Identification and Theoretical Framework

Ahsan Iqbal: Data Analysis, Supervision and Drafting

Muhammad Umar: Methodology and Revision

Conflict of Interests/Disclosures

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