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CREDIT RISK AND BANK PERFORMANCE IN MADHYA PRADESH, INDIA

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ABSTRACT

The study assessed the impact of credit risk on bank performance in India between 1990 and 2006. Non-performing loans have been used as proxy for credit risk. Although, other variables such as total deposits, loan & advances & lending rate are used as other independent variables in the model while return on asset ROA is used as bank performance indicator. Error correction model is adopted & the results show that credit risk as proxy by non-performing loans has major positive impact on bank performance in the short run but in the long run, the impacts turn negative. Strong association is found between loan & advances & credit risk as well as lending rate and credit risk. The study recommends that banks should guide against accumulation of nonperforming loans in order to decrease their susceptibility to credit risk.

KEYWORDS: *Credit Risk, Non-Performing Loans, Loan & Advances & Lending Rate, ROA.*

Introduction

Past years the connection between credit risk specifically nonperforming loan & bank performance has been a subject of discussion along with various authors, which succeeded to the development of a dichotomy regarding the conclusion of various authors on this subject matter. Clearly, there are emergencies of two distinctive views on the relationship between non-performing loan which is a major proxy for credit risk & bank performance. Initially, some group of authors believes & concluded from their studies, that credit risk aids bank performance through interest yield on loans & according to them the yield on these loans often considerably out weights the principal there by increasing the profit of the banks and consequently increasing bank performance, for example; assessed the effect credit risk management and profitability in commercial banks in Madhya Pradesh. Using two credit risk indicators (NPLR and ROE), the findings and analysis revealed that credit risk management has effect on profitability in all 4 banks selected. The result is consistent to that of Afriyie and Okotey, who found a significant positive relationship between non-performing loans with profitability of rural and community banks in Ghana. The study by Achouand Tegnuh; indicated that effective credit risk management leads to better bank performance. The result of the study by Achou and tegnuh is supported by the study by Hosna et al.,

Secondly, the other group of authors accomplished from their findings that credit risk is inimical to the growth of banking industries, in that it reduce bank performing by accumulation of bad debt which limit bank efficiency. Based on these difference views explained, it is apparent that a consensus has not being reach on what exactly the relationship between credit risk (non-performing loan) & bank performance, consequently, to contribute to literature this study is conducted to further observe the relationship using the India banking industry. Profitability and non performing loans: Model one represented ROA as dependent variable while nonperforming loans were taken as independent variable. Model two represented ROE as dependent variable whereas nonperforming loans were taken as independent variable. Model three represented Stock Return as dependent variable though non-performing loans were taken as independent variable. Chen and Pan examined the credit risk efficiency of 34 Taiwanese commercial banks over the period 1990- 2004. Using fixed effect regression analysis, results showed that credit risk, liquidity risk and capital risk are the major factors that affect bank performance when profitability is measured by return on assets while the only risk that affects profitability when measured by return on equity is liquidity risk.

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Methodology

- **Model Specification**

The model adopted for this study is underpinned to the model of Kargi [5] in his study "Credit Risk and the Performance of Indian Banks" which measured profitability with Return on Asset (ROA) as a function of the ratio of Non-performing loan to loan & Advances (NPL/LA) and ratio of Total loan & Advances to Total deposit (LA/TD). The model improved on this by adding the lending rate which is the interest rate that indicates the cost of capital. All the independent variables are anticipated to have a negative relationship on bank performance measured by ROA except loans & advances which is expected to have a positive correlation with bank performance.

- **Estimating Technique**

The estimation procedures employed in this empirical investigation is based on ARDL bound test. The reason for the adopting ARDL bound test is explained later. However, the techniques start with the investigation of the time series properties of the variables using unit root test. A stochastic process with a unit root is itself non stationary. Another way of looking at it is that testing for the presence of unit roots is equivalent to testing whether a stochastic process is a stationary or non-stationary process. In sum, the presence of a unit root implies that the time series under scrutiny is non-stationary while the absence of a unit root means that the stochastic process is stationary, Maddala has offered an interesting perspective and interpretation on the testing for unit roots. According to Maddala, testing for unit roots is a formalization of the Box-Jenkins method of differencing the time series after a visual inspection of the correlogram. No wonder then that testing for units roots plays a central role in the theory and technique of co-integration. Currently, there are some commonly accepted methods of testing for unit roots. These are the Dickey-Fuller (DF), Augmented Dickey-Fuller (ADF) test and the Philip Peron (PP) test. The Augmented Dickey-Fuller (ADF) test is considered superior to the Dickey-Fuller (DF) test because it adjusts appropriately for the occurrence of serial correlation.

Where U is a stationary error term. The null hypothesis that Xt is non stationary is rejected if b1 is significantly negative. The number of lag (n) of Xt is usually chosen to ensure that the regression is approximately white noise. It is simply referred to as the DF test if no such lags are required in which case bi = 0 (i = 1……..n). However, the t-ratio from the regression does not have a limiting normal distribution. An important assumption of the DF test is that the error terms are independently and identically distributed. The ADF test adjust the DF test to take care of possible serial correlation in the error term by adding the lag difference terms of the regress and. Phillip and Perron use non-parametric methods to take care of the serial correlation in the error term without adding lagged difference terms. Since the asymptotic distribution of PP test is the same as the ADF test statistic, the PP test is preferred for this study. Co-integration is based on the properties of the residuals from regression analysis when the series are individually non stationary. A series is stationary if it has a constant mean and constant finite variance. Thus, a time series Xt is stationary if its mean E(Xt) is independent of time and its variance E{Xt – E (Xt)2} is bounded by some finite number and does not vary systematically with time. It tends to return to its mean with the fluctuations around this mean having constant amplitude.

Banking Overview (Madhya Pradesh)

S. No.	Parameters	Outstanding Amount			Y-o-Y Variation in absolute term		Y-o-Y Variation %	
		Jun-16	Jun-17	Jun-18	Jun-17	Jun-18	Jun-17	Jun-18
1	Total number of Branches	7,299	7,259	7,426	-40	167	-0.55	2.30
2	Total number of ATMs	8,983	9,316	9,621	333	305	3.71	3.27
3	Total Deposits	2,89,797	3,40,488	3,68,859	50,691	28,371	17.49	8.33
4	Total Advances	2,08,934	2,37,792	2,73,313	28,858	35,521	13.81	14.94
4a	Credit as per place of utilization	*	*	7,626	*	*	*	*
5	Credit Deposit Ratio	72.10	69.84	74.10	-2.26	4.26	-2.26	4.26
6	Total Business [3+4]	4,98,731	5,78,280	6,42,172	79,549	63,892	15.95	11.05
	PRIORITY SECTOR ADVANCES							
7	Agriculture	66,427	85,142	92,976	18,715	7,834	28.17	9.20
8	Crop Loans out of total agriculture % of Agriculture advances to Total advances	48,128	62,919	71,201	14,791	8,282	30.73	13.16
9	[RBI Norm: 18%]	31.79	35.81	34.02	4.01	-1.79	4.01	-1.79
10	MSME	36,084	40,254	47,662	4,170	7,408	11.56	18.40
10A	Credit to Micro Enterprises	16,420	17,389	23,634	969	6,245	5.90	35.91
11	% of credit to micro enterprises advances to (RBI Norm-7.5%) total	7.86	7.31	8.65	-0.55	1.33	-0.55	1.33
12	Export Credit	570	42	123	-528	81	-92.63	192.86
13	Education	1,814	1,880	1,910	66	30	3.64	1.60

14	Housing	18,031	19,805	19,823	1,774	18	9.84	0.09
15	Social Infrastructure	132	118	177	-14	59	-10.61	50.00
16	Renewable Energy	57	480	62	423	-418	742.11	-87.08
17	Others	8,431	1,326	1,945	-7,105	619	-84.27	46.68
18	Total Priority Sector Advances [7+10+12+13+14+15+16+17]	1,31,546	1,49,047	1,64,678	17,501	15,631	13.30	10.49
19	% of Priority Sector advances to Total advances [RBI Norm: 40%]	62.96	62.68	60.25	-0.28	-2.43	-0.28	-2.43
20	Total Non-Priority Sector Advances	77,388	88,745	1,08,635	11,357	19,890	14.68	22.41
21	Advances to small & marginal farmers	21,386	23,370	30,498	1,984	7,128	9.28	30.50
22	% of advances to small & marginal farmers to total advances [RBI Norm: 8%]	10.24	9.83	11.16	-0.41	1.33	-0.41	1.33
23	Total NPA	11,023	18,773	36,503	7,750	17,730	70.31	94.44
24	% of NPA to total advances	5.28	7.89	13.36	2.62	5.46	2.62	5.46
25	Advances to Weaker Sections	42,961	46,646	57,930	3,685	11,284	8.58	24.19
26	% of advances to Weaker Sections to total Advances [RBI Norm: 10%]	20.56	19.62	21.20	-0.95	1.58	-0.95	1.58

*Not available

Estimating Technique: ARDL Model

The choice of this estimation procedure is primarily informed by the fact that it passes the fitness-for-the purpose-test. For instance, one option available to perform the co-integration test is the Engle-Granger approach [7], but its weakness lies in the fact that it is only able to use two variables. A multivariate analysis, such as that considered in this study, leads to the use of the Johansen and Joselius co-integration analysis or ARDL model. The statistical equivalence of the economic theoretical notion of a stable long-run equilibrium is provided by these two models, but the choice will depend on the characteristics of the data. This study is unable to use the Johansen procedure (an option) as all the variables are not completely I(1), that is, integration of order one. This assumption is a pre-condition for the validity of the Johansen procedure. Alternatively, the ARDL model is appropriate to run the short-run and long-run relationships [8]. The guide that will be followed in this study is that if all variables are stationary, I (0), an ordinary least square (OLS) model is appropriate and for all variables integrated of same order, say I(1), Johansen"s method is very suitable when we have fractionally integrated variables, variables at different levels of integration (but not at I(2) level) or co integration amongst I (1) variables.

Conclusion

The association between credit risk as proxied by nonperforming loans & bank performance has been shown by our findings to have different implications in both long run and short run period. The results from the empirical analysis shows that nonperforming loan exhibit a positive relationship only in the short run. The relationship turns negative in the long run. The implications are that bank can benefit immediately from bad loans but as the period progresses the impact on bank performance turns negative.

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