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Does Prudential Regulation Affect Risk Management? A Case Study of New Generation Private Banks in India

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ABSTRACT

Purpose: This study examines how Prudential Regulation affects New Generation Private banks' Risk Management. Its goal is to add to the research by showing how banks' risk management and Prudential Regulation factors like CAR, ROA, Asset Quality and Firm Size are linked.

Research Methodology: Regression and panel data analysis was used to test the hypotheses and the proposed model using a sample of 7 private banks in India. The study uses data from financial institutions from 2011 to 2020. Prudential Regulation can be judged by CAR, ROA, Asset Quality and Firm Size. This number comes from the bank's estimate. Bank risk management is measured in terms of credit, market, and operational risks.

Findings: Findings suggest that Firm Size has a significant impact on credit and Operational risk but also an insignificant impact on Market risk. We also observed that CAR has an insignificant effect on credit, market, and operational risks. A similar observation was found for Asset Quality and ROA, which have an insignificant impact on the bank risks with different characteristics.

Originality/ Value: Banks may improve their ability to prevent losses, respond swiftly to crises, and maintain stability by implementing sound risk management and Prudential Regulation practices. This research examines corporate governance and risk management in Indian financial institutions. Specifically, market, operational, and credit risk are used to evaluate risk management.

Keywords: Prudential Regulation, Risk Management, CAR, ROA, Asset Quality, Firm Size

Abbreviation: PR,Prudential Regulation; RM, Risk Management; OpR, Operational Risk; CrR, credit Risk; MaR, Market Risk;CAR, Capital Adequacy Ratio; ROA, Return on Assets

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1. INTRODUCTION

Since the 1980s, the global banking industry has experienced considerable structural and regulatory changes. Banks participated in liberalisation movement activities launched by the

"3D1" rule and supported by eliminating geographical borders. Globalization of finance and technical advancement has strengthened the ralry between banks. This rivalry has stimulated the development of new financial products and financial innovation. Banks operate in a dangerous and continuously changing environment because of the lack of a risk management culture, destructive rivalry, and information asymmetry.

Consequently, prudential measures were necessary to address this dangerous environment. The most well-known regulatory tool is capital sufficiency. The influence of prudential requirements on bank activity remains disputed despite their growth. Traditional ideas have failed to describe this relationship's nature.

Considering moral hazard, new theories have focused on creating conditions for prudential instruments to work effectively. Prudential capital regulation's effect on banking practices keeps coming up in the news, especially in the wake of the recent financial crisis. This has led to several empirical studies focusing on the intersection between prudential regulation and risk management. Research has been done on the financial sector.

This study seeks to determine the effect of PR on the RM of New Generation Private banks in India. Multiple PR mechanisms can impact bank risk. This study will identify the existing PR methods that assist in mitigating the unique bank risks. Various factors are discovered that influence the risk of a bank. These components pertain to many facts of banks. The significance of PR procedures in Indian banks to the risks faced by banks remains unclear. This study aims to investigate the impact of PR on Market risk, Credit risk and Operational risk.

2. LITERATURE REVIEW

Research on the impact of prudential capital requirements on bank behaviour has been sparked by the 1988 release of the first Basel accord, sometimes known as Basel I. However, there has been debate over the findings of both theoretical and empirical studies.

Shrieves and Dahl (1992) looked at a cross-section of commercial banks in the United States between 1984 and 1986 to see how partial changes to capital and risk correlated with one another. As expected, they discovered a positive link between shifts in risk and financial

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resources. This indicates that undercapitalized financial institutions will increase their capital levels in response to increased risk.

Aggarwal and Jacques (2001) It was determined, using data from a sample of US banks during 1993-1997, how the Prompt Corrective Action mandated by the Federal Deposit Insurance Corporation Improvement Act affected capital and risk. As a result of PCA legislation, financial institutions increased capital and reduced credit risk.

Similarly, Rime (2001) assesses the risk and capital adjustments made by a selection of Swiss banks. They found that regulatory pressure favoured capital ratios but had no appreciable impact on risk.

Jokipii and Milne (2008) indicate that institutions have a large capital buffer because of capital adjustment costs, which may account for the delayed adjustment rate toward target levels. Data collected from the country's top commercial and savings banks show that capital buffers increase in response to economic downturns, demonstrating a countercyclical behaviour. However, smaller banks, primarily cooperatives, tend to raise their capital levels as times get better.

Jokipii and Milne (2011) analyse the impact on the likelihood of default on debt from alterations to the capital buffer. If there is a positive, two-way relationship between bank capital and risk, then banks may raise their capital in the face of rising risks.. They demonstrate the importance of the bank's capital buffer for capital and risk adjustment.

Jacques and Nigro (1997) Examine how the expansion of banks' capital and portfolio risks has been affected by the introduction of risk-based capital requirements. Once banks have adapted to the new risk-based criteria, they will observe that regulatory capital has a clear negative influence on portfolio risk while having a large positive effect on capital ratios.

Lee and Hsieh (2013), Using a cross-section of Asian banks from 1994-2008, will examine the impact of capital on risk and profitability. According to their research, more money in the bank leads to more profits and less danger. This research shows undercapitalized financial institutions have lower profits and higher levels of risk.

The moral hazard theory can explain the negative link between capital and risk. In contrast, the structure-conduct-performance hypothesis can explain the positive relationship between capital and profitability.

Zhang et al. (2008) analysed data from 2004 and 2006 to determine how CAR affected the risk-taking activities of 12 Chinese banks. They discovered that redistributing the funds increased the portfolio's inherent danger.

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Guidara et al. (2013) examine how Canadian banks' capital buffers fluctuate over time and how this affects their risk and performance in response to Canadian regulatory shifts between Basel regimes and business cycles. They found an insignificant relationship between banks' capital buffer swings and risk exposure. They propose that market discipline issues can explain the healthy capitalization of Canadian banks.

Similarly, Mongid et al. (2012) Analyze 668 commercial banks across 8 ASEAN countries between 2003 and 2008 to learn the connection between capital, risk, and inefficiency. The results show a negative correlation between risk and capital, suggesting that banks with more resources aim to reduce their vulnerability to risk. On the contrary, it turns out that the impact of the risk on capital is negative but minimal.

Agoraki et al. (2011) examined the influence of market forces and prudential oversight on the willingness to take risks in a selection of Central European nations between 1998 and 2005. Since capital limitations significantly reduce risk without increasing default probability, they infer they are successful.

According to Laeven and Levine (2009), there is a strong correlation between a bank's ownership structure and how it handles capital rules and risk. They show how a change in ownership structure can positively or negatively impact a bank's propensity to take risks.

Altunbas et al. (2007) analysed capital, risk, and productivity dynamics at a sample of central European banks from 1992 to 2000. Capital and risk correlate positively exclusively in commercial and savings banks. The correlation was negative for cooperative banks.

3. RESEARCH GAP

The study aims at finding the relationship between Prudential Regulation and Risk Management. After looking at a lot of papers, it's clear that a lot of work has been done in this area over the years. However, few papers have looked at how Prudential Regulation affects Risk management.

4. OBJECTIVES OF THE STUDY

- To examine the impact of Firm size on Risk Management (Market Risk, Credit Risk and Operational Risk).
- To investigate the effect of ROA(Return on Assets) on Risk Management (Market Risk, Credit Risk, Operational Risk).
- To study the influence of Asset Quality (Net NPA%) on Risk Management (Market Risk, Credit Risk, Operational Risk).

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- To find the impact of CAR(Capital Adequacy Ratio) on Risk Management (Market Risk, Credit Risk, Operational Risk).

5. RESEARCH HYPOTHESES

- H1: Firm size has a significant impact on Risk Management.
- H2: ROA(Return on Assets) has a significant impact on Risk Management.
- H3: Asset Quality(Net NPA%) has a significant impact on Risk Management .
- H4: CAR(Capital Adequacy Ratio) has a significant impact on Risk Management

6. RESEARCH METHODOLOGY

6.1.SAMPLING DESIGN

This study focuses solely on private sector banks of the current generation. India has registered seven New Generation Private Sector Banks as follows:

Axis bank

HDFC BANK

ICICI Bank

Induslnd bank

Kotak Mahindra Bank

Yes Bank

DCB Bank

6.2. DATA COLLECTION

The study solely includes secondary data. Secondary data for the study were gathered from the websites of chosen bank headquarters, periodicals, and publications.

6.3. STATISTICAL TOOLS USED

Regression and panel data analysis have been used as statistical tools. Regression analysis aims to evaluate the existence of a link between dependent and independent variables.

6.4. AREA OF STUDY

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The current research covers the entire country of India because all of the chosen banks have branches throughout India.

6.5. PERIOD OF STUDY

The secondary data were collected from 2010-11 to 2019-2020.

6.6. RESULTS AND DISCUSSIONS

For the purpose of evaluating the connection between Risk Management and Prudential Regulation, we may use the regression equation below:

MaR= β0+β1Sizeit+β2ROAit+β3CARit+β4Asset qualityit +μ

CrR= β0+β1Sizeit+β2ROAit+β3CARit+β4Asset qualityit +μ

OpR= β0+β1Sizeit+β2ROAit+β3CARit+β4Asset qualityit +μ

6.6.1.Descriptive Statistics

	OpR	MaR	CrR	CAR	Asset Quality	SIZE	ROA
Mean	0.085717	0.077337	0.861439	16.13743	0.756791	11.86776	1.438857
Median	0.063854	0.042249	0.665737	16.48500	0.630000	12.46430	1.680000
Maximum	1.048099	1.989655	10.64260	19.50000	5.030000	15.40372	4.240000
Minimum	0.000594	0.000000	0.000000	8.500000	0.007500	1.730000	-5.100000
Std. Dev.	0.137693	0.239927	1.384516	1.923089	0.796216	2.365392	0.996620
Skewness	5.897371	7.427147	6.013529	-0.939284	3.172272	-1.985923	-3.897512
Kurtosis	38.87729	59.39723	40.16941	5.106043	15.76291	8.060190	28.36854
Jarque-Bera	4160.030	9920.450	4451.461	23.22961	592.5065	120.6948	2054.283
Probability	0.000000	0.000000	0.000000	0.000009	0.000000	0.000000	0.000000
Sum	6.000194	5.413614	60.30071	1129.620	52.97540	830.7434	100.7200
Sum Sq. Dev.	1.308202	3.971967	132.2650	255.1807	43.74319	386.0605	68.53431
Observations	70	70	70	70	70	70	70

Table 1: Descriptive statistics

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Table 1 shows that the mean of MaR is 0.077337. The mean for CrR is 0.861439; OpR is.085717. Capital adequacy ratio(CAR) mean is 16.13743; Asset Quality(Net NPa %) is 0.756791 ; Firm size is 11.86776 ;ROA is 1.438857 . The median statistics shows that MaR is 0.042249 ; CrR is 0.665737; OpR is 0.063854 ;CAR is 16.48500 ;Asset Quality(Net NPA%) is 0.630000; Firm Size is 12.46430 and ROA is 1.680000 .The skewness is positively skewed for all except CAR, Firm Size and ROA.

6.6.2. Correlation Matrix

Table 2. provides the correlation of variables. The MaR has a negative correlation with CAR, Asset Quality, Size and ROA. The CrR has a negative correlation with all variables except ROA. OpR has a negative correlation with CAR, Asset Quality and Firm Size but has a positive correlation with ROA.

	OpR	**MaR**	**CrR**	**CAR**	**Asset Quality**	**SIZE**	**ROA**
OpR	1						
MaR	0.1879491	1					
CrR	0.989599	0.2013459	1				
CAR	-0.005689	-0.130251	-0.008187	1			
Asset Quality	-0.0359968	-0.1340463	-0.06723308	-0.2204764	1		
SIZE	-0.162902	-0.1184737	-0.1631982	0.3809618	-0.1699265	1	

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ROA	0.04086	-0.038206	0.045249	0.433915	-0.725997	0.326863	1

Table 2- Correlation Matix

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6.6.3. Fixed Effect Model Of OpR with PR Variables

The r-square is 0.180271, and the adjusted r-square is 0.041334. It means that approximately 18% of the change in the dependent variable, that is, Operational risk is because of the considered independent variables. The results of the regression fixed-effect model for New Generation Private banks of India among PR variables and OpR show that CAR, ROA and Asset Quality are insignificantly related to Operational risk. By insignificance, it means that the p-value is more than 5%. According to the hypothesis, there exists a significant relation CAR, Asset Quality and ROA with OpR. Hence H2, H3 and H4 are rejected. There exists a significant relation between opR and Firm Size. Therefore, H1 is accepted as its p-value is less than 0.05.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Asset Quality	-0.006042	0.034235	-0.176494	0.8605
CAR	0.006166	0.011970	0.515141	0.6084
ROA	-0.002612	0.029345	-0.089000	0.9294
SIZE	-0.024331	0.009693	-2.510033	0.0148
C	0.283289	0.200746	1.411181	0.1634

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.180271	Mean dependent var	0.085717
Adjusted R-squared	0.041334	S.D. dependent var	0.137693
S.E. of regression	0.134818	Akaike info criterion	-1.026461

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Sum squared resid	1.072370	Schwarz criterion	-0.673126
Log likelihood	46.92614	Hannan-Quinn criter.	-0.886112
F-statistic	1.297504	Durbin-Watson stat	2.437630
Prob(F-statistic)	0.253141		

Table 3- Fixed Effect Model Of OpR with PR Variables

6.6.4. Fixed Effect Model of CrR with PR Variables

The r-square is 0.169065, and the adjusted r-square is 0.028229. It means that approximately 17% of the change in the dependent variable, that is, Credit risk is because of the considered independent variables. The results of the regression fixed-effect model for New Generation Private banks of India among CG variables and CrR show that CAR, ROA and Asset Quality is insignificantly related to Credit risk. By insignificance, it means that the p-value is more than 5%. According to the hypothesis there exists a significant relation CAR, Asset Quality and ROA with CrR. Hence H2, H3 and H4 are rejected .H1 is accepted as its p value is less than 0.05.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Asset Quality	-0.101193	0.346577	-0.291978	0.7713
ROA	0.001821	0.297074	0.006130	0.9951
SIZE	-0.254423	0.098132	-2.592671	0.0120
CAR	0.075670	0.121182	0.624436	0.5347
C	2.733710	2.032269	1.345151	0.1837

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.169065	Mean dependent var	0.861439
Adjusted R-squared	0.028229	S.D. dependent var	1.384516
S.E. of regression	1.364834	Akaike info criterion	3.603271
Sum squared resid	109.9036	Schwarz criterion	3.956606
Log likelihood	-115.1145	Hannan-Quinn criter.	3.743620
F-statistic	1.200437	Durbin-Watson stat	2.434884
Prob(F-statistic)	0.309543		

Table 4- Fixed Effect Model of CrR with PR Variables

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6.6.5. Fixed Effect Model of MaR with PR Variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Asset Quality	-0.097929	0.062415	-1.568998	0.1220
CAR	-0.017598	0.021824	-0.806395	0.4233
ROA	-0.049006	0.053500	-0.915995	0.3634
SIZE	-0.001143	0.017673	-0.064669	0.9487
C	0.519518	0.365991	1.419482	0.1610

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.102601	Mean dependent var	0.077337
Adjusted R-squared	-0.049501	S.D. dependent var	0.239927
S.E. of regression	0.245793	Akaike info criterion	0.174675
Sum squared resid	3.564440	Schwarz criterion	0.528010
Log likelihood	4.886390	Hannan-Quinn criter.	0.315024
F-statistic	0.674554	Durbin-Watson stat	2.421175
Prob(F-statistic)	0.743323		

Table 5- Fixed Effect Model of MaR with PR Variables

The r-square is 0.102601, and the adjusted r-square is -0.049501. It means that approximately 10% of the change in the dependent variable, that is, Market risk is because of the considered independent variables. The results of the regression fixed-effect model for New Generation Private banks of India among CG variables and MaR show that CAR, ROA, Asset Quality and Size are insignificantly related to Market risk. By insignificance, it means that the p-value is more than 5%. According to the hypothesis, CAR, Asset Quality, ROA, and Size have a significant relation with MaR. Hence H1, H2, H3 and H4 are rejected.

7. CONCLUSION

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The analysis reveals that firms are no longer constrained to maximising shareholder value. This study shows that firms must also individually manage risk; otherwise, Banks' reputation, profitability, and resources may suffer. According to the findings of this research, it is recommended that sound risk management techniques be implemented appropriately and backed by efficient Prudential regulation, particularly in a complex financial industry such as banking.

Our major goal in doing this research was to examine the connection between Prudential Regulation and Risk Management of New generation private banks. For this purpose, use four PR variables, i.e., CAR, ROA, Asset Quality and Size. For the estimation, we analyzed 7 New generation Private banks for ten years from 2011 to 2020. The empirical results show that different PR dimensions affect bank risks differently. In the case of India, we saw that Firm Size has a significant impact on Operational and Credit risk and an insignificant effect on Market risk. ROA, Asset Quality and CAR have an insignificant impact on Operational Risk, Market Risk and Credit Risk.

7.1. Suggestions

This research gives policymakers ideas about what to do. They should have stricter rules for the adoption of Prudential Regulation best practices. This will make risk management more effective, provide security for shareholders, and help the economy.

Future research related to this study can include all Indian banks so that the results can be used confidently across the country since PR does affect Risk Management.

9. LIMITATIONS

This study has a number of limitations, which hints at the need for more research:

- We relied on only 7 New Generation Private Banks Of India to ensure sufficient data availability. The results will likely be more intriguing if a broader range of banks is chosen.

- The period of Research is limited to 10 Years only.

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