

# Risk and Profitability in the Banking Sector in India (In Context of Rising NPAs)

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## ABSTRACT

The very essence of any business represents a risk. It means that risk is omnipresent. And especially if the business is related to any lending or credit activity the risk grows manifold. Thus it is rightfully an inherent part of any banking system. The economic and financial reforms of 1991 in India gave rise to a lot of change as to how the banking business was conducted in India. Since the advent of the new economic policy in 1991 in India banks have been granted with a lot of financial autonomy and relaxation. This coupled with the prudential norms introduced in the banking sector in India were expected to convert the banking sector units from mere service providers to income generating entities. These financial reforms somehow necessitated the entire banking sector to undertake higher risk for higher profits and face competition from the various constituents of the banking sector. The present study has been undertaken to explore the impact of risk taken by banks on the profitability and returns generated by the banks in India since 2009.

**Keywords:** Risk, Capital Adequacy Ratio, Inverse Capital Adequacy Ratio, Return on Assets, Non-Performing Assets, Profitability

## INTRODUCTION

Business is a risky proposition. Rather risk is omnipresent. It is an inherent part of life and business and exists in almost every sphere of life. Whether it is undertaken by the public sector or private sector every kind of business organization thrives on undertaking of risk irrespective of its form. For an economy as a whole its presence is felt even more particularly and intensely by the banking and financial sector. Since risk is associated with uncertainty, every transaction cash or credit undertaken by a bank or a financial institution may change its risk profile. Ever since the advent of financial reforms in 1992 the banking sector in our country has undergone huge changes specifically in the way banking business is conducted. Even though the inherent structure, hierarchy and accountability in the overall banking scenario remains unchanged, the spate of reforms has impacted the banks in a big way. Not only the volume of transactions of banks but also the variety of services and products offered by the banks to its customers has increased manifold. It is now a widely acknowledged fact that growing complexities and competition coupled with profitability considerations have changed the risk dimensions faced by the banks. Also the quest for higher profits and the innovations being designed in the delivery of financial products and services has increased the appetite for taking risk by the banks.

Due to competitive pressures all the banks have transformed to being risk intermediaries. The quest for higher incomes in spite of social objectives to be fulfilled by public sector banks has made it necessary for these banks to indulge in more risk. The various types of risks faced by the banking sector today relate to Credit risk, Market Risk and Operational Risk (as per RBI Guidelines October 1999). The Basel III norms also seek to cover Liquidity Risk.

Credit risk can simply be defined as the risk of bad debts. The risk is that the money which is lent under a contract is not repaid at the right time and right amount. It is a failure by the borrowing party to honour its commitment towards repayment of loan and the interest due on it. The inability to meet the loan obligation can come with bonafide or even mala fide intentions. Banks being primarily lending institutions face huge amount of credit risk which can be associated with any transaction or instrument. Market risk is the risk of loss which can occur because of market movements. Banks deal in on and off balance sheet transactions, interest

rate markets, foreign currency markets, equities and interest rates. Any change in any of the variables can cause a change in its position. Since the markets are volatile if the fluctuation happens in a way which is unfavourable to the bank it will result in a loss which again will ultimately affect a bank's earnings and capital. Operational risk in case of banks exists because of certain poor or inadequate operational processes and systems or even from any other external event. Operational losses can occur due to fraud, dishonest dealings, lack of integrity in internal controls, errors in processing of transactions, legal risk etc. Operational risk mainly exists because of internal mismanagement such as faulty planning, human incapability's, erroneous policies, untrained employees, could be the result of inadequate and inappropriate segregation of duties, insufficient training and poor human resource policies, inadequate security measures and systems and lack of supervision. The use of technology and digitalization of banking transactions have also exposed the banks to cyber crimes such as hacking etc. Global financial inter-linkages have also contributed to such risks.

## REVIEW OF LITERATURE

As per a study conducted by Berríos, Myrna R. (2013) there is a negative relationship between unwise lending and net interest margin. Risky lending lowers bank profitability and liquidity. On the other hand this may be interpreted as a positive relationship between more prudent lending and net interest margin. In their paper "The Effect of Bank Capital on Profitability and Risk in Turkish Banking" Hasan Ayadin and Aykut Karakaya (2014), have tried to throw some light on risk taking by the banks and its effect on bank capital and profitability. Using panel data their study has been conducted on 23 Turkish commercial banks from 2003 to 2011. Their study finds that any increase in bank capital has a significantly positive and negative effect on risk supporting the regulatory hypotheses and moral hazard hypothesis, respectively. Using an unbalanced panel data of 18 private sector banks in Bangladesh from the year 2003 to 2013, Abu Hanifa, Md. Noman, Sajeda Pervin, Mustafa Munir Chowdhary and Hasanul Banna (2015) conclude that there is a negative effect of non-performing loans to gross loans ratio and loan loss provisions on all profitability indicators. They also analyse that there is a negative effect of Capital Adequacy Ratio on Return on Assets. Therefore to save the bank from losses and any kind of crisis it was necessary for banks to exercise prudence in credit risk management. Carey (2001) considers banking to be a very risky business. He opines that though financial institutions must take risk, but they must be aware about it in a conscious way. According to him risk is directly proportionate to return, and the higher the risk more is the expected return. However, there is also the danger that greater risk can lead to higher losses and be forced to go out of business. In current times the banking operations should be conducted with twin goals of profit generation and ensure its survival (Marrison, 2005). In a study of public sector banks in India Abhiman Das (2002) has found that capital, risk and productivity change are interlinked with each and complement each other. His results indicate that banks with inadequate capital have lower productivity and are subject to a higher degree of regulatory pressure than banks with adequate capital. Also that reduction in government ownership tends to improve the productivity of banks. Kusum W. Ketkar and Suhas L. Ketkar (2008) have tried to determine the impact of reforms and regulatory initiatives on the banking sector in India through data envelopment analysis. According to them during the period 1997-2004 the foreign banks in India were the most efficient followed by banks in the private sector and public sector. Lending to priority sectors by the nationalized banks and their risk averse nature continued to hurt the profitability of public sector banks. Usha Thorat (2010) opines that banks cannot afford to be risk averter as risk is inherent in the very nature of banking business. However, it was of utmost importance that 'banker's prudence' must be exercised at all times as it is critical to safety of the depositors' funds. This had to be and must be the underlying philosophy to be followed by banks at all times. The risk return relationship has to be optimally balanced for welfare enhancing outcomes'. According to N. Ratna Kishor (2014) 'The soundness and safety of any economy is dependent on its banking institutions. However at the same time banks because of the nature of their functions are very sensitive and thrive only on customer's trust and public confidence in the banking system of an economy. Any detriment changes in the above can cause them to collapse and put an entire economy into jeopardy. Banks are institutions which work on leverage and therefore even a small fracture in the confidence of the public can lead to a major economic crisis. Thus they are constantly exposed to risk. This makes risk management in banks extremely important. In India the banking system functions under the purview of RBI and its policy guidelines. RBI monitors the risk management system and also the financial health of these financial institutions. Thus a fair assessment and management of risk are both an integral part of banking business. In a study conducted by Sumedh Deorukhkar (2015) bank ownership had a major role to play in the performance of Indian banking sector during a five-year period following the Global Financial Crisis (GFC) since the 2008-2009. The private sector banks and the foreign banks had been able to achieve improvements in profitability and asset quality, healthy and adequate capital levels and lower credit

costs. On the other hand the public sector banks posed a contrast with decrease in earnings growth, poor asset quality, reduced profit margins and high credit costs. The study also reflected that the majority of restructured loans of about 80% belonged to the state owned banks where the ownership Tier I capital of the banking system was around 50%. Even if the differences in performance of banks on the basis of ownership were not accounted for the profitability on a general basis was low because of deteriorated quality of loan assets and high credit costs during the study period. Low asset quality leads to creation of high provisions against impending risks and loan losses. Easy monetary policy and slowing of incremental loan to deposits ratio led to a low Return of Assets (ROA) – a measure of bank profitability with PSU banks in the range of 0.7% to 1.0% and below 2% in case of private sector banks.

## **OBJECTIVES**

The initial Basel I accord of capital adequacy requirement was adopted by India during 1988. The accord was supposed to grant safety and strength to the banking system by way of linking ownership capital to the risk weighted assets. The Basel II accord was adopted in 2006 and the banks in India were supposed to achieve a capital adequacy of 9% by 2009. Thus even though the Basel norms formed a part of regulatory requirement by RBI, the accord itself is like a risk measurement tool and at the same time contains provisions to maintain capital in tandem with the risk undertaken by the banks. The financially liberalized banks during the Basel regime were now free to undertake any amount of risk provided they had the stipulated cushioning for covering it to the extent of 9% capital. This in a way also became necessary to earn higher incomes.

Since a past few years to some extent there has been a rising concern in the economy regarding the risks (especially the off balance sheet exposure risk and the rising non-performing assets) undertaken by the banks in India. The present study makes an attempt to understand the effect and impact of risk undertaken by scheduled commercial banks in India on its profitability. The scheduled commercial banks include all the nationalized and public sector banks, private banks and foreign banks in India. Thus the major

To study the risk undertaken by the banking sector in India during the study period.

To study the impact of risk undertaken on Return on Assets (ROA) of banks

To study the impact of risk undertaken on Non-performing assets (NPAs)

## **RESEARCH METHODOLOGY**

The study is based on secondary data. Since the topic of study is related to banking in India the data has been collected from the relevant RBI sites and annual returns of scheduled commercial banks. The major variables under study include inverse of capital adequacy ratio (ICRAR) as the risk variable and which is also the independent variable. Return on Assets (ROA) and Non performing assets to Net advances ratio (NPA/NA) are taken as dependent variables meant for measuring profitability and adverse impact of risk respectively. The study is related to the period from year 2009 till year 2017. The year 2009 is chosen as the cut off year because all the scheduled commercial banks in India had to compulsorily achieve and adhere to the Capital Adequacy Ratio of 9% based on Basel II norms by year 2009 as stipulated by the Reserve Bank of India and which was diligently observed by the banks.

Tools used in analysis: The study of impact of risk undertaken by the banks on the return generated by it has been done through the use of Regression. The return in the form of profitability ratios is being studied under Return on Assets (ROA). The impact of risk on NPA is being studied with reference to Net NPA ratio. Coefficient of Correlation has been used to study the relationship between risk undertaken and the Non-performing assets.

### **Description of terminology/variables**

**Risk Weighted Assets:** Since banks are financial institutions the many assets on their balance sheet carry some inherent risk. The notional value of the risk weighted asset is multiplied by the risk weight attached to the asset to arrive at the value of the risk weighted asset. For this purpose all the risks to which a bank is exposed to i.e. the credit risk, the market risk and the operational risk are taken into account. The term risk assets include assets such as corporate loans and bonds. However highly rated government and government agency obligations and cash are excluded from risk assets. Different risk weights are assigned to different category of assets depending on their riskiness. The denominator will comprise of total risk weighted value of assets including risk weighted contingent liabilities and off balance sheet exposures (guarantees, forward contracts etc.), for computing the capital adequacy ratio of bank.

Capital Adequacy Ratio: The Capital Adequacy Ratio or Capital Risk weighted Assets Ratio (CRAR) is stipulated as the ratio between ownership capital of a firm which comprises of Equity share capital, Preference Share Capital, Reserves and Surplus and Subordinated Debt (classified into Tier I and Tier II capital) and the aggregate of total risk weighted assets of the firm. The risk weighted assets are calculated by taking into consideration the credit, operational and market risk faced by the firm. Capital Adequacy ratio is a regulatory ratio and prescribes the minimum amount of ownership capital which must be held by a firm in relation to its risk weighted assets. The minimum ratio which must be achieved as prescribed by the RBI is currently 9% (subject to amendment as per Basel III norms). The capital adequacy ratio is also rightly regarded as a safety ratio as it reflects the firm's ability to bear unforeseen losses out of its ownership capital. Thus it acts as a safeguard for the external creditors of the firm.

$$\text{CRAR} = (\text{Total capital}) / (\text{Credit Risk RWA} + \text{Operational Risk RWA} + \text{Market Risk RWA})$$

### **Inverse of Capital Adequacy ratio**

$$\text{Inverse CRAR} = (\text{Credit Risk RWA} + \text{Operational Risk RWA} + \text{Market Risk RWA}) / (\text{Total capital})$$

From above the inverse of capital adequacy ratio (Inverse CRAR) would reflect the risk undertaken by the firm in relation to the ownership capital held by it. Thus where Capital Adequacy ratio can be regarded as a measure of safety and strength in terms of ownership capital held by the bank its reciprocal or inverse has been regarded as a measure of risk undertaken by the bank with respect to ownership capital.

### **Return on Assets (ROA)**

Return on assets (ROA) can be defined as the return generated by an organization in terms of profitability on its assets or capital employed. It gives an indication as to how much profit can be generated per unit of its assets. Higher the ratio, higher is the profitability. As per Basel-II norms it is desirable that ROA should be more than one per cent (Ghosh, C.R. et al; 2003).

### **Ratio of Net Non-performing assets (NNPA) to Net Advances**

From March 31st, 2004 non-performing assets are treated as those assets/credit facility and loans in respect of which the interest and/or installment of principal has remained 'past due' for 90 days. The specific time period of 90 days has been adopted to move towards international best practices and achieve greater transparency. Thus any amount which remains overdue for 90 days or more will be treated as a non-performing asset. Ratio of Net Non-performing assets (NPA) to Net Advances (NNPA/Net Advances) is the ratio of non-performing assets of the bank to advances given by the bank in the form of overdraft, bills purchased, cash credit, loans and term loans.

### **Descriptive Statistics**

#### **Self-generated**

Inverse CRAR ratio indicates the multiple of risk weighted assets to the ownership capital of the banks. The above descriptive statistics shows that public sector banks have assumed maximum risk during the period with respect to their ownership capital i.e 8.08 times followed by private sector banks 6.26 times and then by foreign banks to the extent of 5.98 times. The overall risk for all the scheduled commercial banks is 6.77 times. However as can be seen on an average the foreign sector banks have performed the best generating an average return on assets of 1.68% followed by private sector banks at 1.46%. The performance of public sector banks has been quite dismal which has generated an average return on assets of 0.59%. As one can observe from the above the NPA ratio is highest in case of public sector at 2.80% followed by private sector banks at 1.00% and then foreign sector banks at 0.99%.

The NPA ratio for the public sector banks has been on a consistent rise since 2011 from 1.09% to 6.9% in 2017. NPAs erode the profits and the capital of banks. This is quite worrisome as the brunt of this will have to be borne by the people of the country. It also means that more money has to be pumped into public sector banks for recapitalization purposes to maintain their lending capacity and also to fulfill the requirement of Basel norms III which the banks have to achieve till 2019.

Arithmetic Mean of variables for the period 2009 to 2017			
Sector	Inverse CRAR	ROA	NPA/NA
Public	8.08	0.59	2.80
Private	6.26	1.46	1.00
Foreign	5.98	1.68	0.99
All Scheduled Commercial Banks	6.77	1.247	1.60
Standard Deviation of variables for the period 2009 to 2017			
Sector	Inverse CRAR	ROA	NPA/NA
Public	0.57	0.46	2.21
Private	0.31	0.19	0.55
Foreign	0.49	0.24	0.51
All Scheduled Commercial Banks	1.052	0.559	1.56
Coefficient of variation (in %) of variables for the period 2009 to 2017			
Sector	Inverse CRAR	ROA	NPA/NA
Public	7.05	79.04	79.17
Private	4.96	13.00	55.31
Foreign	8.28	14.13	51.06
All Scheduled Commercial Banks	15.54	44.84	97.51

#### Relationship between risk undertaken by banks, ROA and Non-Performing Assets

Non-performing assets act as a drain on the profits of a bank. It also results in a decrease of ownership capital. To study and establish a relationship between risk taken by banks from 2009 to 2017 and the non-performing assets ratio correlation coefficient has been used.

The correlation results are as follows:

	Inverse CRAR	ROA	NPA/NA
Inverse CRAR	1		
ROA	-0.83	1	
NPA/NA	0.67	-0.83	1

Self-generated

From the above table we can see that the correlation coefficient between risk taken and ROA is -0.83. It means there is a high degree of negative correlation between risk and ROA during the study period. Similarly there is a moderate high degree of positive correlation between risk and non-performing assets to the extent of 0.67 signifying that more risk has resulted into more losses on account of NPAs in banking sector.

**Hypothesis Formulation**

The risk theories in Economics stipulate that higher the risk taken by the business firm higher is the profit earned. No profits can be generated unless an organization undertakes risk. In Financial Management the term leverage is described as ‘Risk’. In the case of leverage risk refers to the existence of either fixed costs in the cost structure or fixed return bearing securities in the capital structure of an organization. However risk assumption is like a double edged sword. Since risk is related to the uncertainties of the future it can pay off well to have a multiplier effect on a firm’s earnings. On the other hand if risk does not pay off it can act to the detriment of the firm resulting in losses. The banking sector in India comprises of scheduled commercial banks in the public, private and foreign sector. Their main objective is lending and earning profits out of the interest margins. In the current context income is also generated in the form of non-interest income because of various innovative financial services rendered by banks and also the off balance sheet exposures of banks such as guarantees given to clients, letters of credit issued and forward contracts. The disbursement of loans is the primary function of the banking sector and though the loans granted represent assets yet they represent risky assets. Therefore lending is a risky proposition as it depends upon repayment behavior of the customer which further depends on his honesty, earnings, repayment capacity and creditworthiness.

The null hypothesis framed is as follows:

Thus H0 = Higher the risk higher is the profitability of the banking sector.

**ANALYSIS AND DISCUSSION**

**Impact on Return on Assets (ROA)**

To study the impact of risk undertaken on Return on Assets the following empirical model has been used

$$Y = B_0 + B_1X + u$$

Where Y = Return on Assets for the scheduled commercial banks

X = Inverse Capital Adequacy Ratio for scheduled commercial banks

**Regression Table**

	Coefficients	Standard Error	T Stat	P- Value	R Square
Intercept	4.23	0.405	10.45	0.00	0.69
Inverse CRAR	-0.44	0.059	-7.45	0.00000008	

From the above table we can see that the Coefficient of determination R2 for the model is 69%. It means that the independent variable in the model is able to explain the variations in the Return on Assets to the extent of 69%. The regression results also show that there is a negative impact of risk taken on Return on Assets of the Scheduled Commercial banks the negative coefficient being -0.44 which means that higher the risk taken by public sector banks has resulted in a decrease in ROA. It reflects that the risk taken by the banks is affecting the ROA in a negative way. The unfavourable impact on banks’ profitability can be vouched from the fact that several banks (especially in the public sector) have been running into huge amount of non-performing assets (NPAs) in recent times. These NPAs can be treated as a cause of negative impact of risk taken on the profits of the banks. It means that the risk has been taken thoughtlessly without trying to anticipate and estimate its negative impact on profitability. The Return on Assets has been continuously declining since year 2009. It has turned negative in the year 2016 and 2017 for the public sector banks. The results are also highly statistically significant.

The null hypotheses thus stands rejected that higher risk leads to higher profitability.

**Impact of risk taken on Non performing Assets**

To study the impact of risk undertaken on Non performing Assets the following empirical model has been used for all the bank categories

$$Y = B_0 + B_1X + u$$

Where Y = Non performing Assets for the scheduled commercial banks

X = Inverse Capital Adequacy Ratio for scheduled commercial banks

Regression Table

	Coefficients	Standard Error	T Stat	P- Value	R Square
Intercept	-5.12	1.51	-3.39	0.0023	0.44
Inverse CRAR	-0.99	0.22	4.50	0.00013	

From the above table we can see that the Coefficient of determination R<sup>2</sup> for the model is 44%. It means that the independent variable in the model is able to explain the variations in the Non Performing assets to the extent of 44%. The regression results also show that there is a positive impact of risk taken on non-performing assets of the Scheduled Commercial banks the coefficient being 0.99 which means that higher the risk taken by banks has resulted in higher NPAs. These NPAs can be treated as a cause of negative impact of risk taken on the profits of the banks. The main cause of increasing NPAs can be attributed to the public sector banks. The results are also highly statistically significant.

**Social Responsibility of Banking Sector towards the Economy**

The banking sector is the most integral part of a country’s financial system. The smooth functioning of the economy is highly dependent on the way banking business is conducted. As it involves the money of the public in the form of deposits, safeguarding of public confidence in the banking system is imperative. The above study dismally points towards a situation where the banks have indulged in unscrupulous risk during the study period through lending activity which has resulted in affecting its profitability negatively and caused huge NPAs. It has been the banker’s imprudence which has led to this situation. The brunt of all this has to be ultimately borne by the public and the shareholders. NPAs also adversely affect the ownership capital and drain it. Steps then have to be taken to recapitalize the banks.

**CONCLUSION**

From the above analysis it can be seen that in the case of banks the risk undertaken by them has had a significant negative impact on its ROA. It shows that the cause of low profits in case of banks has been the undue risk taken by them which has not resulted in higher profits commensurate with risk. There is also a high correlation between risk and the non-performing assets in banks.

Risk has the potential to affect the profitability both in a positive or a negative way. During the period 2009 to 2017 for the scheduled commercial banks we can see that it has not paid off and the lending decisions undertaken by these banks have resulted in huge non-performing assets. In fact the NPA ratio has been on a constant rise post 2012 for public and private sector categories of banks. The assumption of risk in case of banks has been detrimental to the return generated by the banks on its assets as well as ownership capital.

## ANNEXURE 1

	Year	CRAR	Inverse CRAR	ROA	NPA/NA
PUBLIC	2009	13.49	7.41	1.03	0.94
	2010	13.27	7.54	0.97	1.1
	2011	13.08	7.65	0.96	1.09
	2012	13.23	7.56	0.88	1.53
	2013	12.38	8.08	0.78	2.02
	2014	11.4	8.77	0.50	2.6
	2015	11.3	8.85	0.46	2.9
	2016	11.6	8.62	-0.07	6.1
	2017	12.1	8.26	-0.10	6.9
PRIVATE	2009	15.23	6.57	1.13	1.29
	2010	17.43	5.74	1.28	1.04
	2011	16.46	6.08	1.43	0.56
	2012	16.21	6.17	1.53	0.46
	2013	16.84	5.94	1.63	0.52
	2014	15.75	6.35	1.65	0.7
	2015	14.9	6.71	1.68	0.9
	2016	15.7	6.37	1.50	1.4
	2017	15.5	6.45	1.30	2.2
FOREIGN	2009	14.19	7.05	1.99	1.81
	2010	17.26	5.79	1.26	1.82
	2011	16.97	5.89	1.74	0.67
	2012	16.75	5.97	1.76	0.61
	2013	17.88	5.59	1.94	1.01
	2014	17.5	5.71	1.54	1.10
	2015	15.7	6.37	1.84	0.50
	2016	16.5	6.06	1.45	0.80
	2017	18.7	5.35	1.62	0.60

Source: www.rbi.org.in



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