



## Key factors influencing profitability of Indian commercial banks

<sup>1</sup> Dr. Anita Makkar, <sup>2</sup> Dr. Hardeep

<sup>1</sup> Assistant Professor, Department of Commerce, JCD Memorial P G College, Sirsa, Haryana, India

<sup>2</sup> Assistant Professor, Department of Commerce, GGSDS College, Palwal, Haryana, India

### Abstract

The present study is an attempt to measure the profitability of the banks and also to identify the key factors influencing the profitability of 46 Indian commercial banks (26 public sector banks and 20 private sector banks) using the data of 15 financial years (2001-02 to 2015-16). Profitability is measured through return on assets ratio and some of the internal factors namely; liquid assets to total assets, current ratio, capital adequacy ratio, non-performing assets to total assets, profit per employee, business per employee and size of the bank are used to identify the key factors influencing the profitability of Indian banking industry. The study found that liquidity, solvency, efficiency and size are the key factors significantly influencing the profitability of Indian commercial banks. The study concluded that there is consistency in the profitability of public sector banks while lack of steadiness in the profitability of private sector banks. The study suggested that the banks having low return on assets as compared to benchmark given by RBI must improve their efficiency and boost their level of profitability to comply with Basel norms.

**Keywords:** profitability, liquidity, solvency, efficiency and Indian commercial banks

### 1. Introduction

Banks are the vital part of the financial system not only in developed countries but also in developing countries. The day to day changes in the regulatory environment increased the challenges of the banking system to a great extent. The fragility of the banking system is increasing regularly and jeopardizing the successful survival of the banks. In this situation, the crucial part of the banking system is its profitability. A profitable banking sector is better able to withstand the negative shocks and contribute to the stability of financial system (Almumani, 2013) [2]. Profitability indicates a situation where the income generated during a given period exceeds the expenses incurred during the same time period (Sanni *et al.* 2012) [21].

Profitability is the net profit after tax of the income over total assets commonly measured by return on assets (ROA) and return on equity (ROE) as defined by Kanwal and Nadeem (2013) [12]. Return on assets is regarded as the best and widely used measure of earnings as used by several authors namely, Flamini *et al.* (2009) [9], Jahan (2012) [11] and Obamuyi (2013) [16]. Studies have shown that return on assets assesses how efficiently a bank is managing its revenues and expenses. It also reflects the ability of the management of the bank to generate profits by using the available financial and real assets.

As Indian economy is dominated by commercial banks (RBI, 2013) [20] it is of essential concern to associate their profitability with country's progress. Also to study the major factors i.e. internal and external factors those affect the profitability of Indian commercial banks. That's why the present study is an attempt in this direction to identify the key factors influencing the profitability of Indian commercial banks. The study is divided into six sections. Section I gives a

brief introduction of the paper. Section II scans the relevant literature. Section III elaborates the objectives and hypotheses. Section IV describes the methodology adapted to analyze the issue at hand. Section V analyzes the data and discusses result and inferences. Lastly, Section VI concludes the paper.

### 2. Review of Literature

With the changes in the economic environment banking regulations are also changing frequently. These days banking is not a lazy-faire business. Banks are facing tough competition from different service industries like insurance, mutual funds and private financing firms. The risk exposure of commercial banks is also increasing that is hampering the profitability of the banks. Different authors carried out studies relating to the profitability of the banks using different techniques. These are as follows:

Kheechee (2011) [14] defined profitability as an index of profits expressed as the rate of return on funds. According to Qin and Pastory (2012) [17] profitability in commercial banks is determined by the ability of the banks to preserve capital, absorb loan losses, sustain future growth of assets and provide return to investors. Coyne (1973) [6] carried out an empirical study on bank profitability using data collected from 510 chief executive officers from different commercial banks. He analyzed the cost, price and profit functions using real estate, installment, commercial and agricultural loans for banks stratified by size of deposits. The study found that using different approaches bank could determine its most profitable lending functions. Verghese (1983) [24] evaluated the profits and profitability of Indian commercial banks after nationalization. The study found that there was a declining trend in the profitability and productivity of banks. The study suggested for reversing this declining trend to ensure the

financial viability of Indian commercial banks. In the similar study, Flamini *et al.* (2009)<sup>[9]</sup> analyzed the profitability of 389 banks in 41 Sub Saharan African countries. The study found that credit risk, return on assets was significantly associated with larger bank size, activity diversification and private ownership. The study supports the policy of imposing higher capital requirements in the region in order to strengthen financial stability.

Several factors have different impact on the profitability of the banks. The determinants of bank profitability varied from country to country. Short (1979)<sup>[22]</sup> examined the relationship between profit and concentration of banking market in the 60 banks selected from Canada, Western Europe and Japan. The study found that greater market power led to higher profit rates among the banks. The study also found that institutional and legal environment had small effect on the concentration and thus on bank profit rates. Bourke (1989)<sup>[5]</sup> carried out a study on the determinants of international bank profitability in the banks of Europe, North America and Australia. It had extended the earlier research of Short (1979)<sup>[22]</sup> and support the results that concentration was positively and significantly related to banks' profitability. The study of Molyneux and Thornton (1992)<sup>[15]</sup> conducted across 18 European countries between 1986 and 1989 confirmed the traditional theories of US concentration and bank profitability. The study found a significant and positive relationship between return on capital and bank concentration. Bashir (2003)<sup>[4]</sup> analyzed the impact of bank characteristics and overall financial environment on the performance of Islamic banks across 8 Middle Eastern Countries between 1993 and 1998. The study found that implicit and explicit taxes had negative impact on the profitability of banks.

Similarly, Ketkar and Ketkar (2008)<sup>[13]</sup> assessed the impact of various market and regulatory initiatives on the profitability of Indian commercial banks for 1997 to 2008 using data envelopment analysis technique. The study concluded liberalization and deregulation of banks raised the efficiency and profitability of Indian banks over the time. Alexiou and Sofoklis (2009)<sup>[1]</sup>, Dietrich and Wanzenried (2010)<sup>[7]</sup> and Gul *et al.* (2011)<sup>[10]</sup> investigated the effect of bank specific and macro-economic determinants of bank profitability. The studies found that bank specific variables such as capital adequacy and cost efficiency significantly affect the bank profitability while macro economic factors had no significant effect on the bank profitability. Kheechee (2011)<sup>[14]</sup> compared the profitability of different groups of commercial banks in India for 2003-04 to 2009-10. The study found a significant difference in the profitability of public, private and foreign banks. Rao and Lakew (2012)<sup>[18]</sup> carried out a study to explore key factors that influence the profitability of commercial banks in Ethiopia over the period of 10 years (1999-2000 to 2008-2009). The study found that internal factors were the most determinant factors of bank profitability while external factors did not have any significant impact on bank profitability. The results were supported by Erina and Lace (2013)<sup>[8]</sup> that the profitability of banks was significantly affected by operational efficiency, portfolio composition and management while negatively related to credit risk and GDP had a positive impact on the profitability of banks.

In the light of reviewed literature, it is found that no attempt

has been made to analyze the key factors of the profitability especially in case of Indian commercial banks. So there exists a literature gap that needs to be fulfilled. The present study is an attempt in this direction through analyzing the key factors influencing the profitability of Indian commercial banks.

### 3. Objectives and Hypotheses

- To measure the profitability of Indian commercial banks.
- To identify the key factors influencing the profitability of Indian commercial banks

On the basis of above objective following hypotheses are outlined:

1. Liquidity of bank is not significantly related to bank profitability.
2. Solvency of bank is not significantly related to bank profitability.
3. Efficiency of bank is not significantly related to bank profitability.
4. Size of bank is not significantly related to bank profitability.

### 4. Research Methodology

The study is analytical in nature and based on secondary data. The data is collected from annual reports of different banks for various years, RBI publications such as Statistical Tables Relating to Banks in India, Trends and Progress Reports of Banks in India and Report on Currency and Finance. The sample of 46 Indian commercial banks is selected including 26 public sector banks and 20 private sector banks. The time period of recent 11 financial years (2001-02 to 2015-16) is taken for this study. Return on Assets as suggested by Flamini *et al.* (2009)<sup>[9]</sup>, Jahan (2012)<sup>[11]</sup> and Obamuyi (2013)<sup>[16]</sup> is used to measure the profitability of Indian commercial banks. Various internal and external factors affect the profitability of a bank. In the present study some of the internal factors are taken into consideration to identify the key factors of the profitability especially for Indian banking industry. Liquidity, solvency, efficiency and size measured through different ratios are used to identify the determinant factors relating to bank profitability. Liquidity is measured through liquid assets to total assets ratio and current ratio, capital adequacy ratio and non-performing loans to total assets ratio is used for solvency and efficiency is measured through profit per employee ratio and business per employee ratio and total assets has indicated the size of the bank. Least square regression model is used to examine the impact of these variables on the profitability of banks.

### 5. Results and Discussion

Profitability is the key to the successful survival of the commercial banks. In the present study profitability as measured through return on assets indicates that some of the banks are highly profitable while others are suffering from losses. Karur Vyas bank is highly profitable bank as it has maximum of return on assets i.e. 1.81 among all Indian commercial banks as shown in table 1. Tamilnad Mercantile bank (1.55) stands at second position followed by City Union bank (1.53). Development Credit bank (-0.33) is the weakest bank among 46 Indian commercial banks as it has negative

returns on its assets. Development Credit bank is not able to efficiently utilizing the assets so that it would be able to get good returns on its assets. Dhanalakshmi bank (0.50) has also low returns on its assets followed by Catholic Syrian bank (0.54).

### Important Factors influencing Profitability of Indian Commercial Banks

Various factors i.e. internal and external affect the earning capacity of the banking industry. Some of the factors have positive impact while others have negative impact on the profitability of a bank. In the present study, some of the internal factors as mentioned in section IV are used to identify their impact on the profitability of Indian commercial banks. They are discussed in detail as follows:

#### Liquidity

Banks has to maintain proper liquidity to meet short term obligations on time and also to ensure adequate amount to be invested for long term to generate profit in future. It has a positive influence on the profitability of the banks. Liquidity is measured through liquid assets to total assets ratio and current ratio in the present study. Liquid assets to total assets represent the proportion of assets that bank has in the liquid or cash and cash equivalent. Liquid assets to total assets ratio is highest in Nanital bank (0.26) followed by Ratnakar bank (0.19) and ICICI bank (0.13) as shown in table 1. This ratio is lowest in Axis bank (0.05), Kotak Mahindra bank (0.05) and Yes bank (0.05). State Bank of India is at 7<sup>th</sup> position among 46 Indian commercial banks. Current ratio represents the proportion of current assets and current liabilities. Current ratio is highest in South Indian bank (5.40) followed by Catholic Syrian bank (5.05) and Federal bank (4.86). Kotak Mahindra bank (0.91) has lowest of the current ratio followed

by HDFC bank (1.01) and Axis bank (1.25).

#### Solvency

Solvency of the bank means the ability of the bank to meet its long term fixed expenses and accomplishing long term expansion and growth plans. The better the banks solvency position, the better it is financially. Solvency of the banks is measured through capital adequacy ratio and non-performing assets ratio. Capital adequacy is measured to ensure the capacity of the bank in meeting the losses. The higher the ratio, the more will be the protection of investors. RBI has prescribed a minimum capital adequacy ratio of 8% to be maintained by banks on a sole basis as per the Basel Capital Accord I and from 31<sup>st</sup> March 2009 as per Basel II norms covering both on and off balance sheet item 12%. Capital adequacy ratio is highest in Ratnakar bank (27.90) followed by Tamilnad Mercantile bank (17.21) and Nanital bank (15.32). Axis bank (8.38) has lowest of this ratio followed by Catholic Syrian bank (10.84) and Dena bank (10.89).

Non-performing assets ratio is measured through non-performing loans to total assets ratio. Non-performing loans are the irrecoverable loans as interest payment is due on it more than 90 days. Higher the ratio is an indicator of inefficient management of the bank. It is a burden on the profitability of the commercial banks. Non-performing assets ratio is highest in Dena bank (5.44) followed by Punjab and Sind bank (4.33) and Development Credit bank (3.75). These banks are not able to efficiently maintain their recovery process that's why huge amount of interest payment is due and becoming non-recoverable. This ratio is lowest in Nanital bank (0.00), Yes bank (0.05) and Axis bank (0.32) as presented in table 1. These banks are efficient to collect their interest payments on due time.

**Table 1:** Profitability and its related factors for Indian Commercial Banks (Average 2001-02 to 2015-16)

Sr. No.	Name of the Bank	LQA	CR	PPE	BPE	CAR	NPA	LOA	ROA
1	State Bank of India	0.11	1.86	2.97	420.45	13.03	2.72	7.71	0.89
2	State Bank of Bikaner & Jaipur	0.10	2.46	3.50	410.63	12.92	2.17	6.42	0.97
3	State Bank of Hyderabad	0.09	1.85	4.29	571.52	13.05	1.63	6.51	1.07
4	State Bank of Mysore	0.08	2.56	2.80	433.71	12.11	2.30	6.30	1.02
5	State Bank of Patiala	0.08	2.98	3.70	616.06	13.08	1.43	6.55	1.01
6	State Bank of Travancore	0.07	3.20	3.56	524.38	12.45	2.20	6.47	0.96
7	Allahabad Bank	0.08	3.26	3.97	550.91	12.42	2.86	6.72	1.06
8	Andhra Bank	0.09	3.81	4.90	611.90	13.92	0.80	6.59	1.34
9	Bank of Baroda	0.12	3.84	4.85	670.80	13.33	1.80	7.09	1.01
10	Bank of India	0.11	4.29	3.64	642.49	11.99	2.44	7.07	0.92
11	Bank of Maharashtra	0.10	2.15	2.01	490.29	11.92	2.41	6.53	0.65
12	Canara Bank	0.10	3.54	4.50	643.52	12.89	2.05	7.11	1.13
13	Central Bank of India	0.09	2.47	1.61	419.83	11.31	3.42	6.92	0.57
14	Corporation Bank	0.11	2.46	6.40	820.83	14.76	0.96	6.65	1.39
15	Dena Bank	0.09	2.45	3.05	575.73	10.89	5.44	6.45	0.74
16	IDBI Bank	0.08	1.64	7.98	1629.86	11.03	1.57	6.74	0.64
17	Indian Bank	0.08	3.31	4.36	484.91	11.13	2.37	6.69	1.22
18	Indian Overseas Bank	0.09	3.10	3.21	533.54	12.89	2.33	6.81	0.99
19	Oriental Bank of Commerce	0.10	3.36	5.61	834.96	12.27	1.34	6.78	1.14
20	Punjab and Sind Bank	0.10	3.01	2.84	544.01	12.14	4.33	6.35	0.62
21	Punjab National Bank	0.10	2.82	4.11	520.34	12.71	1.63	7.05	1.14
22	Syndicate Bank	0.09	2.71	2.68	520.59	12.00	1.75	6.80	0.95
23	UCO Bank	0.09	3.15	2.26	560.09	11.52	3.22	6.78	0.66
24	Union Bank of India	0.08	3.26	4.32	574.85	12.15	2.31	6.93	1.04

25	United Bank of India	0.09	2.12	1.96	443.64	13.26	3.24	6.55	0.77
26	Vijaya Bank	0.09	2.88	3.25	546.40	12.52	1.93	6.51	0.93
27	Axis Bank	0.05	1.25	10.67	1139.14	8.38	0.32	4.44	0.91
28	HDFC Bank	0.11	1.01	7.47	684.45	13.89	0.36	6.86	1.46
29	ICICI Bank	0.13	1.44	9.94	890.77	14.24	2.17	7.24	1.20
30	Indusind Bank	0.10	2.81	6.83	1015.10	12.85	2.30	6.24	0.92
31	Development Credit Bank	0.09	2.30	-1.37	447.94	12.45	3.75	5.65	-0.33
32	Kotak Mahindra Bank	0.05	0.91	5.99	427.05	13.38	0.91	5.08	1.25
33	Yes Bank	0.05	2.34	10.85	1166.29	12.18	0.05	4.41	1.06
34	Catholic Syrian Bank	0.12	5.05	0.98	322.83	10.84	3.59	5.66	0.54
35	City Union Bank	0.08	3.83	4.62	461.75	12.97	2.98	5.67	1.53
36	DhanLakshmi Bank	0.11	3.08	0.70	380.21	11.25	3.60	5.54	0.50
37	Federal Bank	0.08	4.86	4.42	571.75	15.17	2.29	6.30	1.11
38	ING Vysya Bank	0.09	2.29	2.17	462.12	11.50	1.69	6.23	0.62
39	J & K Bank	0.12	2.18	5.27	545.55	13.73	1.04	6.37	1.27
40	Karnataka Bank	0.08	4.71	3.66	529.17	12.78	2.72	6.12	1.12
41	Karur Vyas Bank	0.09	3.83	5.90	554.73	15.19	1.51	5.99	1.81
42	Laxmi Vilas Bank	0.09	3.71	1.77	440.18	12.30	3.61	5.69	0.67
43	Nanital Bank	0.26	4.67	3.59	323.98	15.32	0.00	5.11	1.30
44	Ratnakar Bank	0.19	2.84	1.87	313.16	27.90	3.17	5.05	1.04
45	South Indian Bank	0.10	5.40	3.21	548.96	12.66	2.39	6.07	0.91
46	Tamilnad Mercantile Bank	0.08	3.03	5.69	550.38	17.21	2.56	5.81	1.55

Source: Result Computed

**Efficiency**

Efficiency is a revealing indicator of bank competitiveness in the market and quality of its management. It is measured through profit per employee and business per employee in the present study. Profit per employee is highest in Yes bank (10.85) followed by Axis bank (10.67) and ICICI bank (9.94). It is lowest in Development Credit bank (-1.37) followed by Dhanalakshmi bank (0.70) and Catholic Syrian bank (0.98). Business per employee is highest in IDBI bank (1629.86) followed by Yes bank (1166.29) and Axis bank (1139.14). This ratio is lowest in Ratnakar bank (313.16), Catholic Syrian bank (322.83) and Nanital bank (323.98).

**Size**

Size of the bank as measured through total assets show the strength of the bank in its risk taking ability. Since large banks have better access to capital markets, they can cope with

liquidity shocks more easily. Higher the size of a bank, higher is the risk taking ability of the bank, better the ability of the bank. State Bank of India (7.71) is largest bank among all Indian commercial bank as revealed through table 1 followed by ICICI bank (7.24) and Canara bank (7.11). Yes bank (4.41) is smallest in size followed by Axis bank (4.44) and Ratnakar bank (5.05).

**Key Factors Influencing Profitability of Indian Commercial Banks**

To identify the key factors influencing the profitability of Indian commercial banks from the variables (as discussed above) least square regression model has been applied.

$$ROA = \alpha + \beta_1 LQA + \beta_2 CR + \beta_3 CAR - \beta_4 NPA + \beta_5 PPE + \beta_6 BPE + \beta_7 LOA + \epsilon$$

**Table 2:** Key Factors of Profitability of Indian Commercial Banks

Factors	Variables	Beta Coefficient	t-statistic	p-value	VIF	R <sup>2</sup>	F-statistic	D-W statistic
Liquidity	LQA	-0.155	-1.792**	0.081	1.594	0.823	25.204*	1.756
	CR	0.297	3.979*	0.000	1.194			
Solvency	CAR	0.306	3.634*	0.000	1.518			
	NPA	-0.209	-2.204*	0.034	1.935			
Efficiency	PPE	1.128	8.256*	0.000	4.004			
	BPE	-0.757	-6.590*	0.000	2.826			
Size	LOA	0.264	3.725*	0.001	1.075			
	$\alpha$	0.314	-1.202	0.237				

Source: Result Computed

Note: \* significant at 5 percent level of significance, \*\* significant at 10 percent level of significance.

The result of the above table reveals that liquidity, solvency, efficiency and size have significant impact on the profitability of Indian commercial banks. Liquid assets to total assets ratio is negatively related with the profitability of the banks as the banks holding large amount of cash and cash equivalent left with less amount of money for long term investment. It hampers the earning capacity and profitability of the banks.

Current ratio is positively related with profitability. This ratio indicates the proportion of current assets with current liabilities. Excess of current assets over current liabilities reduces the burden of the bank on its profitability. Capital adequacy of the bank is positively related with profitability. Capital adequacy represents the capacity of the bank to bear unforeseen shocks. Adequate capital provides a cushion to the

bank for incessant earning capacity of the bank. Non-performing assets to total assets ratio has negative impact on the profitability of the bank as it indicate the burden of pending interest income that is due to the bank but not received. It hampers the profitability of the banks.

Efficiency as indicated through profit per employee has positive impact on the profitability of the bank. Size of the bank is also positively related with profitability as the bank with larger size has several benefits of economies of scale. Large banks operate at large level and cover extensive area and provide a wide range of products and services so it has a positive impact on the profitability of the banks. Significant F-statistic (25.204) as shown in table 2 presents the fitness of the regression model. It indicates the linear relationship between profitability and different variables of the profitability for the commercial bank.  $R^2$  (0.823) reveal that 82.3 percent variation in profitability is due to variation in these independent variables as used in the present study. Multicollinearity as measured through VIF (Variance Inflation Factor) indicates that there is very low level of multicollinearity among the independent variables.

The value of Durbin-Watson Test (1.756) shows the dependability of the results. It reveals that there is no serial correlation and the residuals are uncorrelated. On an overall basis it is found from the table 2 that liquidity (liquid assets to total assets ratio, current ratio), solvency (capital adequacy ratio, non-performing assets to total assets ratio), efficiency (profit per employee, business per employee) and size represented through total assets have a significant impact on the profitability of the commercial banks of India. These are the key factors influencing the profitability of Indian banking industry.

## 6. Conclusion

Profitability is a crucial concern for the commercial banks as it ensures the ability of the bank to preserve capital, soak up loan losses, supports potential growth of assets and provides returns to the investors. The study found that there is consistency in the profitability of public sector banks while private sector banks have no steadiness in their profitability. Some of the private sector banks are highly profitable on the one hand while other private sector banks have negative returns on their assets and are incurring losses. As per Basel II and RBI norms, the commercial banks should have profitability in case of return on assets more than 1 percent (RBI, 2008) [19]. Out of 46 Indian commercial banks 26 bank (14 public sector banks and 12 private sector banks) have return on assets more than 1 percent while 20 banks (12 public sector banks and 8 private sector banks) have return on assets below 1 percent. The banks with low level of return on assets as per RBI are required to take care of their operations to enhance their profitability.

The study found that liquidity, solvency, efficiency and size of the bank are some of internal factors that significantly influence the profitability of Indian banking industry. These are the key factors that Indian commercial banks must take care of to enhance their profitability level. The results of the present study are supported by earlier studies of Ani *et al.* (2012) [3] and Bashir (2003) [4] that liquidity, productivity and size significantly affect the profitability of the banks. While

the results of Almumani (2013) [2] and Syafri (2012) [23] contradict the results of present study that liquidity and bank size are not significantly related with the profitability of the commercial banks. Further study can be carried out with large number of banks and also by extending the time period of the study. Influence of large number of external and internal factor can be checked using cross sectional and time series data to find better results.

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