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Impact of banks' lending on their sustainability: Indian evidence

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Abstract

The objective of the paper is to examine the effect of lending function on sustainability of Indian banks in long run. Two variables, namely, return on equity (ROE) and return on assets (ROA) are used to measure long term profitability and sustainability. The paper is based on secondary data, collected from RBI publications, websites, and Bloomberg database. Indian banks are considered for study. OLS linear regression model is used. The paper reveals that lending growth is positively related to long term sustainability. There is significant relation between (i) ROA and ROE and (ii) ROA and deposit growth. Deposit and loan growth have not significant effect on ROE and ROA. In long run, the sustainability of banks is significantly affected by lending function.

Keywords: lending, profitability, sustainability, banks, India

1. Introduction

A country's economy rests on the financial backbone known as banks. The Indian financial system has a huge network of banks. If economy is considered as a human body, banks are the blood flowing in the body. The financial system of India constitutes of a wide network of a large number of banks. The banking sector plays a pivotal role in blossoming of a country's economy. With the help of various financial services, banks provide impetus to economic development of a country. Banks facilitate the smooth flow of funds by collecting it from the lenders and issuing it to the borrowers. A developing country like India requires a vast network of banks and financial intermediaries who can efficiently procure savings from the public and allocate those funds as credit for productive purposes in an efficient manner, thus, bolstering the economy's growth.

Commercial Banks also help in credit creation by advancing loans from deposits obtained from public. In order to allow the banks to make the best use of available funds and advance credit to those who need funds, RBI introduced a monetary tool, named as Credit-Deposit (C-D) ratio. The credit–to–deposit (CD) ratio is the ratio of loans advanced by the banks from their assets viz. the deposits received. CD ratio signifies how efficiently the commercial banks are allocating the received deposits. After keeping the mandatory portion out of the deposits as Statutory Liquidity Ratio (SLR) and Cash Reserve Ratio (CRR) with the RBI, the banks can assign the remaining funds to various sectors as credit. If the ratio is higher it means more loan is being issued from the deposits, thus increasing the income for the banks. But it also creates an additional pressure on existing resources and the liquidity of the banks diminishes. But Incremental Credit – Deposit Ratio (ICDR) is of more concern to RBI. ICDR measures the absolute growth in advancement of credit as a ratio of absolute growth in the amount of deposits generated. If ICDR becomes more than 100 percent, it is felt as a concern by RBI because it means that the banks are finding it difficult to get more deposits in order to advance more loans and this can supress the financial stability of the banking sector.

2. Literature review

Verma & Kumar (2007) [7] compared the C-D ratio performance of scheduled commercial banks of Rajasthan, Maharashtra, and Gujarat. The results revealed that the C-D ratio of Maharashtra has been well as compared to a lower C-D ratio observed in other states such as Rajasthan and Gujrat. Kumar & Verma (2008) [3] studied the efficiency of various groups of banks at advancing loans taking the base as the ownership of the banks. The results showed that the private bank and foreign bank groups displayed better C-D ratio, and the study pointed out a need for immediate attention towards the public sector banks of India. Sangmi and Nair (2010) [6] used the CAMEL Parameters to compare the earnings capacity, asset quality, liquidity and others. The findings showed that both the banks under study, Jammu & Kashmir Bank and Punjab National Bank have chosen judicious policies regarding financial management and these banks have performed significantly with respect to asset quality. Kaur (2012) [2] compared the performance of public sector and private sector banks from 2009-2011. The study showed that when compared over the period of study with respect to parameters like total assets, net worth, advances, growth in C-D ratio etc., public

sector banks performed better than private sector banks. Narwal and Pathneja (2015) [4] studied the different factors determining the profitability and productivity of the functioning of banks in India. They also compared the profitability and productivity of public sector and private sector banks of India. The results showed no significant difference compared to the profitability of public and private sector banks, but the comparison on the basis of productivity resulted in favour of private sector banks. Aggarwal (2016) [1] asserted that the parameters like Credit Deposit Ratio, Investment Deposit Ratio and other variables can help in determining the profitability of Public Sector Banks in India. PSBs have negative Credit Deposit Ratio. So, there arises a need to explain the use of their deposits. Nataraja *et al.* (2018) [5] evaluated the performance of major three private sector banks, listed on both the NSE and BSE. The results showed that the financial performance of the selected private banks in India is significantly affected by the bank size, credit risk, operational efficiency asset management and debt ratio.

3. Objective and hypotheses

The primary function of banks is to accept deposits and provide loans. The objective of study is to examine the effect of growth in deposits and loans on profitability of Indian public-sector banks (PSBs) in long run. Two variables, namely, return on equity (ROE) and return on assets (ROA) are used to measure profitability.

3.1 Hypotheses

H1: There is no significant effect of growth in deposits on ROE in long run.
H2: There is no significant effect of growth in deposits on ROA in long run.
H3: There is no significant effect of growth in loans on ROE in long run.
H4: There is no significant effect of growth in loans on ROA in long run.

4. Research methodology

The sample of public sector and private banks is chosen. The study covers period from 2010 to 2023. It is grounded on secondary data, collected from RBI publications, websites, and Thomson Reuters Eikon database. Simple linear regression model is used to achieve the objective.

5. Data collection and analysis

ROE: It measures the return available to equity-shareholders. Table 1 shows that Indian bank has the highest mean ROE followed by Canara Bank. The least mean ROE is observed in Central Bank of India (7.5%).

Table 1: ROE of PSBs (%)

PSBs	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
SBI	22.14	18.22	15.85	15.96	17.27	16.40	15.09	12.83
PNB	24.32	19.94	16.58	15.56	18.26	22.33	23.19	22.14
BOB	20.32	13.66	12.96	13.29	15.30	19.32	21.90	23.62
Canara	29.34	23.24	19.62	16.59	16.64	17.53	21.73	22.78
CBI	47.19	20.07	12.25	19.91	12.84	10.52	18.25	13.14
Allahabad	33.87	27.43	23.17	18.19	19.92	13.84	18.90	18.35
BOI	26.91	7.16	14.90	19.86	23.47	25.38	12.72	15.85
Indian Bank	30.68	16.90	22.36	25.97	24.16	20.79	20.47	19.64
UCO	28.96	17.86	8.68	12.34	14.75	16.20	22.08	14.36
Union bank of India	25.19	21.46	16.52	17.34	22.13	21.46	21.65	17.83

PSBs	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Mean
SBI	16.18	15.49	10.41	11.01	7.15	0.12	-2.04	12.81
PNB	19.40	15.56	9.97	8.48	-8.80	2.79	-28.24	12.10
BOB	20.85	16.99	14.06	9.80	-11.99	4.24	-4.21	12.67
Canara	15.38	12.32	9.50	9.14	-8.03	4.05	-11.04	13.25
CBI	4.74	7.34	-8.57	4.15	-7.71	-13.40	-28.22	7.50
Allahabad	19.15	10.88	10.06	5.20	-5.15	-1.86	-33.64	11.89
BOI	13.96	12.29	10.81	6.36	-18.84	-4.39	-16.94	9.97
Indian Bank	17.44	14.50	9.25	7.22	4.77	8.57	7.25	16.66
UCO	15.60	8.44	15.83	9.57	-22.33	-14.64	-32.02	7.71
Union bank of India	12.79	13.17	9.23	9.07	6.32	2.43	-21.13	13.03

ROA: It measures the efficiency of management in using assets to generate revenue. Table 2 shows that Indian bank has the highest mean ROA followed by Bank of Baroda. The least mean ROA is observed in Central Bank of India (0.17%).

Table 2: ROA of PSBs (%)

PSBs	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
SBI	1.10	0.95	0.85	0.88	1.00	0.96	0.87	0.72
PNB	1.26	1.19	1.11	1.04	1.20	1.37	1.40	1.31
BOB	1.20	0.83	0.85	0.86	0.94	1.15	1.24	1.37
Canara	1.52	1.27	1.10	0.99	1.01	0.94	1.16	1.28
CBI	1.04	0.52	0.37	0.60	0.50	0.42	0.64	0.65
Allahabad	1.55	1.39	1.42	1.23	1.32	0.87	1.12	1.05

BOI	1.23	0.36	0.68	0.89	1.22	1.48	0.69	0.79
Indian Bank	1.42	0.88	1.18	1.57	1.66	1.61	1.68	1.55
UCO	1.11	0.70	0.34	0.46	0.50	0.55	0.81	0.60
Union bank of India	1.30	1.10	0.84	0.88	1.22	1.21	1.17	0.96

PSBs	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Mean
SBI	0.91	0.92	0.64	0.69	0.44	-0.01	-0.12	0.72
PNB	1.16	1.02	0.66	0.55	-0.54	0.12	-1.66	0.75
BOB	1.28	1.02	0.80	0.54	-0.71	0.25	-0.26	0.76
Canara	0.90	0.74	0.56	0.54	-0.48	0.21	-0.67	0.74
CBI	0.25	0.41	-0.45	0.21	-0.36	-0.76	-1.54	0.17
Allahabad	1.11	0.62	0.56	0.29	-0.31	-0.12	-1.86	0.68
BOI	0.72	0.65	0.53	0.29	-1.02	-0.26	-0.97	0.49
Indian Bank	1.33	1.04	0.66	0.53	0.36	0.67	0.54	1.11
UCO	0.64	0.33	0.69	0.47	-1.14	-0.78	-1.98	0.22
Union bank of India	0.70	0.74	0.50	0.48	0.34	0.13	-1.10	0.70

Deposit growth: It measures the growth in liabilities of the banks. Table 3 shows that Bank of Baroda has the highest mean deposit growth followed by Union bank of India. The least mean deposit growth is observed in Central Bank of India (12.70%).

Table 3: Deposit growth of PSBs (%)

PSBs	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
SBI	11.10	16.20	7.50	17.00	22.00	30.30	10.30	12.50
PNB	16.00	17.20	16.00	16.90	19.30	26.20	19.40	25.80
BOB	9.80	14.30	15.20	33.40	21.20	26.60	25.10	26.70
Canara	19.80	12.20	20.60	21.90	8.00	21.50	25.60	25.00
CBI	9.20	8.60	9.40	24.50	33.30	19.00	23.50	10.60
Allahabad	23.40	29.50	19.00	22.90	20.30	18.60	24.80	24.40
BOI	10.90	10.30	19.20	27.60	25.50	26.40	21.20	30.00
Indian Bank	12.60	14.30	17.20	15.40	29.60	18.90	21.60	19.90
UCO	25.20	26.10	10.30	18.90	23.20	25.40	22.10	18.70
Union bank of India	13.00	22.30	19.80	15.00	21.90	33.50	22.60	19.00

PSBs	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Mean
SBI	12.70	15.00	13.00	11.60	9.80	15.30	4.70	13.93
PNB	21.60	3.80	15.60	11.70	10.70	10.40	3.00	15.57
BOB	26.00	22.90	20.20	8.60	-6.90	5.20	-1.60	16.45
Canara	11.50	8.80	18.30	12.60	1.30	3.20	6.00	14.42
CBI	9.40	15.30	6.20	6.50	4.20	11.50	-0.70	12.70
Allahabad	21.00	12.00	6.80	1.30	3.70	0.60	5.80	15.61
BOI	6.60	19.90	24.90	11.70	-3.50	5.20	-3.60	15.49
Indian Bank	14.20	17.60	14.30	4.30	5.40	2.40	14.10	14.79
UCO	6.00	12.60	15.10	7.40	-3.40	-2.80	-9.70	13.01
Union bank of India	10.10	18.40	12.90	6.70	8.40	9.60	8.80	16.13

Loan growth: It measures the growth in assets of the banks. Table 4 shows that Indian bank has the highest mean loan growth followed by PNB. The least mean loan growth is observed in Canara Bank (1.02%).

Table 4: Loan growth of PSBs (%)

PSBs	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
SBI	16.80	28.90	30.50	30.10	23.80	24.40	15.90	15.70
PNB	17.30	27.60	23.40	29.80	24.20	30.30	20.60	29.60
BOB	0.70	24.90	38.20	39.20	26.90	34.10	22.10	30.60
Canara	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CBI	-1.40	19.20	36.90	37.90	40.70	17.10	23.20	23.10
Allahabad	22.30	37.80	37.80	41.70	20.40	18.30	21.80	30.80
BOI	7.60	22.10	16.40	30.30	33.90	26.00	17.90	26.40
Indian Bank	15.20	30.00	22.50	29.60	37.20	29.00	20.90	21.10
UCO	29.50	34.10	35.20	25.70	17.20	24.90	19.90	20.10
Union bank of India	13.40	38.70	33.10	16.90	19.00	30.00	23.60	26.50

PSBs	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Mean
SBI	15.60	19.60	13.20	7.30	10.50	1.40	3.30	17.13
PNB	21.60	-1.20	12.40	-47.10	132.90	-4.20	4.00	21.41
BOB	25.80	14.20	3.80	4.20	-10.60	4.30	15.40	18.25
Canara	0.00	0.00	0.00	0.00	-1.60	5.30	11.60	1.02
CBI	13.80	16.40	3.40	6.40	-4.30	-22.40	12.10	14.81
Allahabad	18.70	16.50	6.50	6.10	0.00	-2.10	1.10	18.51
BOI	16.90	16.40	28.20	8.50	-10.70	1.90	-6.80	15.67
Indian Bank	20.00	17.00	-61.40	202.00	3.50	-1.00	22.80	27.23
UCO	16.60	11.00	16.60	-7.70	-15.30	2.40	-10.20	14.67
Union bank of India	17.80	17.00	5.80	10.30	5.30	8.40	2.20	17.87

5.1 Data analysis

Correlation measures the relationship between two variables. Table 5 shows that deposit and loan growth is positively related to ROA and ROE. At a significance level of 5%, there is significant relation between ROA and ROE (p-value 0.000<0.05) and ROA and deposit growth (p-value 0.033<0.05).

Table 5: Correlation matrix

		ROA	ROE	Loan GR	Deposit GR
ROA	Pearson Correlation	1	.987**	.373	.602*
	Sig. (1-tailed)		.000	.144	.033
	N	10	10	10	10
ROE	Pearson Correlation	.987**	1	.315	.538
	Sig. (1-tailed)	.000		.187	.054
	N	10	10	10	10
Loan_GR	Pearson Correlation	.373	.315	1	.283
	Sig. (1-tailed)	.144	.187		.214
	N	10	10	10	10
Deposit_GR	Pearson Correlation	.602*	.538	.283	1
	Sig. (1-tailed)	.033	.054	.214	
	N	10	10	10	10

*Correlation is significant at the 0.05 level (1-tailed), **Correlation is significant at the 0.01 level (1-tailed)

6. Results

Results for H1 in Table 6: ROE = -5.322 + 1.153 Deposit growth

The results show that if there is a change of one unit in deposit growth, it causes a change of 1.153 unit in ROE. So, deposit growth is positively related to ROE. The p-value of t-statistic (1.806) for beta coefficient is 0.109 which is greater than significance level of 5%. Null hypothesis is accepted, indicating that deposit growth has not significant effect on ROE.

Table 6: Regression coefficients (ROE as dependent Variable)

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.	95.0% Confidence interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-5.322	9.490		-.561	.590	-27.206	16.562
Deposit_GR	1.153	.639	.538	1.806	.109	-.319	2.626

Results for H2 in Table 7: ROA = -1.295 + 0.130 Deposit growth

The results show that if there is a change of one unit in deposit growth, it causes a change of 0.130 unit in ROA. So, deposit growth is positively related to ROA. The p-value of t-statistic (2.135) for beta coefficient is 0.065 which is greater than significance level of 5%. Null hypothesis is accepted, indicating that deposit growth has not significant effect on ROA.

Table 7: Regression coefficients (ROA as dependent Variable)

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.	95.0% Confidence interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-1.295	.907		-1.428	.191	-3.385	.796
DEPOSIT_GR	.130	.061	.602	2.135	.065	-.010	.271

Results for H3 in Table 8: ROE = 9.585 + 0.131 Loan growth

The results show that if there is a change of one unit in loan growth, it causes a change of 0.131 unit in ROE. So, loan growth is positively related to ROE. The p-value of t-statistic (0.940) for beta coefficient is 0.375 which is greater than significance level of 5%. Null hypothesis is accepted, indicating that loan growth has not significant effect on ROE.

Table 8: Regression coefficients (ROE as dependent Variable)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	9.585	2.473		3.877	.005	3.884	15.287
LOAN_GR	.131	.139	.315	.940	.375	-.190	.451

Results for H4 in Table 9: ROA = 0.374 + 0.016 Loan growth The results show that if there is a change of one unit in loan growth, it causes a change of 0.016 unit in ROA. So, loan growth is positively related to ROA. The p-value of t-statistic (1.138) for beta coefficient is 0.288 which is greater than significance level of 5%. Null hypothesis is accepted, indicating that loan growth has not significant effect on ROA.

Table 9: Regression coefficients (ROA as dependent variable)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	.374	.244		1.536	.163	-.188	.937
LOAN_GR	.016	.014	.373	1.138	.288	-.016	.047

7. Conclusion

The study examines the effect of growth in deposits and loans on profitability (ROA and ROE) of Indian public-sector banks (PSBs) in long run. Correlation table shows that deposit and loan growth is positively related to ROE and ROA. There is significant relation between (i) ROA and ROE and (ii) ROA and deposit growth. Regression results show that if there is a change of one unit in deposit growth, it causes a respective change of 1.153 and 0.130 unit in ROE and ROA. If there is a change of one unit in loan growth, it causes a respective change of 0.131 and 0.016 unit in ROE and ROA. All null hypotheses are accepted showing that deposit and loan growth have not significant effect on ROE and ROA. In long run, the profitability of banks is not significantly affected by deposit and loan growth. The results are consistent with Sharifi and Akhter (2016) who concluded that there is no significant impact of credit deposit ratio on ROE and ROA.

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