Economic Value Added in Banks and Development Financial Institutions

Ashok Thampy*
and
Rajiv Baheti**

*Assistant Professor, Finance and Control Area, Indian Institute of Management Bangalore, Bannerghatta Road, Bangalore 560076
e-mail: thampy@iimb.ernet.in

**Post Graduate Programme in Management, 2nd Year,
Indian Institute of Management Bangalore, Bannerghatta Road,
Bangalore 560076
e-mail: rbaheti@iimb.ernet.in

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By

Ashok Thampy
Rajiv Baheti*

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Please address all correspondence to:

Prof. Ashok Thampy
Assistant Professor
Indian Institute of Management
Bannerghatta Road
Bangalore – 560 076
India
Fax: (080) 6644050

*Second Year Student of the Post Graduate Programme at IIMB

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1. INTRODUCTION

Shareholder wealth maximization is now widely considered to be the main objective of the management of firms. Countless firms have affirmed their commitment to shareholder wealth and several managers have fallen for not giving adequate importance to it. Of the companies that have been most successful at increasing shareholder wealth as measured by consistent improvements in the return from the stocks, an increasingly common factor is their use of the concept of economic profit as a measure of performance. Economic profit or economic value added (EVA) has become a popular tool for managers to measure performance and for guiding investment decisions.

Adherents of EVA can be found among several of the world's leading companies. Among banks, Loyds TSB of the UK has used the principle of economic profits to become one of the most valuable banks in the world. A company's real economic profit is the amount it earns in excess of the cost of capital. An enterprise creates wealth for its shareholders only when there are profits left after meeting a charge on the capital employed by the company. There is evidence that suggests that companies that have focussed on earning a return on capital in excess of the cost of capital have been the most successful in consistently increasing shareholder wealth. And companies that deliver shareholder returns are able to access lower cost funds thereby entering a beneficial cycle as opposed to a vicious cycle. As firms increasingly rely on the capital markets for funds, those that have provided good returns to their investors would be at an advantage in raising further resources at advantageous terms

This paper applies the concept of economic value added to the banking sector in India. The banking sector has been facing a number of challenges in the decade of the 1990s arising from changes in the regulatory requirements as well as from a greater degree of competition. Besides these, developments external to the bankng industry has resulted in

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Executive Summary

Economic Value Added (EVA) has become a popular and powerful tool for managers to measure performance and for guiding investment decisions. Several leading companies have adopted EVA as the metric for evaluating performance and they have also been successful in enhancing the wealth of their shareholders. In India also, EVA is gaining acceptance. EVA is operating profit after adjusting for taxes minus a charge for the capital that is used. Alternatively, EVA can be seen as a performance measure where the returns earned are benchmarked against the cost of capital. In this paper, we measure the performance of both public and private sector banks in India using the EVA yardstick.

The results of the study reveal that most banks in the public and private sector, as well as the development financial institutions in India are not earning positive EVA. This means that the return on capital employed by these financial firms are less than the cost of capital. In other words the return on investors capital is less than the opportunity cost of capital which means that investors wealth is being destroyed to the extent to which the returns are lower than what would have been required.

As the banks and DFIs are increasingly relying on the capital markets to meet their capital adequacy requirements, it is important that they pay adequate attention to earning a positive EVA. Inadequate return on the capital employed by the banks would make it difficult to access the capital markets to expand their capital base, which could lead to lower growth in loans and advances, causing a slowdown in the general economic activity.

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*Assistant Professor, Finance and Control Area, Indian Institute of Management Bangalore

** Student, Post Graduate Programme in Management, IIMB

2. THE INDIAN BANKING SECTOR IN THE 1990s

As public policy in India since independence was oriented towards the public sector reaching the 'commanding heights' of the economy. In the financial sector too, it was felt desirable that the public sector should command the heights and this was achieved through the nationalisation of the largest commercial banks operating in India. Therefore, by 1990, most of the Indian financial institutions was owned by the government including the largest commercial banks and the insurance companies. The financial crisis in the early 1990s was a rude awakening concerning the inadequacies of government controlled organisations commanding the heights of the economy.

This resulted in the government setting up the Narasimhan Committee, in 1991, to study the working of the banking system and to recommend changes. The recommendations of the Narasimhan Committee led to the Reserve Bank of India introducing the following regulatary changes:
(1) prudential norms in income recognition and classification of non-performing assets,
(2) minimum capital adequacy standards.

Further, the difficult financial position of the Indian government led to the realisation that it would not be possible to continue to invest scarce government funds to absorb losses and to improve the capital adequacy of the public sector banks. The governemt was convinced that the public sector banks would need to access the capital markets for additional equity requirements. As a result, government ownership in a number of leading financial institutions dropped considerably. For instance, State Bank of India had its maiden public issue in December 1993 which raised Rs. 32 billion, and reduced RBI ownership from 99% to 68%. By 1998, RBI ownership in State Bank of India had further fallen to 59.7%. A number of other public sector banks followed SBI in raising funds from the capital market and lowering government ownership. The Narasimhan Committee II constituted to suggest changes in the second round of restructuring and

the need for change in the ownership structure of the industry, which has been mostly under government ownership. Most of the changes in the dynamics of the industry has been the result of the recommendations of the Narasimhan Committee, which was set up in 1991. The Committee recommended the introduction of minimum capital adequcy norms and also suggested that the Government of India disinvest its ownership in public sector banks. The Committee also recommended that new private sector banks should be given license to operate in India. As a result, a number of public sector banks and new private banks have already become publicly listed and several more are planning to access the capital markets to improve their capital adequacy. With capital markets becoming increasingly important for the banking industry it becomes worthwhile to study the financial performance of Indian banks and specifically the creation of wealth for their investors. Banks need to improve their financial performance to meet the expectations of a much more demanding group of owners than the government. Given the state of the Indian economy and the rapid growth in assets of banks, banks would need to augment their equity capital by accessing the capital markets regularly. Banks would need to convince investors to invest in their securities and find ways to provide adequate risk adjusted returns. In this context, it becomes imperative that managements of banks and development financial institutions focus on earning a return on capital in excess of its cost, and thereby creating wealth for their shareholders. It is in this context that economic value added becomes important. The objective of this study is to provide: (1) a measure of the economic value addition by Indian banks, and (2) to move the benchmark of performance of banks from accounting profits to economic profits and shareholder wealth creation.

This paper is organised as follows. Section 1, the current section, is the introduction. Section 2 provides a brief description of the changes in the banking sector in the 1990s. section 3 deals with shareholder wealth creation and economic value added and section 4 deals with the scope of the study. Section 5 discusses the special issues in the application of EVA to banks. Section 6 presents the results of the study. The concluding remarks are in section 7.

liberalisation of the banking system has recommended the reduction of government ownership in public sector banks to below 51%.

The structural reforms in the banking sector has been more prominent in the following areas:

2.1 Flexibility

Deregulation and economic reforms has given the management of banks considerable operational flexibility. Banks are now free to run their business according to commercial principles. They can fix their interest rates on nearly all loans and deposits, choose the business they wish to be in, and raise capital from the market.

2.2 Competition

The reforms also resulted in the growing intensity of competition for the banks from within and outside. Along with the entry of new private banks, a more number of foreign banks set up base in India. Not surprisingly, competition among banks have increased substantially. Further, the separation between long term lending which was the turf of the development financial institutions and short terms loans which was the main business of commercial banks is breaking down. DFIs are offering short term loans to their customers and banks are setting aside more funds for long term lending. At the same time banks and DFIs have to face the threat of disintermediation arising from the growth of the capital markets. In future, the source of competitive threats is greater due to the emergence of the internet technology for providing financial services.

2.3 Ownership

The entry of new private banks and the partial privatisation of public sector banks have extended private ownership of banks in an unprecedented manner. Today, more people are likely to own a share in a banking organisation than ever before. This has had an

important impact on the way these banks function. As a result, questions of ownership and accountability have come into picture. The new set of private investors in banks will surely seek adequate returns on their investments and mangagements of banks have to address the concerns of this emerging class of shareholders.

3. SHAREHOLDER VALUE CREATION AND ECONOMIC VALUE ADDED

The change in ownership is bound to impact the way banks are run. In response to investor and board pressures, creating shareholder value is becoming an urgent concern. Proactive managements are adapting internal processes and tailoring decision-making tools to manage value creation at all levels within their organisations more effectively. The key to this is developing appropriate internal metrics that quantify, track and reward value-creating performance.

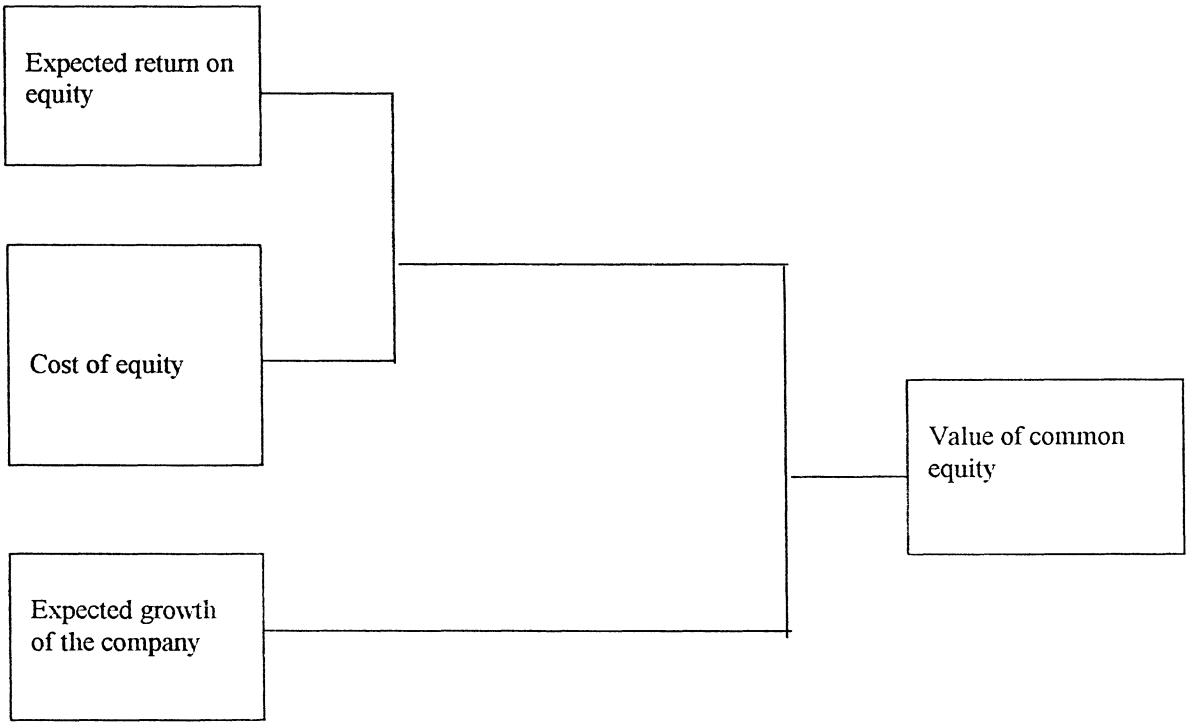
The principles of value creation are simple and intuitive –

- Increase the returns from existing assets(profitability)
- Make incremental investments that have rates of return above the company's cost of capital (growth)
- Free up cash and return it to investors when profitable investments are not available(free cash glow)

All three actions drive a company's capital gains performance. The first two are operational in nature. The third creates value by funding dividends, share repurchases or reductions of excessive debt. In practice, decisions are complex because they involve tradeoffs among profitability, growth and free cash flow performance. The value measurement system thus, aims at bridging the gap between value creation principles and management practices or decision-making.

The simple value creation model as proposed by Enrique Arzac synthesizes the link between strategy and shareholder value. Value creation is expressed in terms of the key

determinants of free cash flows and their present value – the expected return on equity (ROE), the cost of equity capital, the expected growth of the company, and the period during which the company is expected to maintain a positive spread between its ROE and its cost of equity.



The sources of shareholder value are two. The company creates value by maintaining a positive spread between its ROE and its cost of equity capital. The company also creates value from growth opportunities at a positive spread. On the other hand, the company

destroys value when the spread is negative. If the ROE is expected to remain below the cost of equity capital, faster growth will simply accelerate destruction of shareholder value.

The management of the banks has to realize that the stock market looks beyond the short-term but recognises and rewards strategies that create value. Share price movements reflect how the market assesses the strengths and the weaknesses of these banks. This affects the banks' cost of equity capital - a concept new to most Indian banks. Increased market surveillance and competition in industry will, eventually, force managers to run the banks in a manner that will maximize returns to the principal constituents-shareholders and depositors. If the capital won't earn adequate return, it will go elsewhere where it gets the best returns. In the liberalised environment, banks will have to compete not only for talent or customers, but also for capital.

In the past, the returns on investment was measured in terms of return on investment, earnings per share, and growth in EPS, etc. However, the new performance metrics based on value based measures look at maximising long term yields on shareholders' investment. EVA is one such measure. EVA is conceptually simple as it starts with operating profit and simply deducts a charge for the capital invested in the company.

In layman's term, EVA is net operating profit less an appropriate charge for the opportunity cost of all capital invested in the enterprise. EVA thus, represents the amount by which earnings exceed or fall short of the required minimum rate of return investors could get by investing in securities of comparable risks.

EVA = NOPAT - (Weighted average cost of capital x Capital)

where NOPAT is the net operating profit adjusted for taxes.

EVA measures performance in terms of change in value. Maximising value in the EVA context means maximising long-term yield on shareholder's investment.

Under conventional accounting most companies show good amount of profits. But the profit they are earning is usually less than their full cost of capital. EVA looks at the profit correctly by also appropriating a charge for all capital including equity capital. Any amount equal to the capital charge is the minimum acceptable compensation for the risk that the owners take by investing in the firm. Profit beyond that is the value a business entity creates and it is this profit beyond the capital charge that creates value for the owners.

For years, companies have measured their shareholder returns in terms of size rather than quality. Companies grew, profits improved, but nobody ever concentrated on the growth of value. Often, there was irrational increase in the asset base, with nobody to account for it EVA corrects this anomaly by looking at the return in relation to the amount invested in the business.

EVA makes managers care about managing assets as well as income, and helps them properly assess the tradeoffs between the two. As a result, managers use assets more diligently and prudently. It enables them to explore a new world of opportunities to build competitive advantage. The biggest benefit of the EVA approach is that when it is tied to compensation and incentives, it gets the employees and managers to think and act like shareholders.

4. SCOPE OF THE STUDY

As Indian markets braces itself to the new environment, relevant performance metrics need to be employed to provide direction for investments as well as for information that could be used for mid-course corrections. EVA is a useful measure in this regard and has been found to be very useful for a number of companies that have given good returns to their shareholders. In this study, we have measured the economic value creation by Indian banks

As a starting point all the banks were taken under consideration. From this cooperative banks and other very small banks were excluded due to non availability of data. Thereafter about 88 banks were left, including the public sector banks, private sector banks and the foreign banks. The foreign banks were further excluded from the consideration set. The reason being that foreign banks including notable ones like Citibank, HSBC were operating as branches of their foreign parents and not set up as a bank registered in India. Because they operate as branches, information on networth of the Indian operations may not be adequate to calculate EVA since in many cases, the networth of the parent provides the capital requirements of Indian operations. For this study 24 public sector banks and 24 private sector banks have been considered. The DFIs considered for the study were ICICI, IDBI and IFCI.

The income and expenditure statement and the balance sheet of the banks were taken from the Prowess database of CMIE. The period of study covered three years starting 1995-96 and ending 1997-98.

5. SPECIAL ISSUES IN THE MEASUREMENT OF ECONOMIC VALUE ADDED FOR BANKS

Banks and financial institutions have some characteristics that are peculiar to their business. Due to this, the ratios and other measures of performance when applied to banks need to be modified in order to obtain the relevant information. Similarly, some changes need to be made to the standard method of calculating EVA when it comes to banks.

One of the standard methods for calculating EVA is:

EVA = Net Operating Profit Adjusted for Taxes - (Invested Capital x WACC)

where WACC is the Weighted Average Cost of Capital.

In this method, called the entity approach, the capital charge takes into account the cost of debt as well as that of equity.

In the case of banks, the equity approach is recommended:

EVA = Adjusted Net Profit - (Equity x Cost of Equity)

This method is more suited to banks compared to calculating the weighted average cost of capital since a big part of the banking business is liability management, i.e., raising deposits at rates below the opportunity cost of capital. The deposit franchise given by the banking license gives the bank the potential to create value on the liability side of its balance sheet. The liability side of the banks balance sheet is part of the business operations of the bank and it is not pure financing. This makes the equity approach more appropriate for banks.

The equity approach is also more easier to use for banks. In the entity approach, the cost of capital for deposit funds can be difficult to estimate since there would be significant costs associated with servicing deposits such as free cheque writing facility and so on which are part of the cost of raising deposits. The true cost of a deposit is difficult to estimate and since the deposits are the major source of funds constituting 85%-95% of the capital, errors in the estimate of cost of deposits would get magnified when calculating the weighted average cost of capital.

The other major adjustments that are common in customising EVA for banks as proposed by Stern Stewart & Co. are

1 Loan loss provision
2. Non-recurring events
3. Securities accounting

Loan loss provision

In theory, the loan loss reserve should be sufficient to absorb the present value of all future loan losses. However, this distorts the performance. In essence all loan losses are pre-funded out of current earnings. The provisions tend to smoothen earnings in a manner that is counter productive for economic performance measurement. Hence, a bank's measure of operating profit should not include loan loss provisions but should contain net chargeoffs as the current period estimate due to credit risk. This provision should be viewed as a component of the economic capital of the company.

In the Indian context, the loans of the bank are divided into four categories-
Standard assets: 0.5% provision is required
Sub-standard assets: Provision of 10% in this case is required
Doubtful assets: 100% provision against the unsecured portion is required and 20% to 50% provisions against the secured position are required.
Loss assets: These assets are completely written-off.

It is assumed that the provision for NPAs as shown by the banks is present value of the losses due to non-performing assets. The profit after tax is thus obtained after provisions for NPAs.

Non-recurring events

The profit after tax is adjusted to take care of non-recurring events by subtracting non-recurring income(after tax) and adding non-recurring expense (after tax) to the profit after tax.

Securities accounting

Securities are marked to market through the capital account. Such adjustments have little or no economic meaning if the liabilities funding the securities are not marked to market.

In Indian context 60% of the securities are required to be marked to market but the market value is not disclosed. Hence, this adjustment has been ignored.

5.1 Adjusted Profit after Tax

The profit after tax has been taken as the base for calculation of EVA. Adjustments for non-recurring events have been made to this to exclude the non-operating income or expense. This adjustment has been made on an after tax basis.

5.2 Economic capital

Economic capital has been calculated to put the charge to get the economic profit. The starting point is shareholders equity to which reserves and surplus has been added to arrive at the net worth.

5.3 Cost of equity

The Capital Asset Pricing Model is the basic model used for calculating cost of equity. The CAPM model is stated below:

Cost of equity = Risk free rate + Beta (Market risk premium)

Risk free rate: It is the rate at which government would raise debt. In this case the risk free rate has been taken to be 12.5% which is the yeild on long-term government bonds.

Beta: The beta was calculated by taking the weekly returns for the banks, which were listed in the stock exchanges. Even among the twenty-two banks listed, beta estimates were obtained with adequate significance for only nine banks. For several of the banks the CAPM regression had low R-squares and so those beta estimates were excluded. For

such banks as well as for the unlisted banks proxy betas were used. (The details are given in the Appendix)

Market risk premium: the market risk premium which is the excess return provided by the market over the risk free rate has been taken to be 9%. This is also the rate used by firms in India that calculate EVA such as Hindustan Levers Ltd.

7. RESULT

The calculations for EVA for the three years show that almost all Indian banks have not been creating wealth for their shareholders. Very few Indian banks are earning a return on equity in excess of the cost of equity. The biggest banks in India, all of which are in the public sector viz. State Bank of India, Bank of Baroda, Bank of India, Canara Bank and Central Bank have over the years have produced the largest negative EVAs. Indian Bank had to be excluded because it had negative equity in the first place due to its entire networth being wiped out due to the huge losses

For the year 1997-98, all the public sector banks have shown a negative EVA. Corporation Bank had shown positive EVA for both 1995-96 and 1996-97 but has shown a decline in performance and hence a slightly negative EVA in 1997-98. Among the public sector banks, the State Bank subsidiaries have turned in relatively better EVA performance. However, State Bank of India itself has the largest negative EVA of -Rs. 1085.59 crores.

The EVA is the spread between the return on equity and the cost of equity multiplied by the economic capital. When the return on equity is less than the cost of equity, the negative spread leads to a negative EVA. For larger banks, since this spread is multiplied by a larger capital base, it shows up as larger EVA with the sign depending on whether the spread is positive or negative. In the case of the large Indian banks, their large negative EVA is both due to the negative spread as well due to their large capital base

which they have been enhancing regularly of late to maintain adequate capital as required by the regulators.

Table 1: Public Sector Banks - EVA (Rs. Crores)

Public Sector Banks	years		
	1997-98	**1996-97**	**1995-96**
Allahabad Bank	-78.46	-80.49	-95.11
Andhra Bank	-42.60	-58.88	-23.31
Bank of Baroda	-337.48	-207.82	-199.51
Bank of India	-272.69	-90.21	-16.05
Bank of Maharashtra	-122.17	-29.83	-54.15
Canara Bank	-446.16	-345.01	-196.01
Central Bank	-201.13	-152.44	-177.90
Corporation Bank	-25.62	30.99	27.91
Dena Bank	-29.74	-43.80	-12.61
Indian Overseas Bank	-47.63	-28.41	-107.02
Oriental Bank	-26.25	-25.20	-6.66
Punjab National Bank	-133.82	-126.34	-365.99
SB of Bikaner & Jaipur	-6.58	-58.80	-12.31
SB of Hyderabad	-6.83	-19.27	-9.91
SB of Indore	-15.40	-17.34	-18.14
SB of Mysore	-13.13	-2.25	-9.05
SB of Patiala	-57.48	-45.53	n.a.
SB of Saurashtra	-3.01	-9.01	n.a.
SB of Travancore	-66.26	-10.19	-22.18
State Bank of India	-1085.59	-576.66	-487.47
UCO Bank	-213.91	-215.99	-290.38
Union Bank of India	-167.11	-159.26	-206.77
United Bank of India	-102.68	-226.69	-272.15
Vijaya Bank	-82.34	-93.22	-267.57
All Public Sector Banks	**-3584.07**	**-2591.65**	**-2822.34**

Table 2: Private Sector Banks - EVA (Rs. Crores)

Private Sector banks	years		
	1997-98	**1996-97**	**1995-96**
Bank of Madura	-10.95	-3.60	-13.39
Bank of Punjab	**1.56**	-4.33	-11.29
Bank of Rajasthan	-111.46	-38.33	1.28
Bharat Overseas Bank	-3.54	-1.88	-0.13
Catholic Syrian Bank	-5.10	-5.07	-5.76
Centurion Bank	-7.92	-9.61	-14.13
Development Credit Bank	-21.92	-23.20	-20.26
Dhanlakshmi Bank	-6.98	-5.01	-2.95
Federal Bank	-41.18	-33.20	-7.96
Global Trust Bank	**25.09**	**15.56**	**8.04**
HDFC Bank	**8.61**	1.13	-12.61
ICICI Banking Corp	-10.99	-2.38	-19.82
IDBI Bank	-8.57	-20.16	-22.06
IndusInd Bank	-25.64	**9.60**	-7.06
J&K Bank	-19.16	-22.90	-15.40
Karnataka Bank	1.91	0.28	-7.31
Karur Vysysa bank	**6.80**	**4.26**	**11.69**
Lakshmi Vilas Bank	-6.41	-3.59	-5.02
Nedungadi Bank	-3.42	-4.02	-0.54
South Indian Bank	-12.94	-13.96	-14.22
Timesbank	-8.97	-17.11	-17.32
United Western Bank	-5.42	-11.41	-15.75
UTI Bank	-21.24	-19.27	-19.66
Vysya Bank	-68.66	-47.85	16.36
All Private Sector Banks	**-356.50**	**-256.05**	**-195.27**

Most private sector banks also produce negative EVAs although the size of the negative EVAs are lower for private sector banks compared to the larger public sector banks. The lower EVAs of the private sector banks are mainly due to their lower capital base.

Among the private sector banks, there are a few banks reporting positive EVA. Of the 24 private banks in our study, 5 reported positive EVAs in 1997-98. However, the general trend among all private sector banks put together is that the negative EVA has been increasing each year.

Table 3: Development Financial Institutions - EVA (Rs. Crores)

DFI	Years		
	1997-98	**1997-96**	**1996-95**
IFCI	-325.91	-191.46	-3.19
IDBI	-284.89	-429.43	-433.23
ICICI	-521.18	-279.68	-134.22
Total	**-1131.98**	**-900.57**	**-570.64**

In the case of the three development financial institutions also, we find negative EVAs. Another characteristic which is common with the public and private sector banks is that the negative EVAs are increasing.

7. CONCLUSION

In this study, we have evaluated the performance of Indian banks, both public and private sector, using the Economic Value Added metric. The study reveals that most of the banks and financial institutions have negative EVAs. The study reveals that most Indian financial institutions have a higher cost of capital compared to the returns which means that value is not being created for their investors, but rather that value is being destroyed.

At this stage, a major concern is why are banks and financial institutions not earning an adequate return on capital. There could be two possible reasons: (1) banks could be overcapitalized, and (2) the returns are low from the banking business. Data on the capital adequacy ratios of banks reveal that most of them have capital adequacy ratios around the minimum regulatory requirement. So it would be difficult to argue that the negative EVAs are due to overcapitalized banks. The second reason for negative EVA would find considerable support given the high non-perfoming assets of banks as well as the low employee productivity in banks. High NPAs and low employee productivity is an accepted problem in the public sector banks. But do these factors explain the negative EVAs in the private sector banks also? It is worth investigating if there are institutional reasons which explain the inadequate profits generated by the Indian banks.

In order to improve EVA, banks need to understand the costs and profits of different activities and services offered by them. Only then would they be able to know which lines of business to reduce and which are the ones worth expanding. It is true that a considerable part of the banking business is regulated but it still leaves a lot of room within each category. A good costing system would be very useful to the banks to measure the profits from different lines of activities. It would also help them to price their services appropriately thereby improving the EVA.

Banks would also have to focus on improving the efficiency of their basic activity of lending. The banks that have better EVAs are also those that have lower proportion of their loans as NPAs. Banks need to improve and strengthen their credit assessment techniques and monitoring mechanisms to bring down the NPAs. Investments in credit research and industry risk studies should help bank in earning more from the traditional business of giving loans and advances.

Whatever may the factors that cause the negative EVAs in banks, it is important to address these issues since unless banks earn positive EVAs investors would not be adequately rewarded, which in turn would make it difficult for banks to access new capital for expansion. This could pose a problem, not just for banks, but for the economy

as a whole, because inadequate capital could cause banks to restrict their lending activities, which could in turn lead to lower levels of economic activity.

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Appendix:

Bank - Public Sector	Beta	Cost of equtiy
Andhra Bank	1.2281	23.55
Corporation Bank*	**1.2281**	**23.55**
Oriental Bank*	**1.0358**	**21.82**
State Bank of India*	**1.2929**	**24.14**
State Bank of Saurashtra	1.2929	24.14
State Bank of Patiala	1.2929	24.14
State Bank of Bikaner	1.2929	24.14
State Bank of Mysore	1.2929	24.14
State Bank of Hyderabad	1.2929	24.14
State Bank of Indore	1.2929	24.14
State Bank of Travancore	1.2929	24.14
Bank of Baroda*	**1.2273**	**23.55**
Bank of India*	**1.1906**	**23.22**
Indian Overseas Bank	1.1906	23.22
Canara Bank	1.1906	23.22
Union Bank of India	1.1906	23.22
Punjab National Bank	1.1906	23.22
Vijaya Bank	1.1906	23.22
Dena Bank	1.1906	23.22
Bank of Maharashtra	1.1906	23.22
UCO Bank	1.1906	23.22
Central Bank	1.1906	23.22
United Bank of India	1.1906	23.22
Allahabad Bank	1.1906	23.22
Indian Bank	1.1906	23.22
Vijaya Bank	1.1906	23.22
Bank - Private Sector		
IDBI Bank	1.1408	22.77
Centurion Bank	1.1408	22.77
Bank of Punjab	1.1408	22.77
ICICI Banking Corp	1.1408	22.77
HDFC Bank*	**1.0298**	**21.77**
Timesbank	1.1408	22.77
Karur Vysysa bank	1.1408	22.77
Global Trust Bank*	**1.1408**	**22.77**
Karnataka Bank	1.1408	22.77
IndusInd Bank	1.1408	22.77
Bharat Overseas Bank	1.1408	22.77
J&K Bank	1.2774	24.00
Development Credit Bank	1.2774	24.00
Federal Bank*	**1.2774**	**24.00**
United Western Bank	1.2774	24.00
Bank of Madura	1.2774	24.00

Bank - Private Sector (continued)	Beta	Cost of equtiy
UTI Bank	1.2774	24.00
Lakshmi Vilas Bank	1.2774	24.00
South Indian Bank	1.2774	24.00
Vysya Bank	1.2774	24.00
Bank of Rajasthan	1.2774	24.00
Nedungadi Bank	1.2774	24.00
Dhanalakshmi Bank	1.2774	24.00
Catholic Syrian Bank	1.2774	24.00
DFIs		
IFCI*	**1.0448**	**21.9032**
ICICI*	**1.1028**	**22.4252**
IDBI*	**0.9894**	**21.4046**

Note: (1) Cost of equity = Rf + Beta(Market Return - Rf)

For the estimates, risk free rate = 12.5% and market risk premium = 9%.

(2) The banks and DFIs that have a star and are in the bold had their actual betas used for the calculations, since these banks were listed and the CAPM model had a good fit. This set includes Corporation Bank, Oriental Bank, State Bank of India, Bank of Baroda, Bank of India, HDFC Bank, Global Trust Bank, and Federal Bank. For the other banks, the CAPM regression model had low R-squares or were not listed and so for these banks a proxy beta was obtained from among the earlier set of banks.