

# **Management of Non-Performing Assets in Indian Public Sector Banks with special reference to Jharkhand**

## **Abstract**

### **I. Introduction**

The banking industry has undergone a sea change after the first phase of economic liberalization in 1991 and hence credit management. While the primary function of banks is to lend funds as loans to various sectors such as agriculture, industry, personal loans, housing loans etc., in recent times the banks have become very cautious in extending loans. The reason being mounting non-performing assets (NPAs). An NPA is defined as a loan asset, which has ceased to generate any income for a bank whether in the form of interest or principal repayment. As per the prudential norms suggested by the Reserve Bank of India (RBI), a bank cannot book interest on an NPA on accrual basis. In other words, such interests can be booked only when it has been actually received. Therefore, this has become what is called as a 'critical performance area' of the banking sector as the level of NPAs affects the profitability of a bank as shown in the figure below.

**Figure 1 here**

Therefore, an NPA account not only reduces profitability of banks by provisioning in the profit and loss account, but their carrying cost is also increased which results in excess & avoidable management attention. Apart from this, a high level of NPA also puts strain on a banks net worth because banks are under pressure to maintain a desired level of Capital Adequacy and in the absence of comfortable profit level, banks eventually look towards their internal financial strength to fulfill the norms thereby slowly eroding the net worth.

Today the Net NPAs of Indian PSBs (which account for around three-fourths of the total assets of Indian banking industry) are as low as 0.72 percent and gross NPAs are at 2.5 percent. However, Nitsure (2007) contends that once there is a slowdown in private expenditure and corporate earnings growth, companies on these banks' books will not be in a position to service their debts on time and there is a strong likelihood of generation of new NPAs. Moreover, he also suggests that with rising interest rates in the government bond market, the banks' treasury incomes have declined considerably. So banks will not have enough profits to make provisions for NPAs.

Under these circumstances, management of NPAs is a difficult task. Therefore, my study focused on the problem of NPAs being faced by the public sector banks and its management with a reference to the state of Jharkhand.

Jharkhand was incarnated in August 2000 by the bifurcation of Bihar. The geology of Jharkhand puts it in the richest states category in terms of mineral and ore deposits. Though industry-wise it is not a developed state yet, still it houses some of the best names in industry namely Tata Steel, HINDALCO of the AV Birla Group, BOC Gases, Uranium Corporation, SAIL, Heavy Engineering Corporation, Metallurgical Consultancy etc. Over a period of six years or so, there has been a spurt in credit demand in all the sector like industry (mostly SMEs), personal, agriculture and other Small Scale Industries. With an objective of overall development of the state, the government of Jharkhand pursued the banks to increase their lending to various quarters. The banks therefore resorted to indiscriminate lending and as a result the amount of bad loans in Jharkhand stood at around Rs 4500 Cr as on 30-09-2006. The study finds the reasons and solution to the problem of growing level of NPAs.

## **II. Literature Review**

Though many published articles are available in the area of credit management and non-performing assets, which are either bank specific or banking sector specific, there are hardly any state specific researches. As Jharkhand is a very young state, no published articles have been found except a AICTE sponsored project undertaken by the author on the topic which focused only on the South Chhotanagpur Region of Jharkhand. This work is therefore, an extension of the work done by the author.

A synoptic review of the literature brings to the fore insights into the determinants of NPL across countries. A considered view is that banks' lending policy could have crucial influence on non-performing loans (Reddy, 2004). He critically examined various issues pertaining to terms of credit of Indian banks. In this context, it was viewed that 'the element of power has no bearing on the illegal activity. A default is not entirely an irrational decision. Rather a defaulter takes into account probabilistic assessment of various costs and benefits of his decision'. Mohan (2003) conceptualized '**lazy banking**' while critically reflecting on banks' investment portfolio and lending policy. The

Indian viewpoint alluding to the concepts of 'credit culture' owing to Reddy (2004) and 'lazy banking' owing to Mohan (2003a) has an international perspective since several studies in the banking literature agree that *banks' lending policy is a major driver of non-performing loans* (McGoven, 1993, Christine 1995, Sergio, 1996, Bloem and Gorters, 2001). Furthermore, in the context of NPAs on account of priority sector lending, it was pointed out that the statistics may or may not confirm this. There may be only a marginal difference in the NPAs of banks' lending to priority sector and the banks lending to private corporate sector. Against this background, the study suggests that given the deficiencies in these areas, it is imperative that banks need to be guided by fairness based on economic and financial decisions rather than system of conventions, if reform has to serve the meaningful purpose. Experience shows that policies of liberalisation, deregulation and enabling environment of comfortable liquidity at a reasonable price do not automatically translate themselves into enhanced credit flow. Although public sector banks have recorded improvements in profitability, efficiency (in terms of intermediation costs) and asset quality in the 1990s, they continue to have higher interest rate spreads but at the same time earn lower rates of return, reflecting higher operating costs (Mohan, 2004). Bhattacharya (2001) rightly points to the fact that in an increasing rate regime, quality borrowers would switch over to other avenues such as capital markets, internal accruals for their requirement of funds. Under such circumstances, banks would have no option but to dilute the quality of borrowers thereby increasing the probability of generation of NPAs. In another study, Mohan (2003) observed that lending rates of banks have not come down as much as deposit rates and interest rates on Government bonds. While banks have reduced their prime lending rates (PLRs) to some extent and are also extending sub-PLR loans, effective lending rates continue to remain high. This development has adverse systemic implications, especially in a country like India where interest cost as a proportion of sales of corporates are much higher as compared to many emerging economies. The problem of NPAs is related to several internal and external factors confronting the borrowers (Muniappan, 2002). The internal factors are diversion of funds for expansion/ diversification/ modernisation, taking up new projects, helping/promoting associate concerns, time/cost overruns during the project implementation stage, business (product, marketing, etc.) failure, inefficient management, strained labour relations, inappropriate technology/technical problems, product obsolescence, etc., while external factors are recession, non-payment in other countries, inputs/power shortage, price escalation, accidents and natural calamities.

In the Indian context, Rajaraman and Vasishtha (2002) in an empirical study provided an evidence of significant bivariate relationship between an operating inefficiency indicator and the problem loans of public sector banks. In a similar manner, largely from lenders' perspective, Das and Ghosh (2003) empirically examined non-performing loans of India's public sector banks in terms of various indicators such as asset size, credit growth and macroeconomic condition, and operating efficiency indicators. Sergio (1996) in a study of non-performing loans in Italy found evidence that, an increase in the riskiness of loan assets is rooted in a bank's lending policy adducing to relatively unselective and inadequate assessment of sectoral prospects. Interestingly, *this study refuted that business cycle could be a primary reason for banks' NPLs*. The study emphasised that increase in bad debts as a consequence of recession alone is not empirically demonstrated. It was viewed that the bank-firm relationship will thus, prove effective not so much because it overcomes informational asymmetry but because it recoups certain canons of appraisal. In a study of loan loss of US banks, McGoven (1993) argued that 'character' has historically been a paramount factor of credit and a major determinant in the decision to lend money.

Banks have suffered loan losses through relaxed lending standards, unguaranteed credits, the influence of the 1980s culture, and the borrowers' perceptions. It was suggested that bankers should make a fairly accurate personality-morale profile assessment of prospective and current borrowers and guarantors. Besides considering personal interaction, the banker should:

- (i) try to draw some conclusions about staff morale and loyalty,
- (ii) study the person's personal credit report,
- (iii) do trade-credit reference checking,
- (iv) check references from present and former bankers, and
- (v) determine how the borrower handles stress. In addition, banks can minimise risks by securing the borrower's guarantee, using Government guaranteed loan programs, and requiring conservative loan-to-value ratios.

Bloem and Gorter (2001) suggested that a more or less predictable level of non-performing loans, though it may vary slightly from year to year, is caused by an inevitable number of '**wrong economic decisions**' by individuals and plain bad luck (inclement weather, unexpected price changes for certain products, *etc.*). Under such circumstances, the holders of loans can make an allowance for a normal

share of non-performance in the form of bad loan provisions, or they may spread the risk by taking out insurance. Enterprises may well be able to pass a large portion of these costs to customers in the form of higher prices. For instance, the interest margin applied by financial institutions will include a premium for the risk of nonperformance on granted loans.

At this time, banks' non-performing loans increase, profits decline and substantial losses to capital may become apparent. Eventually, the economy reaches a trough and turns towards a new expansionary phase, as a result the risk of future losses reaches a low point, even though banks may still appear relatively unhealthy at this stage in the cycle.

Gupta's study (1983) on a sample of Indian companies financed by ICICI concludes that certain cash flows coverage ratios are better indicators of corporate sickness. Bhatia (1988) and Sahoo, Mishra and Soothpathy (1996) examine the predictive power of accounting ratios on a sample of sick and non-sick companies by applying the multi discriminant analysis techniques. In both the studies, the selected accounting ratios are effective in predicting industrial sickness with a high degree of precision.

### **III. Research Methodology**

In this study a sample of six districts of Jharkhand have been taken out of a total of 18 districts and they are:

1. Ranchi (the Capital)
2. East Singbhum (HQ: Jamshedpur)
3. Bokaro
4. Dhanbad
5. Hazaribagh
6. Gumla

The selection is based on the fact that the above districts represent about 80% of total industries in Jharkhand and about 66% of total bank credit sanctioned to various quarters. The study has been divided into two phases:

Phase I: Study of NPAs on All India basis

Phase II: Study of NPAs in Jharkhand

	Ranchi	Singbhum (E)	Dhanbad	Bokaro	Hazaribagh	Gumla	TOTAL
SBI	11	8	6	6	3	2	36
Allahabad Bank	9	5	5	4	2	1	26
United Bank	7	5	3	3	1	----	19
Bank of Baroda	5	3	2	2	1	1	14
Union Bank	7	7	5	4	2	2	27
TOTAL	39	28	21	19	9	6	122

### Sample Selection

The study focused on three groups of people: Bankers, Borrowers and Others (includes Chartered Accountants, Lawyers & Academicians). While bankers and borrowers have been selected from all the sample districts as shown above, academicians have been taken from BIT Mesra, Ranchi, Department of Management, Indian School of Mines, Dhanbad, Xavier Institute of Social Service, Ranchi, University of Allahabad (MONIRBA), and MNNIT, Allahabad.

Parameters which were selected for “**Reasons of NPAs**” are as follows:

- i) Market Failure
- ii) Wilful Defaults
- iii) Poor follow-up and Supervision
- iv) Non-cooperation from Banks
- v) Poor Legal framework
- vi) Lack of Entrepreneurial Skills
- vii) Diversion of funds

## IV OBSERVATIONS AND ANALYSIS

Expansion of credit is a must for a country like India. But as mentioned above, high credit growth may lead to high NPAs. Policymakers, therefore, face the dilemma as to how to minimize such risks that arise from dilution in credit quality, while still allowing bank lending to contribute to higher growth and efficiency.<sup>1</sup>

There is no gainsay in the fact that every commercial organization exist with a motive to earn profit and banks are no exception. The objective function is therefore to maximize profit or the Net Interest Margin . Commercial banks use the deposits to extend loans and advances. The figure below shows that how a bank can maximize profit (assuming existence of Pure Competition Market):

**Figure 2 here**

In Figure 2, **MC** is the Marginal Cost to the banks, **AC** is the Average Cost, **i** is the interest rates on loans.

Point B represents the cost of funds and the shaded portion is the profit. To maximize profits, a purely competitive bank issues loans such that the marginal cost of an additional loan equals the marginal revenue from such loans. The marginal revenue from an additional loan is simply the market determined interest rate. Profits are maximized when MC equals interest rate. Therefore, it is evident that profits can be maximized if more and more loans are extended at a given rate of interest. This may result in poor assessment of the borrower leading to fresh generation of NPAs.

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<sup>1</sup> Report on Trend and Progress of Banking in India, 2004-05, p-68

Figure 3 below shows the frequency distribution of commercial banks according to NPA level. It is found that over a period of five years the share of Public Sector Banks (PSBs) in the total NPA has reduced though foreign banks are the best performers on this front.

**Figure 3 here**

In the year 2002, the PSBs had around 50% of their NPA profile in the 5 to 10 % category which has been totally eliminated by 2006 wherein about 75% of their total NPA is below 2% mark. The performance has steadily improved over the period after the enactment of the Securitisation Act, 2002. However, available data point to the fact that majority of the loans are recovered through the Debt Recovery Tribunals [Please refer Figure 4].

**Figure 4 here**

The figure reveals that as far as recovery is concerned, Debt Recovery Tribunals are the most effective means of loan recovery. From 2003-04 to 2005-06 though the number of cases referred to the DRTs have reduced from 7544 to 3524 (as compared to that under the Securitisation Act wherein it increased from 2661 to 38969), the percentage of recovery is almost double as compared to the Securitisation Act. The percentage recovery through the DRTs has increased from 17.2% to about 77% as compared to the recoveries through the Securitisation Act where it increased from 14.7% to about 35%. This can be attributed to the absence of any structured market for selling the distressed assets which are securitised under the SARFAESI Act. Moreover, selling sticky assets is a problem due to differences between the seller and the buyer in the valuation of such loans. Apart from this any dissatisfied borrower against whom the Securitisation Act has been initiated can take recourse to court of law and file a suit against the lender thereby making the lender to fall in what is termed as 'legal trap'. On the other hand recovery through the DRTs is much speedier. Though there is a provision of filing a suit against the lender as under the Securitisation Act, but here the borrower filing the suit has to deposit 25% of the amount involved for further processing and hearing of the case. This provision ensures that only the genuine cases are taken up by the DRTs.



### **Non-Performing Assets in the Priority Sector**

Priority sector was regarded as a “People Sector” by policymakers, regulators and banks till 1990. As one of the prime objectives of nationalization of banks was radical development of the society in general and ‘certain sectors’ in particular, credit flow to these sectors was ensured. This directed lending did not come without a cost. While granting credit to these sectors, institutional viability was neglected, low interest rates were charged. This resulted in huge overdues from priority sector. The recommendations of the Narsimham Committee were not accepted in-toto especially to reduce the mandatory 40% lending norm to the priority sector to 10% level. Figure 5 shows Sector wise NPAs in the Public Sector Banks.

#### **Figure 5 here**

It is observed that there is a gradual increase in the NPA level in the Priority Sector. It increased from 44.5% in the year ending 2002 to 49% in 2005 as compared to the Private Sector Banks where these figures are about 22% and 25% respectively. When the NPAs in the Non-priority sector are analysed then it is observed that it decreased from 53.5% to 50% for Public Sector Banks over the same period and it decreased from 78% to 75% for Private Sector Banks. It is therefore evident that though the Net NPA figure increased in the priority sector for the commercial banks, it is the Non-priority sector which has contributed more to the NPAs of these banks. It is considerable higher in the Private Sector Banks. On the other hand, the NPAs of Public Sector Banks in the priority sector is almost double as compared to that in Private Sector Banks. This skewness is attributed to the fact that though the scheduled commercial banks are mandatorily required to lend atleast 40% of their advances to the priority sector as per the RBI stipulations, it appears that it is the Public Sector Banks which has to bear the brunt as far as lending is concerned owing to their ownership pattern. This trend is reflected in Appendices 14(a) and 16(a), which shows the concentration of banks at various NPA levels. It is observed that for the Public Sector Banks highest concentration is in the “40+ to 50%” category whereas, the corresponding concentration of Private Sector Banks is maximum in “upto 30%” category. In other words, a majority of the Public Sector Banks has an NPA in the range of 40 to 50% while it is below 30% in the Private sector Banks.

## **NPA Management in Jharkhand**

The Credit-Deposit Ratio in Jharkhand is almost half that as compared to the ratio on All India basis and there has been a stagnation in the figure. This is despite the fact that there has been a tremendous appetite for bank credit from all sectors due to the formation of Jharkhand in 2000.

### **Figure 6 here**

It is observed from figure 7 that maximum credit was sanctioned to the industrial sector.. In the year 2001, the total credit sanctioned to this sector was Rs 1000 Cr for SBI and Associates which increased to Rs 1080 Cr in the year 2005, an increase of about 8%.

### **Figure 7 here**

For the Nationalised Banks the corresponding figures are Rs 1440 Cr and Rs 1000 Cr, a decrease of about 31%. As far as agriculture sector is concerned, it is observed that for SBI and Associates the credit sanctioned increased from Rs 140 Cr to Rs 200 Cr, an increase of about 43%. For Nationalised Banks the corresponding figures are Rs 160 Cr to Rs 360 Cr, registering an increase of about 125%. This clearly shows that, though the industrial sector has been the major beneficiary of bank loans in absolute terms, it's growth rate is much less as compared to the agriculture sector. This is especially significantly higher in Nationalised Banks.

Figure 8(a) and 8(b) shows districtwise bad loans and number of defaulting companies in the sample districts of Ranchi, Bokaro, East Singbhum, Hazaribagh, Dhanbad and Gumla, it is observed that the districts of East Singbhum and Dhanbad are the worst sufferers as far as quantum of bad loans is concerned.

### **Figure 8(a) & 8(b) here**

As on 30 September 2006, the total quantity of bad loans was Rs 1520 Cr in East Singbhum and Rs 930 Cr in the Dhanbad district. If all the districts are taken then this figure stood at Rs 4070 Cr as on the same date. Therefore, the bad loans in East Singbhum was about 37.3% of total such loans in all the sample districts and the same figure is about 23% in the Dhanbad district and together they constitute about 60% of total bad loans. This figure may be taken as the representation of Jharkhand as a whole as these districts combined have the highest concentration of industries. Moreover, these figures reveal that about 94% of total such loans is concentrated in the districts of Ranchi, Bokaro, East Singbhum and Dhanbad. It is observed that, as on 30 September 2006, the total number of

defaulting companies in East Singhbhum is 13 followed by 10 in Ranchi, 7 in Bokaro and 6 in Dhanbad. Interestingly, among all the Public Sector Banks, State Bank of India has the highest share of bad loans and number of defaulting companies. As on 30 September 2006, the total bad loans of State Bank of India was Rs 2660 Cr which is about 65% of total bad loans and the corresponding figure of number of defaulting companies was about 72%.

### **Reasons of NPAs in Jharkhand**

Among the various parameters chosen for this purpose, it is observed from the figure in Figure 9, that there are quite contradictory views among all the responders. This is not unusual because the bankers and borrowers cannot have the same opinion about the reasons. What is true for the banker may not hold true for the borrower. In all the districts except that of Hazaribagh and Gumla, bankers in the remaining districts feel that 'lack of entrepreneurship' is the most important reason for the generation of NPAs. This response is more prominent in Bokaro district. However, bankers in the districts of Hazaribagh and Gumla hold 'willful defaults' as one of the important reasons. It is worthwhile to be mentioned here that when that bankers were asked that what factors they look into for terming a borrower as a willful defaulter, there was unanimity in their responses though a majority of them consider the fact that despite their good financial health, a borrower still defaults or delay the payment of loan installments. As expected, the borrowers hold 'market failure' as the reason for the inability to service their loans in time. It is further observed that a majority of the bankers (about 32%) consider 'lack of entrepreneurship' as the most important reason for NPAs closely followed by 'willful defaults' (at about 29.5%) as the reason, while about 35% of the borrowers consider 'market failure' as the reason for their inability to service their loans. It is however interesting to note that either bankers or others do not consider poor follow-up and supervision leads to higher level of NPAs. This is against most theories suggested on this line where poor credit appraisal or follow-up leads to generation of NPAs in banks.

## **Recommendations for reducing NPAs**

1. Effective and regular follow-up of the end use of the funds sanctioned is required to ascertain any embezzlement or diversion of funds. This process can be undertaken every quarter so that any account converting to NPA can be properly accounted for.
2. Combining traditional wisdom with modern statistical tools like Value-at-risk analysis and Markov Chain Analysis should be employed to assess the borrowers. This is to be supplemented by information sharing among the bankers about the credit history of the borrower. In case of new borrowers, especially corporate borrowers, proper analysis of the cash flow statement of last five years is to be done carefully.
3. A healthy Banker-Borrower relationship should be developed. Many instances have been reported about forceful recovery by the banks, which is against corporate ethics. Debt recovery will be much easier in a congenial environment.
4. Assisting the borrowers in developing his entrepreneurial skills will not only establish a good relation between the borrowers but also help the bankers to keep a track of their funds.
5. Countries such as Korea, China, Japan, Taiwan have a well functioning Asset Reconstruction/ Recovery mechanism wherein the bad assets are sold to an Asset Reconstruction Company (ARC) at an agreed upon price. In India, there is an absence of such mechanism and whatever exists, it is still in nascent stage. One problem that can be accorded is the pricing of such loans. Therefore, there is a need to develop a common prescription for pricing of distressed assets so that they can be easily and quickly disposed. The ARCs should have clear 'financial acquisition policy' and guidelines relating to proper diligence and valuation of NPA portfolio.
6. Some tax incentives like capital gain tax exemption, carry forward the losses to set off the same with other income of the Qualified Institutional Borrowers (QIBs) should be granted so as to ensure their active participation by way of investing sizeable amount in distressed assets of banks and financial institutions.

7. So far the Public Sector Banks have done well as far as lending to the priority sector is concerned. However, it is not enough to make lending to this sector mandatory; it must be made profitable by sharply reducing the transaction costs. This entails faster embracing of technology and minimizing documentation.

8. Commercial Banks should be allowed to come up with their own measures to address the problem of NPAs. This may include waiving and reducing the principal and interest on such loans, or extending the loans, or settling the loan accounts. They should be fully authorized and they should be able to apply all the preferential policies granted to the asset management companies.

9. Another way to manage the NPAs by the banks is Compromise Settlement Schemes or One Time Settlement Schemes. However, under such schemes the banks keep the actual amount recovered secret. Under these circumstances, it is necessary to bring more transparency in such deals so that any flaw could be removed.

### **Markov Transition Matrix and Loan Tracking**

Markov Transition theory deals with the probability of variable at a given state at any given time to move to another state at a time  $t+1$ . We can, therefore, define a transition matrix,  $P = [p_{ij}]$ , as a matrix of probability showing the likelihood of credit quality staying unchanged or moving into R-1 category over a given time horizon, where R is a set of discrete categories into which all observations can be ordered.

Let me frame a matrix:

$$P = \begin{pmatrix} p_{11} & p_{12} & \dots & p_{1R} \\ p_{21} & p_{22} & \dots & p_{2R} \\ : & & & \\ : & & & \\ p_{R1} & p_{R2} & \dots & p_{RR} \end{pmatrix}$$

where  $p_{ij}$  are the state at any given time.

The above matrix can be used by credit officers to monitor the loan assets and take preventive steps to control the slippage of a loan assets to any lower category.

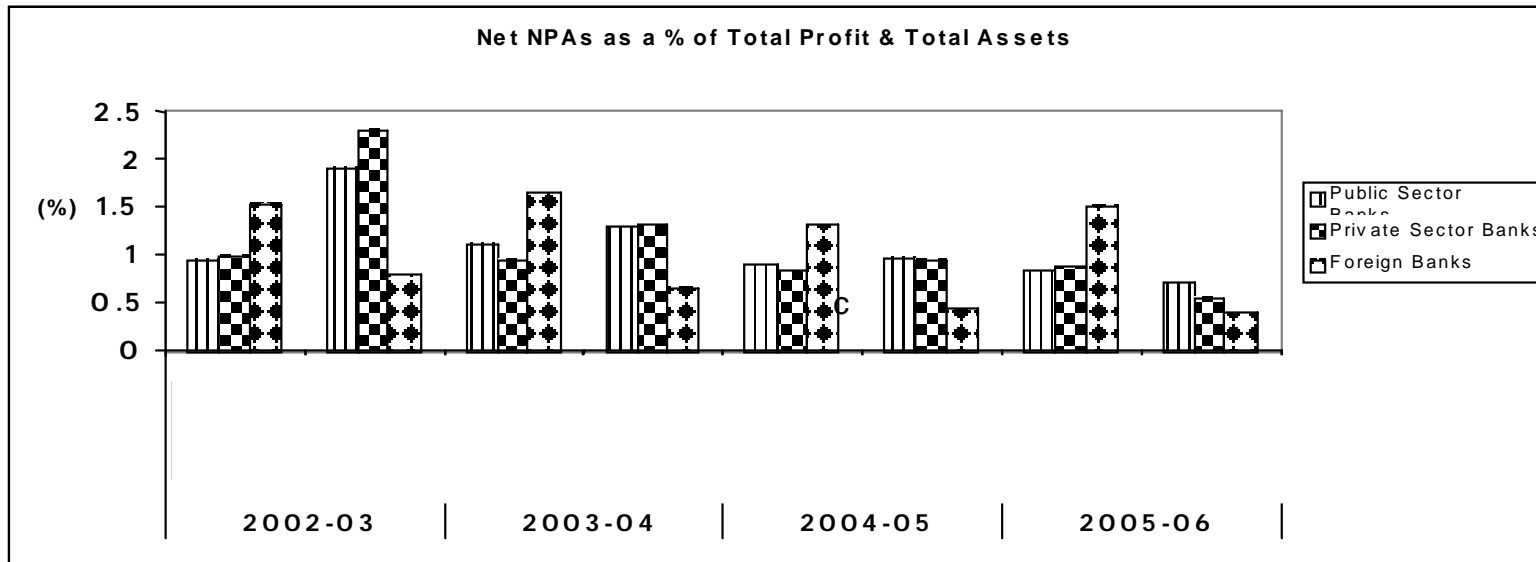
Based on the asset classification viz. Standard Assets (STD), Sub-standard Assets (SUB), Doubtful Assets (DOUB) and Loss Assets (LOSS), a matrix can be formed with a given probability (Das & Bose, 2005):

$$\begin{array}{c}
 \text{Time t} \\
 \text{STD} \\
 \text{SUB} \\
 \text{DOUB} \\
 \text{LOSS}
 \end{array}
 \begin{array}{c}
 \text{Time t+1} \\
 \text{STD} \quad \text{SUB} \quad \text{DOUB} \quad \text{LOSS} \\
 \left( \begin{array}{cccc}
 p_{11} & p_{12} & p_{13} & p_{14} \\
 p_{21} & p_{22} & p_{23} & p_{24} \\
 p_{31} & p_{32} & p_{33} & p_{34} \\
 p_{41}(=0) & p_{42}(=0) & p_{43}(=0) & p_{44}(=1)
 \end{array} \right)
 \end{array}$$

Since the probability of a loss asset being converted to any higher asset category is zero,

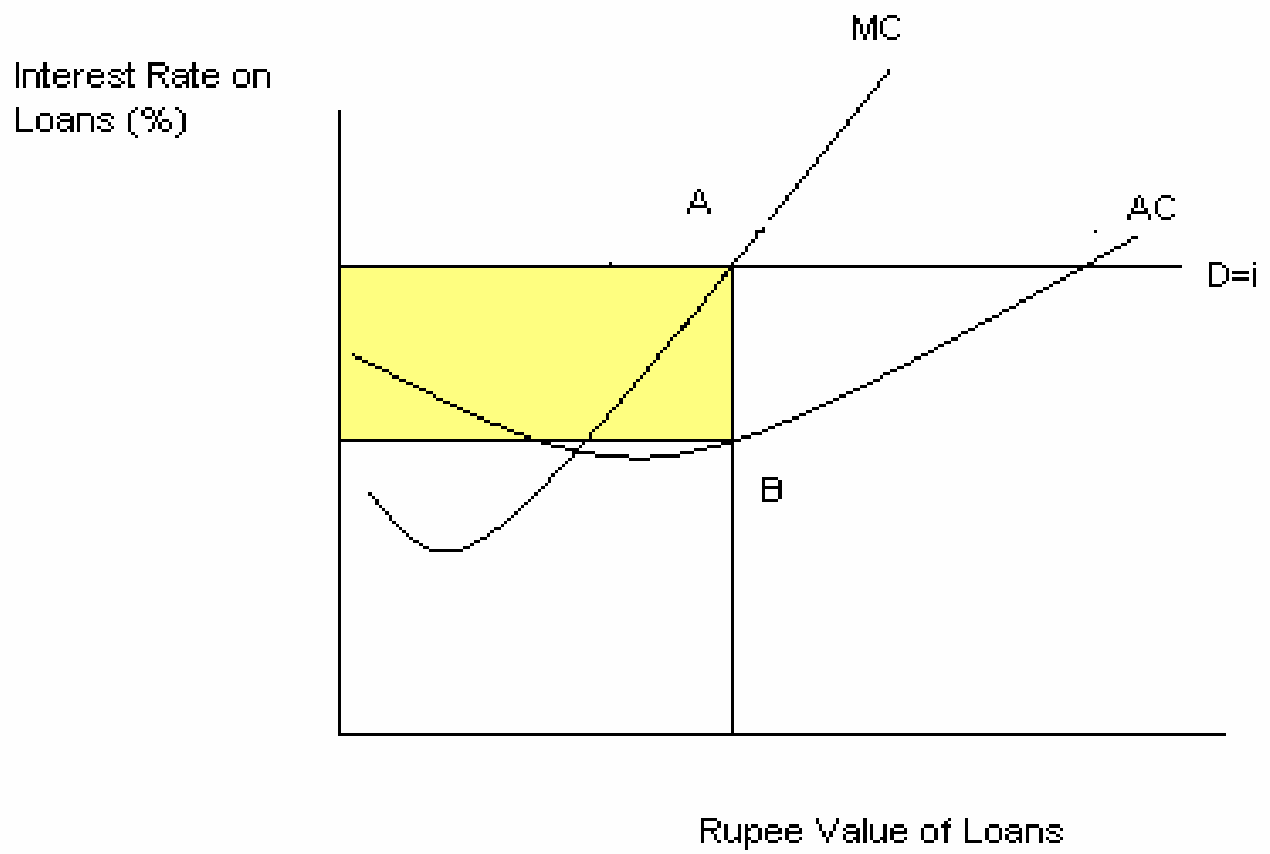
$p_{41} = p_{42} = p_{43} = 0$  and thus  $p_{44} = 1$ .

This transition matrix can be used to assess the loan quality of a firm level borrower by evaluating the financial position. However, this matrix will be difficult to apply to assess individual borrowers because unlike a firm level borrower, financial data of an individual is not available. Therefore, this matrix can be better applied for a firm level or corporate level borrower.



**Figure 1**

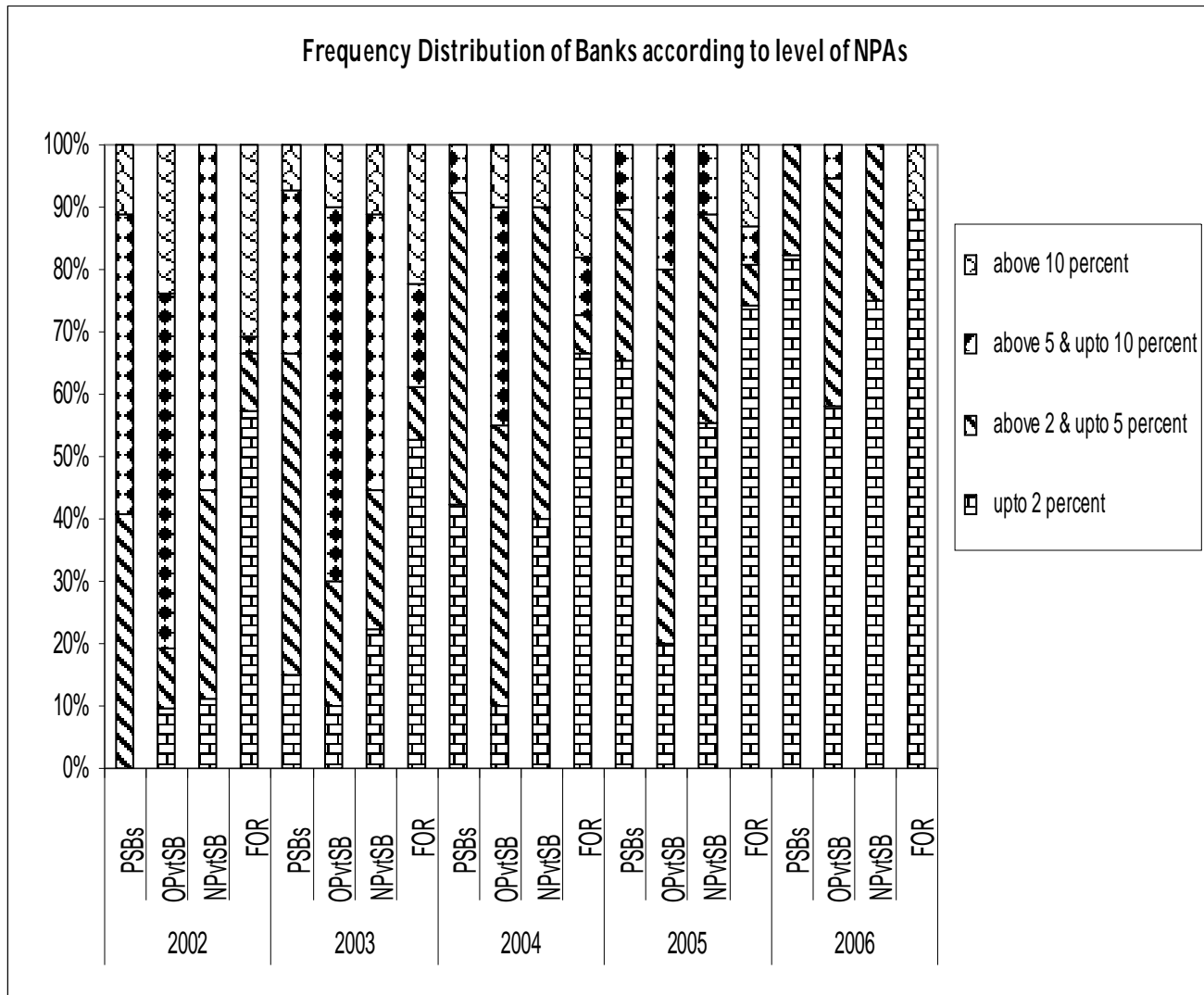
Source: Various issues of Report on Trends & Progress of Banking in India



**Figure 2**

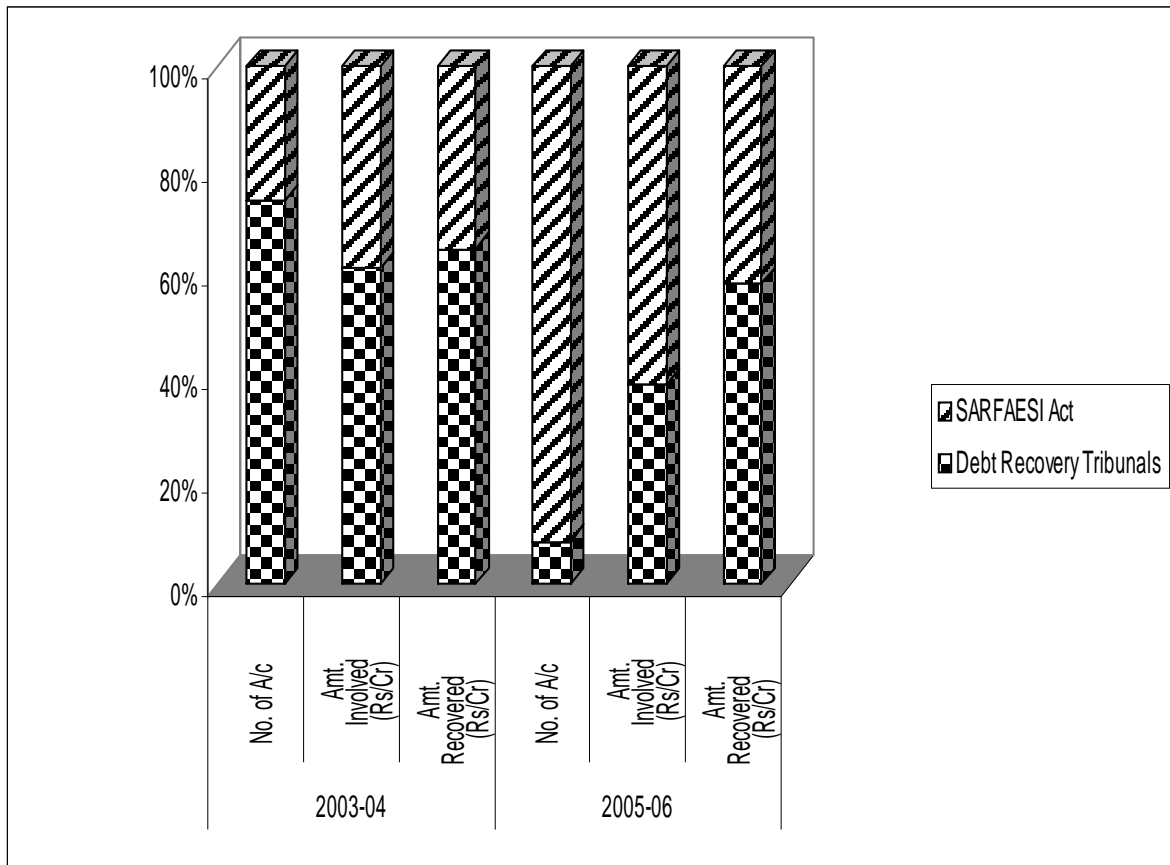
Source: Jansen & Baye (1999)





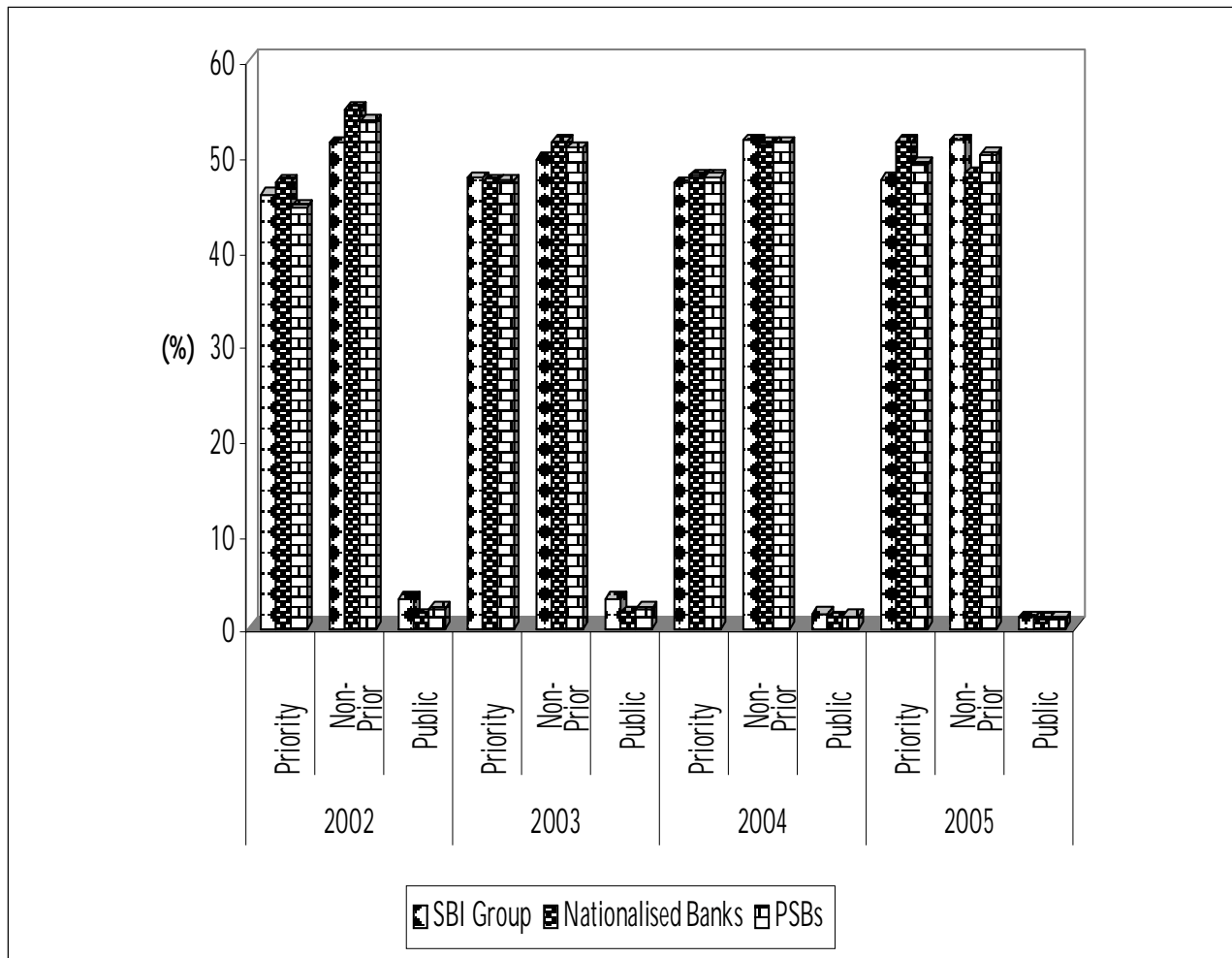
**Figure 3**

Source: Various issues of Report on Trends & Progress of Banking in India



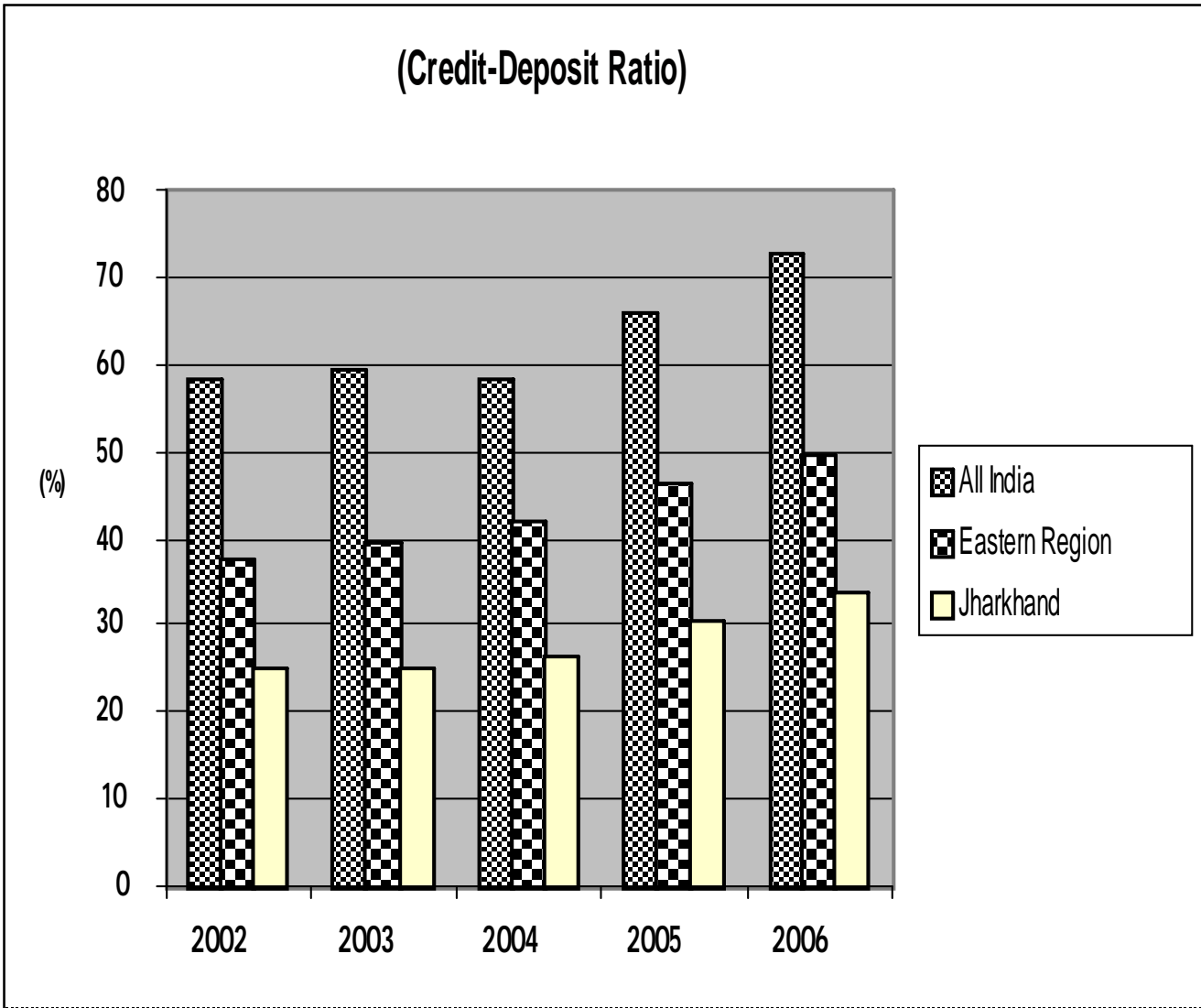
**Figure 4**

Source: Various issues of Report on Trends & Progress of Banking in India



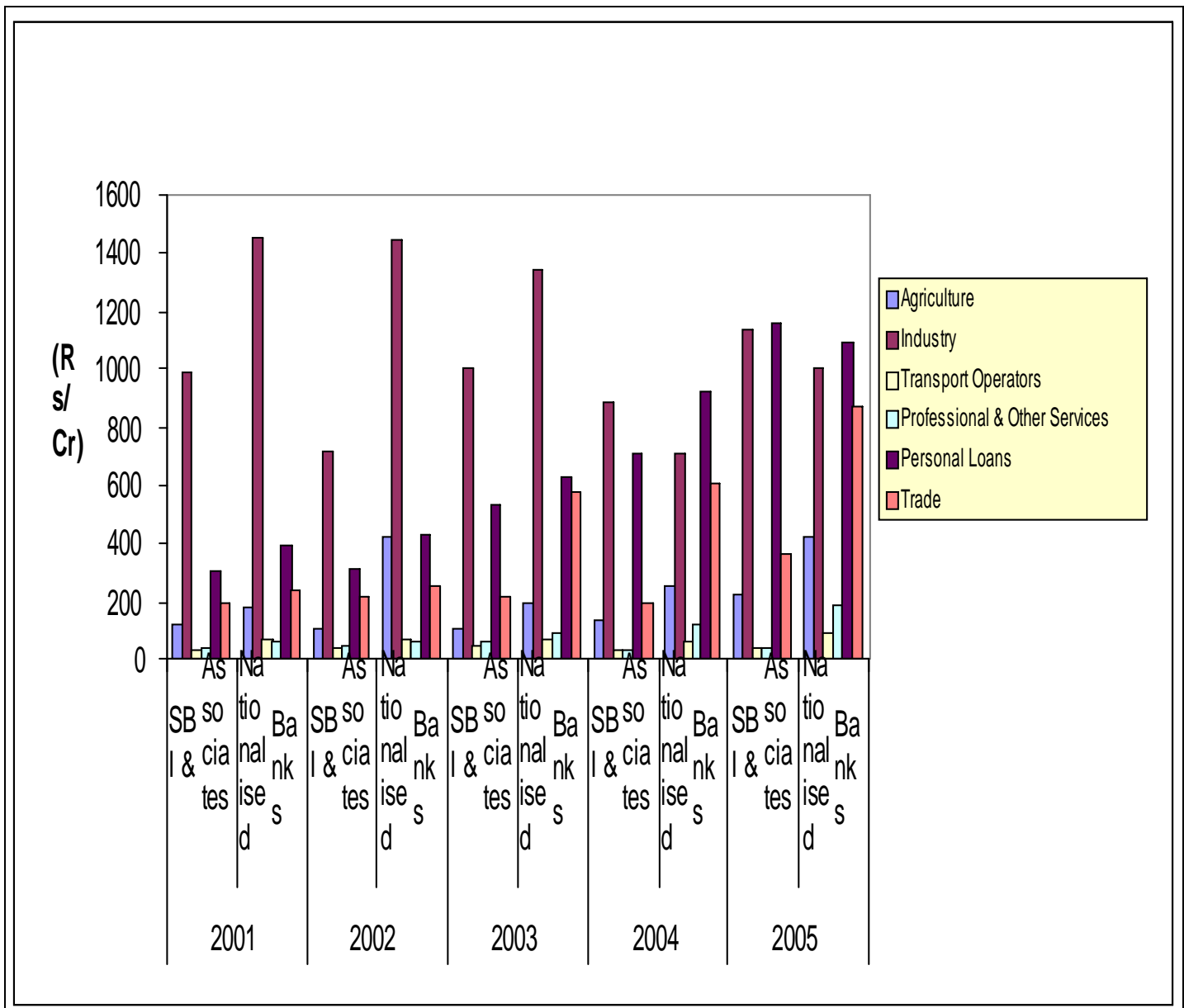
**Figure 5**

Source: Various issues of Report on Trends & Progress of Banking in India



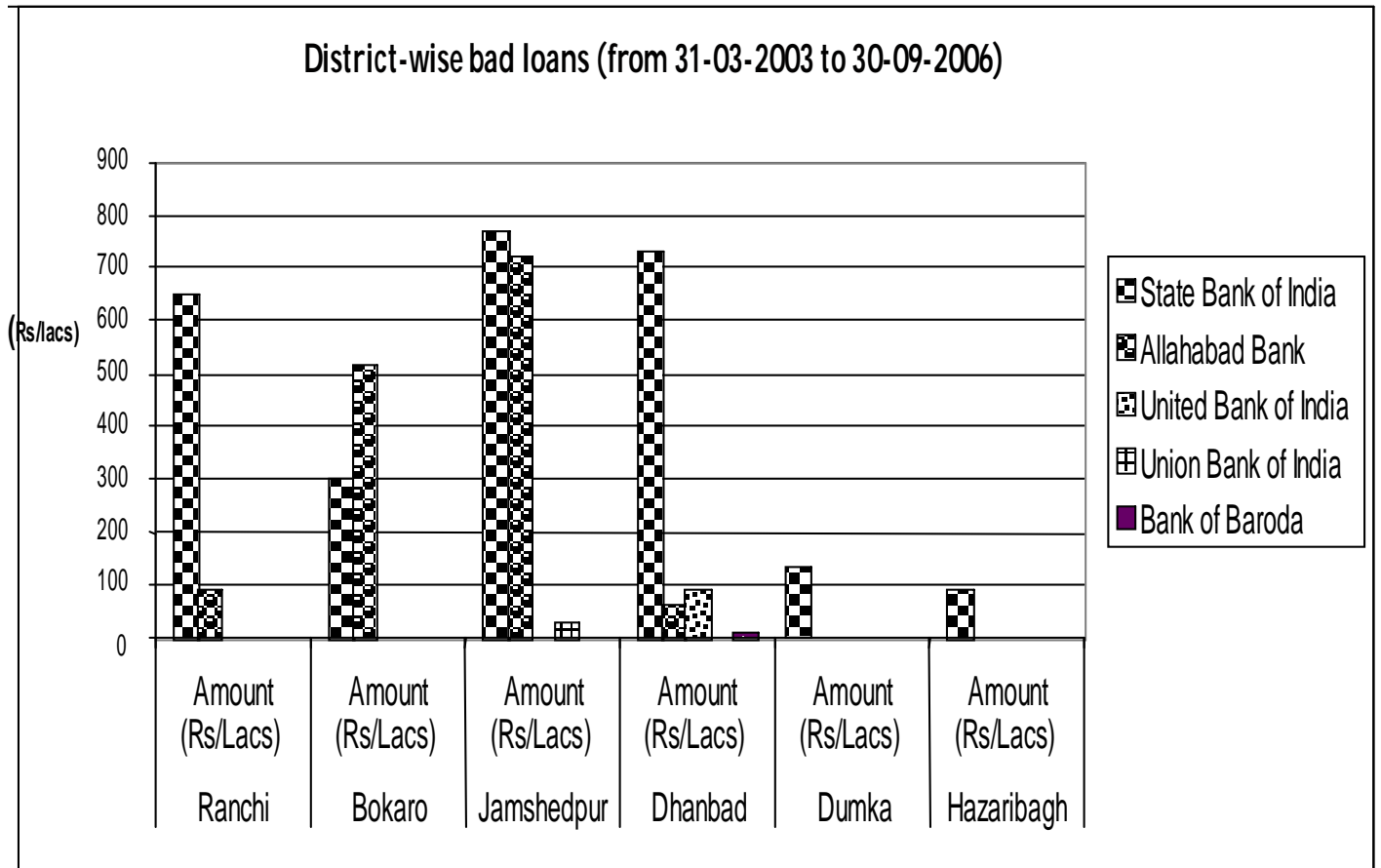
**Figure 6**

Source: Various issues of Report on Trends & Progress of Banking in India



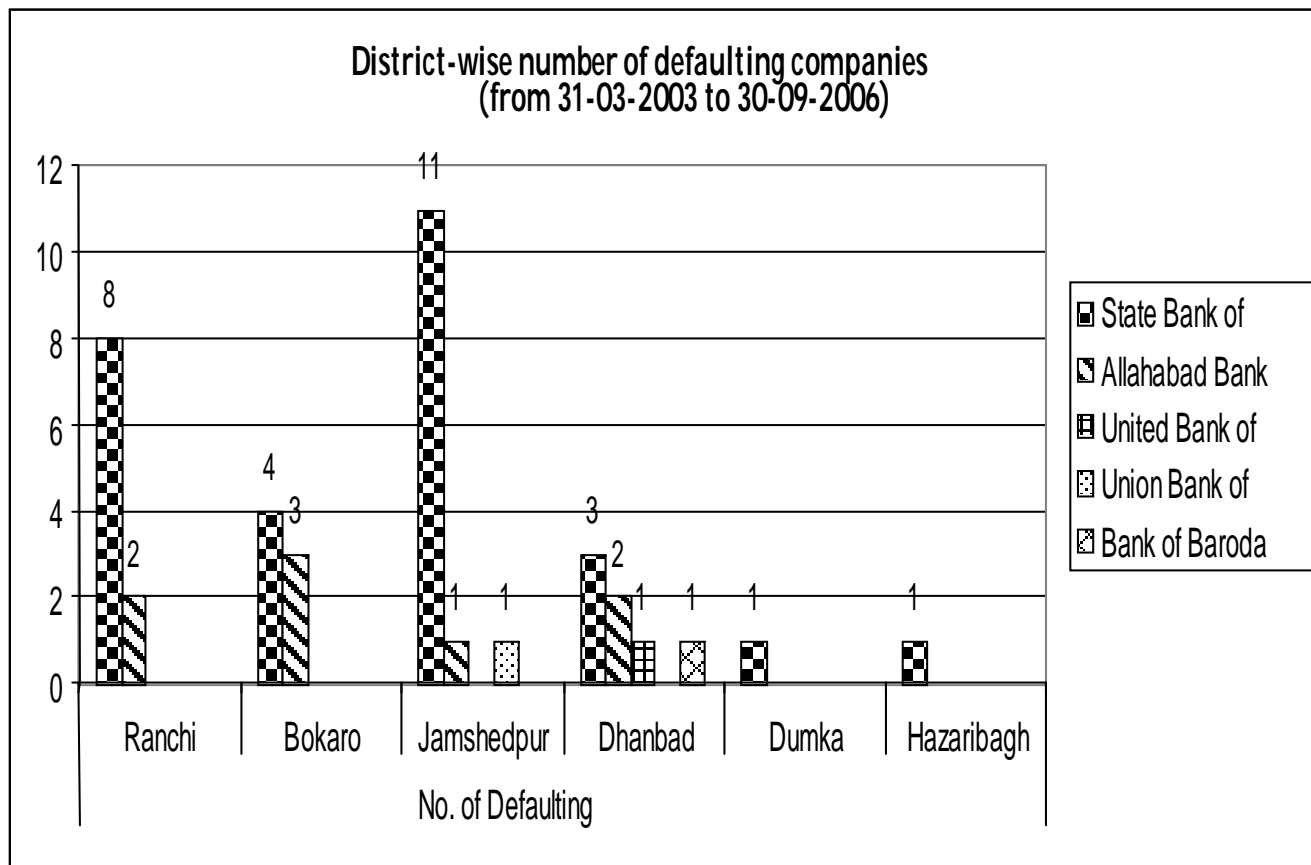
**Figure 7**

Source: Primary Data



**Figure 8(a)**

Source: Primary Data



**Figure 8(b)**

Source: Primary Data

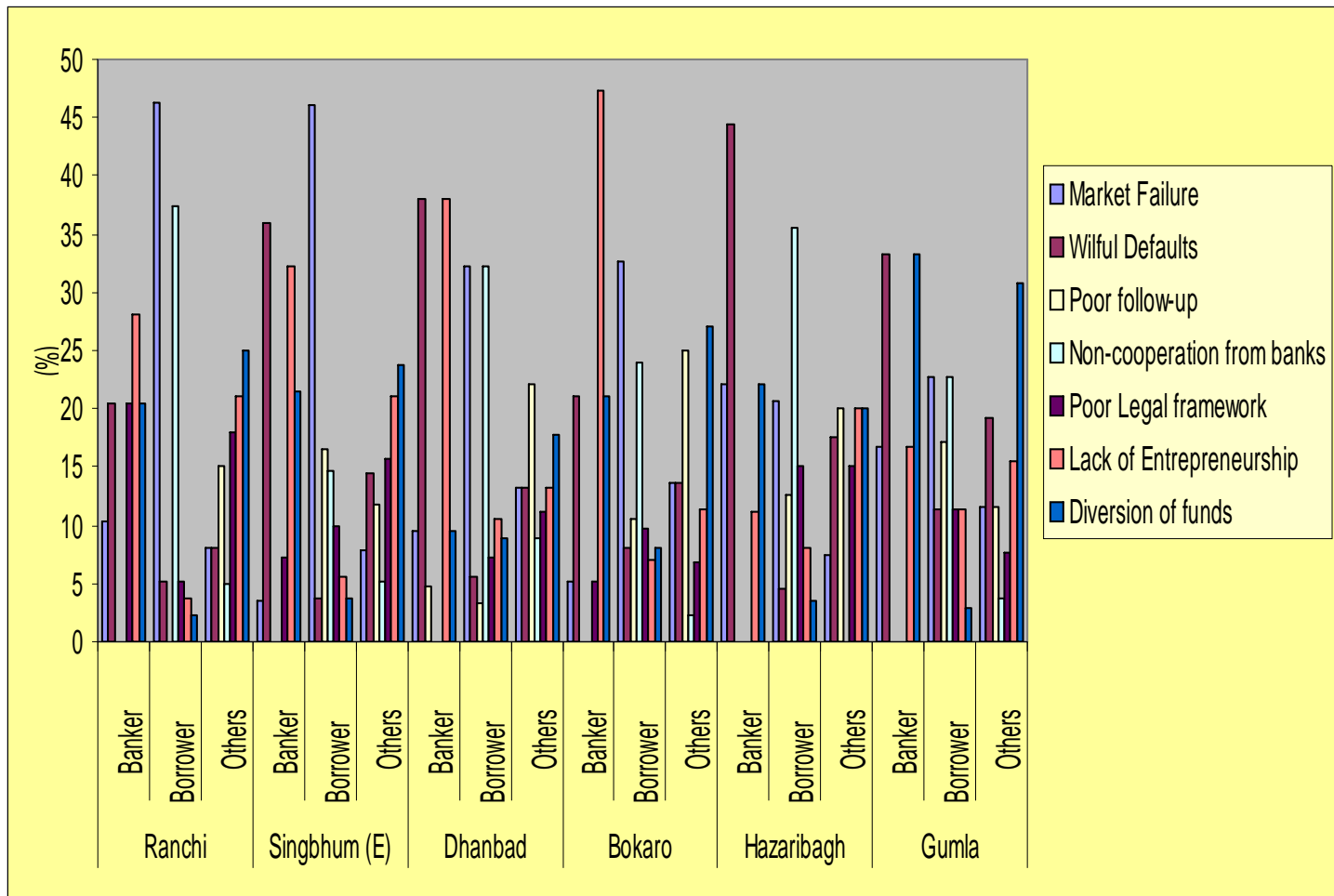


Figure 9

Source: Primary Data



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