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How Important is Ownership in a Market with Level Playing Field? The Indian Banking Sector Revisited

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How Important is Ownership in a Market with Level Playing Field?
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Abstract:

It has long been argued that private ownership of firms leads to better firm performance. However, theory as well as empirical evidence suggest that factors like agency problems may not allow privately owned firms to operate more efficiently or perform better that state owned firms. At the same time, it has been argued that competition and hard budget constraints can induce state owned firms to operate efficiently. In India, banking sector reforms were initiated in 1992-93, leading to entry and other forms of deregulation, and a level playing field for all banks. Data for 1995-96 through 2000-01 suggest that by 1999-00 ownership was no longer a significant determinant of performance; induced by competition, public sector banks were able to eliminate the performance/efficiency gap that existed between them and domestic private sector and foreign banks.

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1. Background

Private ownership of firms – and, indeed, any productive asset – has long been considered desirable. Public choice theorists, for example, have argued that government officials maximize their own utility and since their objectives are not necessarily consistent with profit maximization of the firms they manage, government ownership and management of firms can lead to persistence of X-inefficiencies (Niskanen, 1971; Levy, 1988). This problem gets further aggravated when the government itself changes the firms' objectives frequently to accommodate the interests of different pressure groups (Estrin and Perotin, 1991; Shleifer and Vishny, 1994, 1998).

The aforementioned arguments have found support among economists like Alchian (1965), Alchian and Demestz (1972) and de Alessi (1980) who have argued that private ownership of a firm provides undisputed property rights and this, in turn, ensures that the firm is run more efficiently than a public sector firm, none of whose stakeholders have a clear right over its assets and profits. This property rights hypothesis has been further bolstered by Manne (1965) and Fama (1980) who pointed out that the managers of a privately owned firm would always be induced to perform efficiently because they would otherwise become vulnerable to takeovers, leading to loss of control for the incumbent management. Management of state owned enterprises (SOEs), on the other hand, would be immune from such disciplining, and hence they would be more interested in furthering their own interests rather than adding to the efficiency and profitability of these firms (Vickers and Yarrow, 1980).

Further, Grossman and Hart (1986) and Hart and Moore (1990) argue that if contracts are incomplete then it pays to have private ownership because ownership of assets gives economic agents both the incentive and the necessary bargaining power to decide the best course of action in situations where the contracts are silent about the possible course of action. Applying the Grossman-Hart paradigm to the choice between public and private provisions of goods, Hart, Shleifer and Vishny (1997) argue that, indeed, the management of a publicly owned organization has weak incentives to take decisions that lead to cost reduction or innovation, implying, therefore, that private ownership of productive assets is more desirable.

However, it is by no means guaranteed that privately owned firms would necessarily have high levels of efficiency and profitability and, thereby, outperform public sector firms. The separation of ownership and management that often accompanies existence of privately owned firms can give rise to agency problems that undermine the performance of firms (Jensen and Meckling, 1976). Indeed, the empirical literature on mergers and acquisitions suggest that there is no strong evidence to suggest that subsequent to takeover a firm would necessarily perform better (Asquith and Kim, 1982; Jensen and Ruback, 1983; Ravenscraft and Scherer, 1987; Agarwal *et al.*, 1992; Rhoades, 1994), and this absence of noticeable improvement in the firms' performance is attributed to agency problems involving the owners and the managers (Morck, Shleifer and Vishny, 1990).

It is evident the impact of ownership on performance, which manifests the extent to which a firm is efficient, is somewhat ambiguous. At the same time, it can be argued that if firms are subjected to competitive forces, they would perform efficiently irrespective of whether they belong to the private or public sector (Caves and Christensen, 1980; Borcherding *et al.*, 1982; Millward, 1988; Jacobsson, 1991; Sjostrom and Weitzman, 1996; Borajas, Steiner and Salazar, 2000; Brown and Earle, 2000; Januszewski, Koke and Winter, 2002; Isik and Hasan, 2003). In other words, if firms are allowed to compete freely with each other, and if regulations do not stack the odds in favor of any specific group of firms, ownership *per se* should not be a determinant of performance.[1]

The above discussion provides the basis for an interesting empirical exercise using data from the Indian banking industry which is made up of both public and private sector banks, when private sector banks can be domestic or foreign owned, and where banks compete on a level playing field. The banking sector in India was thrown open to competition in 1992, and since then all banks, private and government controlled, domestic and foreign, have been subjected to the same prudential norms and other regulations like cash reserve ratio and statutory liquidity ratio, thereby creating a level playing field for all banks. At the same time, all banks have been allowed significant liberty in terms of designing and pricing of products on both the asset and liability sides

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[1] Note that here, as in the rest of the paper, we make the reasonable assumption, in keeping with the literature linking ownership and performance, that the two are positively and highly correlated, such that an improvement in performance manifests increase in efficiency, after other factors influencing performance have been controlled for.

of the balance sheet,[2] choice of asset portfolios, and entry into and exit from regional and local markets (Bhaumik and Mukherjee, 2002). Finally, there has been a steep decline in the extent of government support to the public sector banks.[3] Banks requiring re-capitalization have had to raise the requisite sum of money through issue of equity and bonds.

The deregulation of the banking sector and the creation of a level playing field have led to an increase in competition (Shiroi and Rajsekaran, 2001) The public sector banks still comprise the largest banks, and control over 75 percent of the deposits and assets markets. But signs of competition are evident. Despite the fact that domestic private and foreign banks continue to operate largely in urban and semi-urban segments of the market, they have significantly eroded the market share of the public sector banks. The value of the Herfindahl index for the industry fell from 11.2 in 1993 to 6.5 by 1998, and over the same period the share of the public sector banks in both the deposit and asset markets declined by about 6 percent.[4]

The Indian banking industry, therefore, provides a setting that allows us to verify whether, in a competitive market where all banks operate on a level playing field, a

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[2]   Indeed, the most significant restriction imposed on commercial banks, namely a floor for interest rates on savings accounts, is also common to all banks, irrespective of their ownership status.

[3]   The extent of government support to public sector banks declined steadily over time. In 1996-97, 1997-98, 1998-99 and 1999-00, for example, government support to public sector banks stood at Rupees 1,509 crore, Rupees 2,700 crore, Rupees 400 crore and Rupees 297 crore respectively (1 crore = 10 million). In 1999-00 2000-01, there was no government support for these banks. To put this in context, the asset base of an average public sector bank stood at Rupees 17,844 crore and Rupees 37,375 crore in 1995-96 and 2000-01 respectively. (Source: *Trends and Progress of Banking in India*, Reserve Bank of India, various issues.)

[4]   Relative to 1990-91, the decline in the share of the public sector banks in the deposit and asset markets has been about 10 percent.

privately owned bank necessarily performs better than a public sector or state owned bank. Further, we can verify whether competition induces the latter to improve their efficiency such that, over time, ownership *per se* ceases to explain the observed inter-bank differences in performance. In an early study linking performance with ownership, Sarkar, Sarkar and Bhaumik (1998) found that albeit weak, there is evidence to suggest that ownership was an important determinant of performance. However, Sarkar, Sarkar and Bhaumik (1998) used data from the 1993-94 and 1994-95 financial years, and the impact of competition was yet to be felt (Sarkar and Bhaumik, 1998). As highlighted above, however, since then there has been a significant improvement in the extent of competition in the Indian banking sector. Hence, data from the subsequent years can be expected to support a richer analysis of the interaction between ownership and competition.

This paper uses the empirical framework of Sarkar, Sarkar and Bhaumik (1998) to re-examine the relationship between ownership and performance in the Indian banking industry where competitive forces prevail, and all banks are subject to the same set of rules and regulations, thereby creating a level playing field. The results suggest that while domestic private and foreign banks were better performing than public sector banks at the onset of competition in 1995-96, the degree of divergence between the privately owned and state owned banks significantly narrowed over time, implying that public sector banks have not only responded to competitive forces but have responded better than their (domestic) private sector and foreign counterparts. Indeed, by 1999-00, there was no

observable relationship between ownership and performance in the Indian banking industry.

The organization of the paper is as follows: Section 2 sets out the econometric specification and describes the data. Section 3 discusses the results. Section 4 concludes.

2. Specification and Data

A review of the literature suggests that performance of banks is typically measured using return on assets (ROA) (Arshadi and Lawrence, 1987; DeYoung, Hasan and Kirchhoff, 1993; Hirschey, 1999; Gorton and Schmid, 1999; Nippani and Green, 2002, To and Tripe, 2002; Akhigbe and NcNulty, 2003; Berger and Mester, forthcoming). Indeed, while papers have examined the determinants of cost efficiency of banks (for example, Kumbhakar and Sarkar, forthcoming), cost based measures have a major drawback. As highlighted by DeYoung, Hasan and Kirchhoff (1993) and Berger and Mester (forthcoming), dynamic banks often accept loss of cost efficiency, often by way of attracting high quality personnel and investment in capital equipment, in order to improve the quality of their services and products, thereby maximizing the difference between cost and revenue, i.e., profit. In other words, only profits – which, when normalized by assets, yields ROA – accurately highlight the performance of a bank. Further, only a profit based measure takes into account the cost of acquiring low quality assets on the balance sheets, by way of the provisioning made for assets that have to be written off and by way of cost of capital. In this paper, therefore, ROA has been used as the measure of a bank's performance.

As mentioned above, in order to explain the variation in performance across banks, the paper uses the empirical framework introduced by Sarkar, Sarkar and Bhaumik (1998). To recapitulate, Sarkar, Sarkar and Bhaumik (1998) argued that performance of a bank is determined by size of the bank as measured by its asset size (ASSET),[5] priority sector advances as a percent of total advances (PRIORITY), investment in government securities as a percent of total investment (GOVSEC), non-interest income as a percent of total income (NONINT), non-urban branches as a percent of total branches (NONURBAN), ownership, a time trend (TIME),[6] and interactions between the time trend and ownership dummies. In other words, the model to be estimated is given by

$$\text{Performance} = \beta_0 + \beta_1 \text{ ASSET} + \beta_2 \text{ PRIORITY} + \beta_3 \text{ GOVSEC} + \beta_4 \text{ NONINT}$$

$$+ \beta_5 \text{ NONURBAN} + \Gamma_1' \text{ OWNERSHIP} + \beta_6 \text{ TIME}$$

$$+ \Gamma_2' \text{ OWNERSHIP*TIME} + \varepsilon \qquad [1]$$

where *OWNERSHIP* is a vector capturing the different types of ownership of Indian banks.

This paper modifies the Sarkar, Sarkar and Bhaumik (1998) specification in two ways. First, it is plausible that while a bank experiences economies of scale and scope with increase in its size, diseconomies dominate once it becomes too large (see, for example, Cavallo and Rossi, 2001). Hence, the specification outlined in equation (1) can

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[5] Logarithm of assets, a monotonic transformation of assets, was used for the actual estimation.
[6] In other words, the time trend variable has value 1 for the year 1995-96, and value 6 for the year 2000-01.

be made quadratic in size (ASSET).[7] Second, Sarkar, Sarkar and Bhaumik (1998) accounted for three types of ownership: state ownership (i.e., public sector), domestic private ownership, and foreign ownership; *de novo* private banks were not included in the sample. However, empirical evidence suggests that *de novo* firms are often more dynamic and efficient than both state owned and privately owned incumbent firms (Konings, 1997; DeYoung and Hasan, 1998; Goldberg and White, 1998; Bilsen and Konings, 1998; Canhoto and Dermine, forthcoming). Hence, there is need to separately control for *de novo* banks, and, therefore, this paper accounts for four different types of Indian banks: state owned (i.e., public sector) banks (PUBLIC), old or incumbent private sector banks (OLDPRIV), *de novo* or new private sector banks (NEWPRIV), and foreign banks (FOREIGN). If state owned banks are treated as the omitted category, equation (1) can be re-written as follows:

$$\text{Performance} = \phi_0 + \phi_1 \text{ ASSET} + \phi_2 \text{ ASSET}^2 + \phi_3 \text{ PRIORITY} + \phi_4 \text{ GOVSEC}$$
$$+ \phi_5 \text{ NONINT} + \phi_6 \text{ NONURBAN} + \phi_7 \text{ OLDPRIV} + \phi_8 \text{ NEWPRIV}$$
$$+ \phi_9 \text{ FOREIGN} + \phi_{10} \text{ TIME} + \phi_{11} \text{ OLDPRIV*TIME}$$
$$+ \phi_{12} \text{ NEWPRIV*TIME} + \phi_{13} \text{ FOREIGN*TIME} + \varepsilon \qquad [2]$$

It is evident that the ownership variables, the time trend which accounts for the change in the degree of competition over time, and the interaction terms which account for the differential impact of competition on the different types of banks are the focus of our analysis. What, however, do the other explanatory variables control for? While the regulatory regime in India has provided for a level playing field for the different types of

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[7] As in Sarkar, Sarkar and Bhaumik (1998), this paper uses the logarithm of assets instead of assets, such that logarithm of assets and square of logarithm of assets are used for estimation purposes.

banks, these banks may not have completely overcome their legacy of differential treatment that has marked the evolution of the Indian banking industry. For example, even though state owned or public sector banks are now free to reduce the number of branches and reduce the ratio of non-urban to urban branches, it was not be possible to unwind their large non-urban branching network in the medium run on account of unfavorable labor laws. Similarly, anecdotal evidence suggests that it is taking time for both state owned banks and old private banks to provide a wide array of high quality fee-based products and services because of the need to develop the required business networks, expertise and relationships within and especially outside the country, all of which were neglected for many decades.[8] Hence, despite operating on a level playing field, legacy, rather than current levels of efficiency, may have played a role in determining the ratio of non-interest to interest income. The importance of the other controls can be similarly explained.

Equation (1) was estimated using data for 6 financial years, 1995-96 through 2000-01, obtained from the publication entitled *Performance Highlights* of Indian banks published by the Indian Banks' Association. The data contains information taken from the balance sheets and profit and loss accounts of the banks, as well as information on their branch network and staff composition. It also provides information about important financial ratios like ROA. The data about the "listing" status of the domestic banks (at Indian stock exchanges) was obtained from the *Prowess* data set of the *Centre for*

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[8] One of the best examples of this situation involves a product that has both a fee component and an interest component. Citibank, Standard Chartered, ANZ Grindlays and HSBC were the early entrants into the Indian credit card market. The Indian banks have taken a long time to enter this market and develop the necessary network and expertise necessary to both attract and evaluate the credit worthiness of customers. As a consequence, the Indian credit card market is dominated by the aforementioned foreign banks.

Monitoring the Indian Economy. Overall, the sample includes data from 27 public sector banks, 29 domestic private sector banks (8 of which are *de novo*), and 30 foreign banks which accounted for about 99.5 percent of the deposits collected in each of the aforementioned financial years.

The descriptive statistics obtained from the data [Table 1] highlight some interesting patterns. First, while the public sector banks and the old private banks are clearly laying greater emphasis on the urban market, and are trying to reduce the ratio of non-urban to urban branches, new private sector banks are trying to penetrate the rural markets. In other words, the different types of banks are penetrating each other's backyards in order to eat into the competitor's market shares; public sector and old private sector banks have invaded the traditional niche market of the foreign banks, while the new private banks have invaded the backyard of the old private and especially the public sector banks. This is consistent with the evidence of competition cited above.

Second, all banks have a significant exposure to government securities, not surprising given the existence of the statutory liquidity ratio, and the limits on equity exposure of the banks.[9] However, contrary to expectations, foreign banks have a larger exposure, on average, to government securities, as a percentage of total investments, despite the fact that the return on such securities is typically lower than returns on other forms of assets. This is a manifestation of the fact that in India there are few securities

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[9] All banks are supposed to keep 25 percent of their deposits in the form of approved liquid assets, and government securities are by far the most liquid of the approved assets which do not include equity. The banks can invest only up to 5 percent of incremental deposits into equities.

apart from those carrying sovereign guarantee that have acceptable risk-return ratios.[10] However, new private banks have significantly reduced their exposure to government securities over time; their appetite for non-government securities a possible signal of their dynamism. This is consistent with the evidence on the global evidence on *de novo* banks and non-financial firms.

Third, foreign banks, which were earlier not expected to have as much priority sector exposure as the domestic banks, continue to have smaller exposures to the priority sector – largely agriculture and small industries – relative to the domestic banks. Similarly, foreign banks earn a significantly greater share of their revenue from non-interest sources, by way of activities like derivatives trading and merchant banking, than the public sector banks and the old private banks. This is consistent with the argument that despite level playing field legacy may have left the different types of banks differently placed in terms of portfolio composition and exposure to banking activities. Note, in this context, that new private banks, who are not burdened by legacy, have low exposure to the priority sectors and a relatively high ratio of non-interest income to interest income, and hence are more like the foreign banks in this respect then their domestic competitors.

3. Regression Results

The regression analysis proceeds in three distinct steps. First, equation (2) has been estimated using ordinary least squares. These estimates are reported in column (1) of

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[10]   The biggest risk associated with corporate debt instruments is that, except for AAA and AA+ rated securities, they do not have a liquid secondary market.

Table 2. Second, three banks – Bank of Tokyo Mitsubishi, Dresdner and Bank International Indonesia – the absolute value of whose ROA exceeded 0.15, and were clearly extreme values – were dropped from the sample, and equation (2) was re-estimated.[11] These estimates are reported in column (3) of Table 2. Third, we take into account the fact that while the values of the variables are not correlated across the banks, such that they can be treated as independent observations, the variables may be correlated across the years for each individual bank. The appropriate correction was made for both the full sample and the sample without the extreme values, by treating each bank as a cluster, and the coefficient estimates are reported in columns (2) and (4), respectively, of Table 2.

It is evident that the sample that does not include the extreme values offer a better fit for the regression model, having both superior F-values and R-square statistic. Hence, future discussions would be restricted to the coefficient estimates reported in columns (3) and (4) of Table 2.[12] The estimates indicate that the relationship between assets and performance is, indeed, inverted U-shaped, indicating that initially size adds to economies of scale and scope, and that beyond some level size becomes a drag on performance. Not surprisingly, *NONINT* has a positive sign, indicating that business networks and expertise with respect to fee-based non-traditional banking activities adds to a bank's performance. Interestingly, as in Sarkar, Sarkar and Bhaumik (1998), priority sector exposure is seen to have a positive impact on performance.

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[11]   These three banks accounted for less than 0.25 percent of the deposits collected in each of the 6 financial years. In other words, the truncated sample continues to account for more than 99 percent of the banking activity in India.

[12]   Indeed, all future estimations will use the sample sans the extreme values for the sake of consistency.

Importantly, the regression estimates indicate that after controlling for the "legacy" factors, there is a clear hierarchy among banks: foreign banks are inherently better performing, and hence, by inference, more efficient than domestic banks, the new private banks are more efficient than the old private banks and public sector banks, and the old private sector banks are more efficient than the public sector banks. However, this hierarchy is not static; there is clear evidence of mobility across the hierarchy. Once the impact of competition on the different types of banks is taken into account, it is evident that competition has spurred efficiency in public sector banks (the omitted category) much more than in private banks and foreign banks. This is highlighted by the Figures (1a) and (1b). Using coefficient estimates from columns (3) and (4) of Table 2, these figures graph the following:

$$\text{Old Private:} \quad \phi_7 + \phi_{11} \text{ TIME,} \qquad \text{TIME} = 1, 2, \ldots, 6$$

$$\text{New Private:} \quad \phi_8 + \phi_{12} \text{ TIME ,} \qquad \text{TIME} = 1, 2, \ldots, 6$$

$$\text{Foreign:} \qquad \phi_9 + \phi_{13} \text{ TIME,} \qquad \text{TIME} = 1, 2, \ldots, 6$$

The graphs indicate that while in 1995-96 the aforementioned hierarchy was clearly observable, over time, there was a convergence in the impact of ownership on performance such that by the end of the decade there was almost no differential impact of ownership *per se* on performance. In other words, induced by greater competition during the second half of the 1990s, public sector banks, which were clearly less efficient for some years after the onset of reforms in 1992-93, were able to wipe out the difference in the efficiency levels between themselves and both the domestic private and foreign banks during the 1995-01 period.

How robust is this result? To begin with, we verify whether the result is driven by exclusion of variables that can explain inter-bank variation in performance. Specifically, we examine the impact of market discipline, the proxy for which is the dummy variable indicating whether or not a bank is listed at a stock exchange (LISTED), on the performance of the banks. To recapitulate, market discipline was an important determinant of performance in Sarkar, Sarkar and Bhaumik (1998). However, since all foreign banks in India were wholly owned subsidiaries during the relevant time period, using an unified proxy for market discipline for both domestic and foreign banks would imply that the extent to which the Indian and overseas capital markets can discipline firms is the same. This is a very strong assumption, given the relative stages of development of the Indian and (say) North American and European capital markets. Hence, foreign banks are dropped from the sample, and the following model is estimated with data from only the domestic banks:

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\begin{aligned}
\text{Performance} = {} & \phi_0 + \phi_1 \, \text{ASSET} + \phi_2 \, \text{ASSET}^2 + \phi_3 \, \text{PRIORITY} + \phi_4 \, \text{GOVSEC} \\
& + \phi_5 \, \text{NONINT} + \phi_6 \, \text{NONURBAN} + \phi_7 \, \text{OLDPRIV} + \phi_8 \, \text{NEWPRIV} \\
& + \phi_9 \, \text{LISTED} + \phi_{10} \, \text{TIME} + \phi_{11} \, \text{OLDPRIV*TIME} \\
& + \phi_{12} \, \text{NEWPRIV*TIME} + \phi_{13} \, \text{LISTED*TIME} + \varepsilon \qquad [3]
\end{aligned}
$$

The regression results for the coefficient estimates for equation (3) are reported in Table 3. As before, the coefficient estimates obtained using simple OLS are reported in column (1) while those obtained after correcting for the possibility that the observations are uncorrelated across banks but are correlated across years for each bank are reported in

column (2). Once again, it is evident that, after controlling for legacy, domestic private banks were better performing, and hence more efficient, than the public sector banks in 1995-96, but that the competition in the ensuing years induced the latter to improve their efficiency such that, by 2000-01 there was no significant observable differential impact of ownership on performance of the banks.

If the above result is indeed an accurate description of the evolution of the Indian banking sector, it should be possible to divide the time period from 1995-96 through 2000-01 into two periods such that in the earlier of the two periods ownership would have an impact on performance, while in the latter period such a (conditional) correlation would not be observed. At the same time, data for the former period should indicate convergence between efficiency of public sector and privately owned banks, whether domestic or foreign, while evidence of (further) convergence may or may not be found in the data for the latter period. In other words, it should be possible to identify a structural break during the aforementioned time period. In order to verify the existence of a structural break, equation (2) was re-estimated for three different sub-periods: (1) 1995-96 and 1996-97, (2) 1997-98 and 1998-99, and (3) 1999-00 and 2000-01. The Chow statistic testing for a structural break between sub-periods (1) and (2) is 1.63, indicating that the null hypothesis of no structural break cannot be rejected. However, the Chow statistic testing for a break between sub-periods (2) and (3) is 1.83, indicating that the null hypothesis of no structural break can be rejected at the 5 percent level of significance.

Equation (2), therefore, has been re-estimated using data for two sub-periods: (a) 1995-96 through 1998-99, and (b) 1999-00 and 2000-01. The regression results are reported in Table 4. As before, columns (1) and (3) report the coefficient estimates obtained from OLS, while columns (2) and (4) report those obtained after correcting for the possibility that the observations are uncorrelated across banks but are correlated across years for each bank. The existence of the break is evident from the regression results. The data for sub-period (a) (i.e., columns 1 and 2) better fits the specification of equation (2) than the data for the entire 6-year period – the R-square is higher at 0.44 – and the results of Table 2 are largely preserved, but the same cannot be said about the data for sub-period (b). This is a typical manifestation of structural break in the data.

More importantly, there is evidence that during the 1995-99 period competition, as captured by the time trend, contributed to the performance of all banks, but it can be seen that competition contributed more to the performance of public sector banks, the omitted category, than to the performance of the domestic private and foreign banks, once again suggesting convergence among state owned and privately owned banks.[13] This evidence of convergence is further supported by the results reported in columns (3) and (4) of Table 4. They suggest that in the post- 1998-99 period ownership *per se* could not explain any variation in performance across banks, and competition ceased to affect different types of banks differently. In other words, by 1999-00 the extent of convergence

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[13] An important difference, of course, is that the coefficient estimates reported in columns (1) and (2) of Table 4 only weakly supports the hypothesis that the public sector banks were able to bridge their difference with the new private (or *de novo*) banks in the same way they bridged the gap with the old private and foreign banks. As mentioned before, this evidence of superior efficiency of *de novo* banks is consistent with the literature on *de novo* banks and non-bank firms. Further, this does not bring into question the fact that there was a convergence in the efficiency levels of public sector and privately owned banks, whether domestic or foreign.

among state owned and privately owned banks (including the foreign banks) had been such that there was no observable difference in their efficiency levels.

4. Concluding Remarks

The relative influence of ownership and competition on firms' performance, and, by inference, their efficiency, has been widely debated in the literature. The Indian banking sector provides an ideal setting for addressing this debate. Subsequent to initiation of reforms in 1992-93, competition across Indian banks have increased over time. This has been facilitated both by the significant extent of deregulation of the sector, and the fact that public sector, domestic private sector and foreign banks are allowed to operate on a level playing field. In this paper, we examine the impact of ownership and competition on the bank's performance during the 1995-01 period.

The results suggest that to begin with private sector and foreign banks were better performing, and hence more efficient, than the public sector banks, but that competition induced the public sector banks to eliminate the efficiency gap by 1998-99. Indeed, beyond 1998-99, neither ownership nor competition *per se* seemed to influence the banks' performance. Further, market discipline did not seem to have any influence on the performance of the banks in the relevant time period. This brings into question the efficacy of any policy that prescribes the privatization of the Indian public sector banks.

However, while our results bring into question the postulates of the public choice and classical property rights theorists, they do not entirely refute the arguments of

Grossman and Hart (1986). Indeed, anecdotal evidence suggests that private sector banks and foreign banks have taken the lead in pushing the frontiers of innovation with progressive deregulation of the banking sector, and progressive liberalization of the capital accounts of balance of payments. In an era of globalization, the ability of an industry in any country to prosper depends on its ability to innovate, and adopt and improve upon global best practices quickly and efficiently. This path is much more likely to be adopted by privately owned firms than by state owned firms, especially in the longer run (see, for example, Ehrlich *et al.*, 1994). Hence, the rationale for privatization of the state owned banks in India remains undiluted, even though the urgency for pushing through such privatization may no longer be an issue.

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Table 1
Characteristics of Indian Banks: Descriptive Statistics

	Public		Old Private		New Private		Foreign	
	1995-96	2000-01	1995-96	2000-01	1995-96	2000-01	1995-96	2000-01
ROA	-0.0044	0.0036	0.0118	0.0044	0.0200	0.0061	0.0210	0.0006
	(0.0199)	(0.0060)	(0.0087)	(0.0114)	(0.0089)	(0.0041)	(0.0200)	(0.0199)
Asset	17844.93	37375.31	1647.57	3988.33	1032.50	9819.76	1708.23	3686.94
	(24937.91)	(56354.01)	(1399.02)	(3272.71)	(762.47)	(5649.03)	(2113.50)	(5255.82)
Priority	26.79	33.70	31.19	32.25	15.29	15.77	27.10	21.42
	(10.45)	(6.35)	(9.58)	(8.01)	(9.59)	(4.30)	(18.58)	(8.97)
Gov. Sec.	71.34	74.08	70.66	67.75	75.07	59.39	82.68	67.84
	(6.62)	(7.92)	(9.44)	(10.46)	(18.18)	(11.10)	(19.50)	(19.50)
Non-interest	11.93	11.92	12.42	11.92	16.29	13.80	17.33	19.87
	(2.60)	(2.57)	(4.61)	(3.06)	(5.69)	(1.79)	(9.74)	(12.73)
Non-urban	66.99	63.19	60.36	57.65	8.75	28.00	0.00	0.18
	(4.85)	(5.83)	(17.20)	(14.33)	(16.42)	(9.65)	(0.00)	(0.93)
Obs.	27	27	21	21	8	8	24*	27*

Note:
ROA	=	return on assets (not expressed in percentage)
Asset	=	Total banking asset (Rupees crore)
Priority	=	Priority sector advances as % of total advances
G-Sec	=	Government securities as % of total investment
Non-interest	=	Non-interest income as % of total income
Non-urban	=	Non-urban branches as % of total branches

* The sample does not include banks with extreme values of ROA, and entry accounts for the difference between the number of banks in 1995-96 and 2000-01.

Table 2
Impact of Ownership and Competition on Performance (All Banks)

|	1	2	3	4
Constant	- 0.0238 (0.0435)	- 0.0233 (0.0493)	0.0515 * (0.0170)	0.0515 ** (0.0217)
Log of assets	0.0013 (0.0097)	0.0013 (0.0010)	- 0.0162 * (0.0034)	- 0.0162 * (0.0049)
Log of assets square	0.00003 (0.0005)	0.00003 (0.0006)	0.0010 * (0.0002)	0.0010 * (0.0003)
Priority sector advances as % of total advances	- 0.00003 (0.0001)	- 0.00003 (0.0002)	0.0001 * (0.00008)	0.0001 ** (0.00008)
Government securities as % of total investment	5.42e-06 (0.0001)	5.42e-06 (0.0001)	- 0.00001 (0.00007)	- 0.00001 (0.00009)
Non-interest income as % of total income	0.0009 ** (0.00035)	0.0009 * (0.0003)	0.0005 * (0.0001)	0.0005 * (0.0001)
Non-urban branches as % of total branches	- 0.00004 (0.00005)	- 0.00004 (0.00006)	- 0.00004 (0.00005)	- 0.00004 (0.00006)
Old private sector bank (dummy)	0.0176 * (0.0043)	0.0176 * (0.0050)	0.0141 * (0.0038)	0.0141 * (0.0044)
New private sector bank (dummy)	0.0206 * (0.0067)	0.0206 ** (0.0079)	0.0208 * (0.0060)	0.0208 * (0.0073)
Foreign bank (dummy)	0.0334 * (0.0101)	0.0334 * (0.0116)	0.0215 * (0.0062)	0.0215 * (0.0071)
Time (trend)	0.0007 (0.0006)	0.0007 (0.0006)	0.0002 (0.0006)	0.0002 (0.0005)
Time*Old private bank	- 0.0027 * (0.0009)	- 0.0027 * (0.0009)	- 0.0018 * (0.0008)	- 0.0018 ** (0.0007)
Time*New private bank	- 0.0038 * (0.0012)	- 0.0038 * (0.0014)	- 0.0026 * (0.0009)	- 0.0026 ** (0.0010)
Time*Foreign bank	- 0.0090 (0.0026)	- 0.0090 * (0.0032)	- 0.0050 * (0.0010)	- 0.0050 * (0.0012)
Number of observations	514	514	497	497
Number of clusters	--	87	--	84
F (p-value)	8.68 (0.00)	4.78 (0.00)	14.28 (0.00)	10.80 (0.00)
R-square	0.14	0.14	0.31	0.31

Notes: Regression models 1 and 2 use all observations, while regression models 3 and 4 do not take into account extreme values of ROA.
Coefficient estimates for columns 1 and 3 involve the use of OLS, while those for columns 2 and 4 involve the use of the cluster regression technique.
The values in the parentheses are robust standard errors.
*, ** and *** refer to significance at the 1%, 5% and 10% levels respectively.

Figure 1a

**Impact of ownership on ROA over time
(entire sample)**
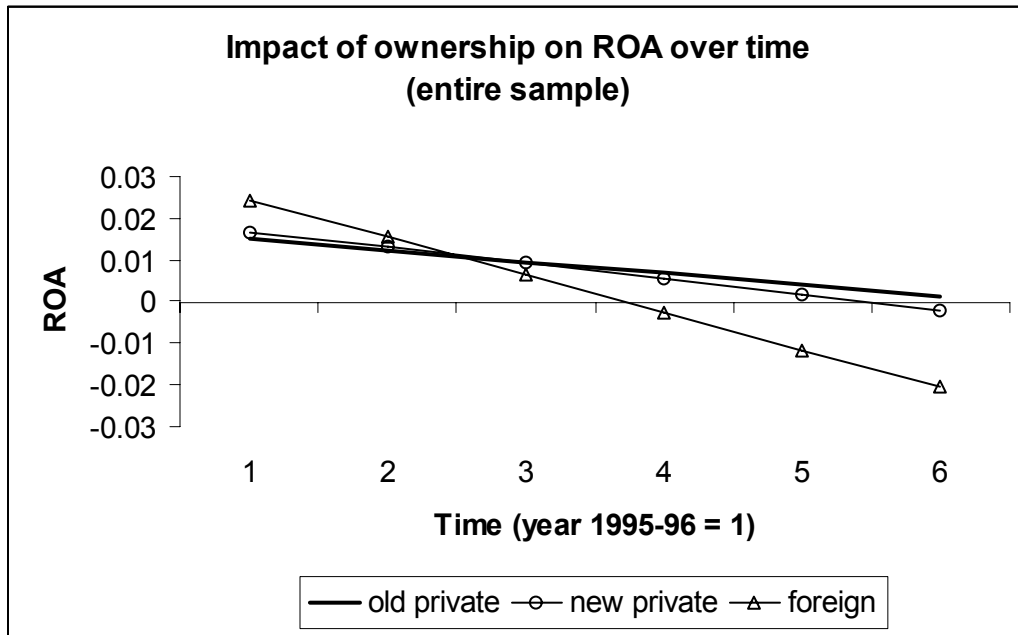
Note: Graph generated using coefficient estimates from models 1 and 2 of Table 2.
Public sector banks comprise the omitted category.

Figure 1b

**Impact of ownership on ROA over time
(extreme values omitted)**
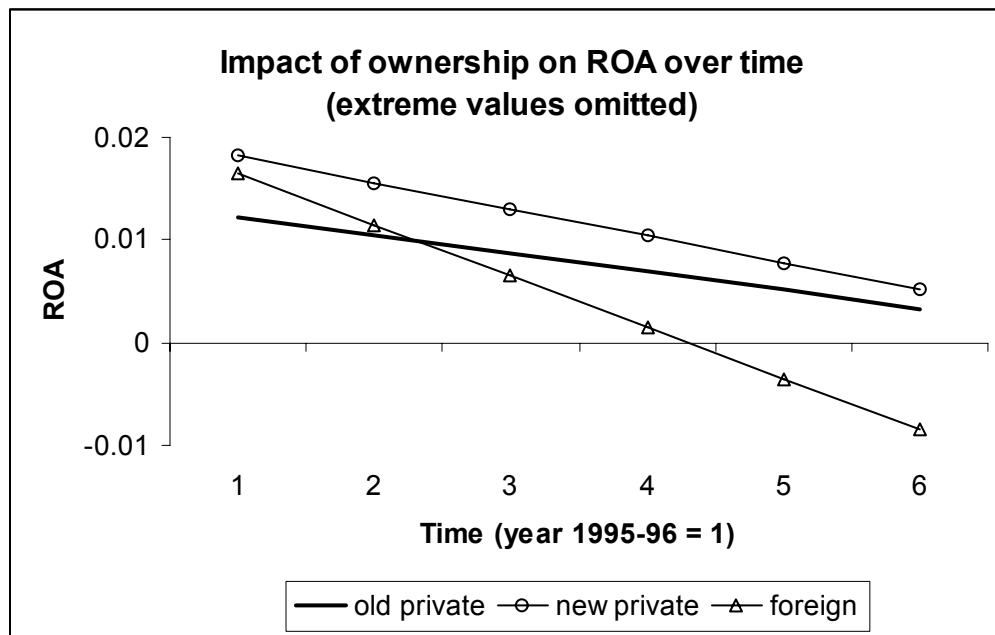
Note: Graph generated using coefficient estimates from models 3 and 4 of Table 2.
Public sector banks comprise the omitted category.

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Table 3
Impact of Ownership and Competition on Performance (Domestic Banks)

	1	2
Constant	0.0262 (0.0316)	0.0262 (0.0361)
Log of assets	- 0.0074 (0.0063)	- 0.0074 (0.0070)
Log of assets square	0.0004 (0.0003)	0.0004 (0.0003)
Priority sector advances as % of total advances	0.0002 ** (0.00009)	0.0002 *** (0.0001)
Government securities as % of total investment	- 0.00009 (0.00006)	- 0.00009 (0.00009)
Non-interest income as % of total income	0.0004 * (0.0001)	0.0004 * (0.0001)
Non-urban branches as % of total branches	- 0.00003 (0.00005)	- 0.00003 (0.00006)
Old private sector bank (dummy)	0.0122 * (0.0036)	0.0122 * (0.0041)
New private sector bank (dummy)	0.0190 * (0.0073)	0.0190 ** (0.0035)
Listed bank (dummy)	0.0025 (0.0034)	0.0025 (0.0041)
Time (trend)	0.0009 (0.0008)	0.0009 (0.0006)
Time*Old private bank	- 0.0023 * (0.0007)	- 0.0023 * (0.0007)
Time*New private bank	- 0.0028 ** (0.0011)	- 0.0028 ** (0.0012)
Time*Listed bank	- 0.0003 (0.0007)	- 0.0003 (0.0007)
Number of observations	340	340
Number of clusters	--	57
F (p-value)	11.76 (0.00)	5.96 (0.00)
R-square	0.20	0.20

Note: Coefficient estimates for columns 1 and 3 involve the use of OLS, while those for columns 2 and 4 involve the use of the cluster regression technique.
The values in the parentheses are robust standard errors.
*, ** and *** refer to significance at the 1%, 5% and 10% levels respectively.

Table 4
Convergence and Structural Break in Data

	1995-96 through 1998-99		1999-00 & 2000-01	
	1	2	3	4
Constant	0.0721 * (0.0172)	0.0721 * (0.0204)	- 0.0411 (0.0347)	- 0.0411 (0.0396)
Log of assets	- 0.0198 * (0.0035)	- 0.0198 * (0.0044)	0.0005 (0.0064)	0.0005 (0.0092)
Log of assets square	0.0011 * (0.0002)	0.0011 * (0.0002)	0.0001 (0.0003)	0.0001 (0.0004)
Priority sector advances as % of total advances	0.0001 * (0.00009)	0.0001 * (0.00008)	0.0001 (0.0001)	0.0001 (0.0001)
Government securities as % of total investment	- 0.00003 (0.00006)	- 0.00003 (0.00007)	0.00008 (0.0001)	0.00008 (0.0002)
Non-interest income as % of total income	0.0006 * (0.0001)	0.0006 * (0.00009)	0.0005 * (0.0002)	0.0005 ** (0.00022)
Non-urban branches as % of total branches	- 0.00003 (0.00006)	- 0.00003 (0.00007)	7.97e-06 (0.00004)	7.97e-06 (0.00004)
Old private sector bank (dummy)	0.0165 * (0.0051)	0.0165 * (0.0052)	0.0099 (0.0066)	0.0099 (0.0064)
New private sector bank (dummy)	0.0181 * (0.0082)	0.0181 ** (0.0088)	0.0092 (0.0064)	0.0092 (0.0070)
Foreign bank (dummy)	0.0182 ** (0.0077)	0.0182 ** (0.0081)	0.0086 (0.0093)	0.0086 (0.0076)
Time (trend)	0.0020 (0.0013)	0.0020 ** (0.0008)	0.0021 (0.0018)	0.0021 *** (0.0011)
Time*Old private bank	- 0.0045 * (0.0016)	- 0.0045 * (0.0014)	- 0.00003 (0.0034)	- 0.00003 (0.0027)
Time*New private bank	- 0.0031 (0.0020)	- 0.0031 *** (0.0018)	0.0004 (0.0028)	0.0004 (0.0022)
Time*Foreign bank	- 0.0057 * (0.0018)	- 0.0057 * (0.0014)	- 0.0028 (0.0065)	- 0.0028 (0.0042)
Number of observations	330	330	167	167
Number of clusters	--	84	--	84
F (p-value)	13.37	10.66	2.65 (0.00)	3.00 (0.00)
R-square	0.44	0.44	0.14	0.14

Notes: Coefficient estimates for columns 1 and 3 involve the use of OLS, while those for columns 2 and 4 involve the use of the cluster regression technique.
The values in the parentheses are robust standard errors.
*, ** and *** refer to significance at the 1%, 5% and 10% levels respectively.

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