



Financial Performance of Private Sector Hospitals in India: Some Further Evidence

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Abstract

This paper analyses financial performance of private hospitals. The study is based on financial statement data of private hospitals for the years 1999 to 2004. Using 25 key financial ratios, the study finds six key financial dimensions. These are: fixed assets age, current assets efficiency, operating efficiency, financial structure, surplus/profit appropriation, and financial profitability/operating cost ratio. The findings suggest that over the years hospitals have shown marginal improvement in financial performance. Though the total amount of debt is not high, it is the cost of debt and ability to service the debt which is making debt burden high for hospitals. The financial risks in this sector are high because of lower profitability and lower operating efficiencies. We discuss the implications of the results.

I. Introduction and objectives

The World Health Organization has estimated that India will need an additional 80,000 hospital beds each year for the next five years to meet the demands of India's population. Based on conservative estimates this suggests fixed investment in infrastructure to the tune of Rs. 250 billion each year to meet this target. Given that the government resources are dwindling and that they are required more for public health programmes, the need to attract private capital becomes inevitable.

The private sector investments and the quantum of money required in this sector critically hinges on the financial risks and returns the sector offers to the providers of capital. Therefore, it becomes important to understand financial performance of hospitals. Little is known about the financial health and performance of hospitals in India.

Until the early 1980s, government-run hospitals and those operated by charitable organisations and trusts were the main providers of hospital care in India. This sector, however, started attracting private capital from early 1980s. Many hospitals and smaller nursing homes were set-up in the private sector. The growth in this sector was largely supported by big corporate houses and charitable organisations. They brought resources and invested them in modern equipments and technologies. In 1992 there were 7,300 hospitals, of this total, nearly 4,000 were owned and managed by the central, state, or local governments. Another 2,000, owned and managed by charitable trusts, were receiving partial support from the government, and the remaining 1,300 hospitals, many of which were relatively small facilities, were owned and managed by the private sector. State-of-the-art medical equipment and modern technologies were set-up primarily in the urban centres in the early 1990s. Of the 1300 hospitals less than 1/6th had latest medical equipments and technologies. Most of these facilities were still in need of funds to upgrade themselves in terms of equipment and technologies.

The huge demand created by the increasing middle class and developments in the medical sector paved the way for for-profit hospitals in the 1990s. This helped in augmenting the availability of super-specialty services across the country. Corporate groups such as Apollo Hospitals Group, Wockhardt, Fort's Healthcare, and Max India showed a new way of creating a corporate organisation structure for hospitals and developing a chain of multi-specialty private hospitals across the country. However, these hospitals are only present in big cities and have not yet penetrated smaller cities.

On the policy front it became imperative for the government to develop the hospital sector to meet the growing needs and help them become more competitive. Over the years, the government has taken a number of policy steps to develop the hospital sector in India. For example, the Union Budget of 2002-03 conferred infrastructure status on the healthcare industry under section 10(23G) of the Income Tax Act. This allowed the private hospitals to raise cheaper long-term capital. Similarly, the Union Budget of 2003-04 laid special emphasis on investment in private hospitals and gave hospitals a true status of industry. Some specific policy changes were: (a) benefit of Section 10(23G) of the IT Act extended to financial institutions providing long-term capital to private hospitals with 100 beds or more, (b) rate of depreciation in respect of life saving medical equipment increased from 25 per cent to 40 per cent, (c) reduction in basic customs and excise duties, and (d) customs duty on specified life saving equipment reduced from 25 percent to 5 percent, with exemption from additional duty of customs. The government also implemented a community based universal health insurance scheme covering hospitalisation expenses. This was expected to provide an alternative source of financing and boost the hospitals sector. All these initiatives were expected to strengthen the hospital sector.

Healthcare being a highly fragmented industry relies heavily on manpower, capital and technology. In this sector, controlling costs and generating revenues is a daunting task. This

becomes even more critical in India where this sector has only recently started attracting private investments. The recent policy announcements of the government recognise some of these challenges and have made several policy changes to facilitate growth in this sector. However, the success of these policies depends on the promise this sector makes towards returns on capital, and operating and financial risks, to which this capital is exposed to.

This paper uses cross-section and time series data of private sector hospitals in India to analyse the operating and financial performance of hospitals. The objective is to understand vulnerabilities in financial performance of hospitals and discuss the implications of these for the future growth and development of this sector. The findings provide insights of how we can improve on the performance and which areas need particular attention.

The motivation of this study is also from the view point of resource-based theory, to understand how private capital as a critical resource would affect the development of the sector. According to the resource-based theory, if strategic resources are heterogeneously distributed across firms and if some of the resources are valuable, rare, imperfectly imitable, and non-substitutable, differences in competitive advantage will be observed across firms within the same industry or group (Penrose 1958, Barney 1991). The differences in competitive advantage show up in greater value creation as indicated by lower costs and/or improved quality, not to mention greater profitability relative to competitors. In the case of hospitals, today the most critical problem areas which are faced by administrators are associated with business and financial management which they can tackle by controlling expenses and resources (Afgo 1992). Issues labelled as "business and financial problems" were identified as among the most problematic areas in studies conducted in 1961 (Levey and McCarthy 1962), 1963 (Dolson 1965), and again in 1978 (Carper 1982).

Here we can see that finance is a very strategic resource in case of the hospitals sector, especially because it is difficult to get it from the market, and hospitals which use it in a efficient and effective way or have easier access to it, will have an advantage over its competitors. In this context, it is interesting to see that in India, where attracting private sector investment to this sector is not very easy, how hospitals are using their financial resources to get competitive advantage. The literature from health care marketing also suggests that patient perceptions of quality are associated with the hospital's financial performance. Nelson et. al. (1992) show that discrete dimensions of hospital quality (i.e., medical and billing systems and discharge processes) explain approximately 17%-27% of the variation in financial measures such as hospital earnings, net revenue, and return on assets. In this sense the financial performance of hospitals reflect the quality of services and hospitals which perform better in financial terms indicate the patients' judgments of hospital service quality.

II. Data and Methodology

Traditionally, in literature, financial analysis of organisations to understand their financial health has relied on financial accounting information and the use of financial ratios. Financial ratios provide a better picture of the financial performance of organisations, as they are based on relative performance and adjust for the differences in the size of organisations. Using time-series data we can compare these financial ratios across time and observe changes.

Early attempts to understand the financial performance of hospitals in US and other countries have relied on financial ratios that were generally used to analyse financial performance of manufacturing companies. Over the period, various researchers have pointed out that the market structure and service delivery system of hospitals differ substantially and this needs a framework which reflects the unique characteristics of this sector (Watkins 2000). Attempts to understand the financial characteristics of hospitals have focused on deriving and extracting empirically relevant financial dimensions from a full set of financial and accounting information.

Using financial and accounting information provided in the profit and loss account and balance sheet, one can compute a large number of financial ratios. Often the problem one faces is, which financial ratio to use, as each one may reflect the same or different financial performance dimension. Accounting and financial analysis literature is replete with suggestions to use the information contained in a large number of financial ratios, to derive empirically smaller number of dimensions necessary to evaluate the performance of an organisation. Cleverley and Rohleder (1985), Zeller, Stanko and Cleverley (1996), and Watkins (2000), using US hospital data, have identified the following seven financial dimensions of hospitals to evaluate their performance: profitability, fixed asset efficiency, capital structure, fixed asset age, working capital efficiency, liquidity, and debt coverage.

Data for this study was obtained from the First Source database, which is maintained by the CMIE. Each sample pertains to the sample-years between 1999 and 2004. The information provided by the CMIE database broadly contains key items from the profit and loss account and balance sheet. This is the only systematic data available on hospitals in India. Each year is different in size based on the information available about hospitals. Table 1 gives detail regarding number of hospitals covered in each year:

Table 1: Year-wise distribution of hospitals

Year	Number of Hospitals
1999	157
2000	211
2001	224
2002	176
2003	136
2004	63

One can see that for the year 2004, data is available for a lesser number of hospitals. This is because of the delay in provision of the data by hospitals.

Before we go into data analysis, we examine the broad characteristics of the sample data. Initial data was available for 2300 private hospitals in India. If we see the distribution of these hospitals across different states, we find it provides a skewed picture (see Exhibit 1). Distribution of hospitals across states in India is very uneven and while some small states like Delhi has more than 300 hospitals, the whole north-eastern region combined has less than 70 hospitals. South India and west India has more hospitals than north and east India (see Table 2).

Table 2: State-wise distribution of private hospitals

Number of Hospitals	State
Less than 10	Mizoram, Nagaland, Pondicherry, Himachal, Manipur, Meghalaya, Goa
11-50	Orissa, Chandigarh, Haryana, Bihar
51-100	Assam, Punjab, MP, Karnataka, UP
101-200	Rajasthan, Gujarat, Kerala
More than 200	Andhra, Tamilnadu, West Bengal, Delhi, Maharashtra

The total asset base of these hospitals across states is also skewed (see Exhibit 2). For example, though Tamilnadu ranks third in terms of number of hospitals, it is number one in terms of total assets. Another interesting case is Himachal Pradesh, which is number nineteen in terms of number of hospitals but it is ranked seventh in terms of total assets, which shows that hospitals here are of much larger size than other states (see Table 3).

Table 3: Distribution of Total Assets of Hospitals across States

Total Assets	States
Less than 100000	Meghalaya, Chhattisgarh, Nagaland, Mizoram, Manipur
100000-500000	Goa, Bihar, Pondicherry, Haryana, Orissa, Punjab, Assam, UP, MP, Rajasthan, Karnataka, Chandigarh
500000-2000000	Gujarat, Himachal Pradesh, West Bengal, Kerala, Greater than
2000000-6000000	Delhi, Andhra Pradesh, Maharashtra, Tamil Nadu
6000000	

In Table 4, we can see how different states are ranked in terms of hospitals and total assets.

Table 4: Comparison of States' rank in terms of Number of Hospitals and Total Assets

States	Number of Hospitals	Rank by Number of hospitals	Rank by Total Assets
Maharashtra	378	1	2
Delhi	359	2	4
Tamilnadu	212	3	1
West Bengal	212	3	6
Andhra Pradesh	210	5	3
Kerala	151	6	5
Gujarat	129	7	8
Rajasthan	112	8	11
Uttar Pradesh	88	9	13
Karnataka	86	10	10
Madhya Pradesh	75	11	12
Punjab	62	12	15
Assam	52	13	14
Bihar	39	14	19
Haryana	31	15	17
Chandigarh	25	16	9
Orissa	17	17	16
Goa	6	18	20
Himachal Pradesh	2	19	7
Manipur	2	19	21
Meghalaya	2	19	25
Chhattisgarh	1	22	24
Mizoram	1	22	22
Nagaland	1	22	23
Pondicherry	1	22	18

Given the data and information, it was not possible to compute all ratios generally suggested in financial management text books. However, the ratios included in the study reflect all key dimensions used in analysing performance of organisations and most of them have been used in studies in the US context. We use 25 financial ratios of the hospitals in the sample for the analysis. The list of these ratios is provided in Table 5.

Appendix I gives the descriptive statistics of variables taken from different hospitals. Variables have been shown year-wise with their mean, median, standard deviation and quartiles.

Table 5: List of financial ratios used in the study

SALREV	Salary as percent of total revenue
ROYREV	Royalty as per cent of total revenue
COSTREV	Operating cost to revenue ratio
INTREV	Interest expense as percent of total revenue
TAXREV	Provision for tax as percent of total revenue
DIVPAYOUT	Dividend payout defined as total dividends paid as percent of profit after tax
DIVRATE	Dividend rate defined as total dividends as percent of paid-up share capital
RENW	Return on net worth defined as profit after tax as percent of net worth
TATO	Total asset turnover defined as total revenue divided by total assets
NFATO	Net fixed asset turnover defined as total revenue divided by net fixed assets
CATO	Current assets turnover defined as total revenue divided by total current assets
NCATO	Net current asset turnover defined as total revenue divided by net current assets
CETO	Capital employed turnover defined as total revenue divided by capital employed
CAHP	Current asset holding period defined by current assets divided by revenue per day
CLPP	Current liability payment period (current liabilities divided by revenue per day)
CR	Current ratio defined by current assets divided by current liabilities
ROTA	Return on total assets defined by PBIT divided by total assets
ROCE	Return on capital employed defined by PBIT to capital employed
TDCE	Total debt to capital employed
DE	Debt equity ratio
TDNFA	Total debt to net fixed assets
ROE	Return on equity defined by profit after tax (PAT) divided by net worth
ACDEPGFA	Accumulated depreciation to gross fixed assets
GFANFA	Gross fixed assets to net fixed assets
INVSTTA	Investments to total assets
NFASAL	Net fixed asset to salary

We observed that there were extreme values in the data which were affecting the analysis of data. To address the problem of extreme values in the sample we removed values below 1 percentile and more than 99 percentile from the dataset. This was done for all the 25 ratios. After that the new sample size for different years is given in Table 6.

Table 6: Sample data after adjusting the outliers

Year	Number of Hospitals
1999	98
2000	135
2001	149
2002	131
2003	94
2004	44

Appendix II provides mean and median values for all years, for all the ratios. After removing extreme values, Appendix III also provides the same values. As we can see, mean values in Appendix II are much different than that of Appendix III. For example, the mean value for current ratio (CR) decreases from 53.5 to 4.5 after removing extreme values. We also use median values to support our analysis.

III. Factor Analysis

As suggested in literature, we use the exploratory factor analysis to identify relevant dimensions of financial performance of hospital performance in India. This method is appropriate in situations where there is no well developed theory to explain and provide specific hypotheses about dimensions of financial performance (Kline 1994). We used SAS for data cleaning purposes and SPSS to carry out principal component analysis. We use 25 financial ratios for hospitals to identify the factors and analyse them.

Bartlett's test rejected the null hypothesis that the correlation matrix is an identity matrix. The factors with eigen values of more than one were retained and rotated and also were confirmed by Cattell's Scree Test. Factors were rotated using oblique rotation method using the promax option in SPSS. This method assumes the factors to be correlated and not independent and has been suggested by Zeller, Stanko and Cleverley (1996) and Watkins (2000). We also calculated the percentage of total variance explained by each factor by dividing eigen values to each factor by the total number of variables in the study.

Table 7 provides a summary of the results of factor analysis. For the six years, the number of factors varied from eight to ten. As discussed earlier, we had an extreme value problem in our sample and therefore we removed values above 99 percentile and below one percentile from the data.

The factor analysis results suggest that only six financial dimensions emerged somewhat consistent over the six-year period. These factors capture fixed assets age, operating efficiency, financial profitability, profit appropriation, financial structure and current assets efficiency. Those factors which did not emerge consistently in our study are Net fixed assets to salary, investment to total assets, current liability payment period, and profit margin. In our study the ratio return on equity did load consistently on the profitability factor, while in the studies of Zeller et al. (1996), and Watkins (2000) this factor was not loading consistently.

Table 7: Factor analysis results for six year period 1999-2004

	1999	2000	2001	2002	2003	2004
Sample Size	157	211	224	176	136	63
Corrected Sample Size	98	135	149	131	94	44
Number of Factors	10	10	9	9	9	7
Financial Profitability						
RENW	0.901	0.818	0.943	0.848	0.923	0.898
ROCE	0.928	0.964	0.848	0.893	0.913	0.922
ROE	0.742	*	0.864	0.653	0.844	0.871
ROTA	0.902	0.934	*	0.942	0.900	0.920
Financial Structure						
DE	0.863	0.857	0.912	0.901	0.876	0.867
TDCE	0.861	0.746	0.883	0.871	0.895	0.938
TDNFA	0.648	*	0.703	*	0.702	0.87
Operating Efficiency						
CETO	0.851	0.752	0.817	0.875	0.891	0.845
NFATO	0.927	0.938	0.778	*	0.914	0.729
TATO	0.852	0.725	0.914	0.916	0.906	0.86
Profit Appropriation						
DIVPAYO	0.955	0.945	0.977	0.863	0.887	0.804
DIVRATE	0.924	0.939	0.972	0.816	0.833	0.856
Fixed Asset Age						
ACDSPGFA	0.983	0.957	0.977	0.967	0.956	0.897
GFANFA	0.981	0.956	0.971	0.96	0.959	0.903
Current Assets Efficiency						
CATO	-0.778	-0.732	0.567	*	*	-0.396
NCATO	0.685	0.653	0.782	*	*	0.443

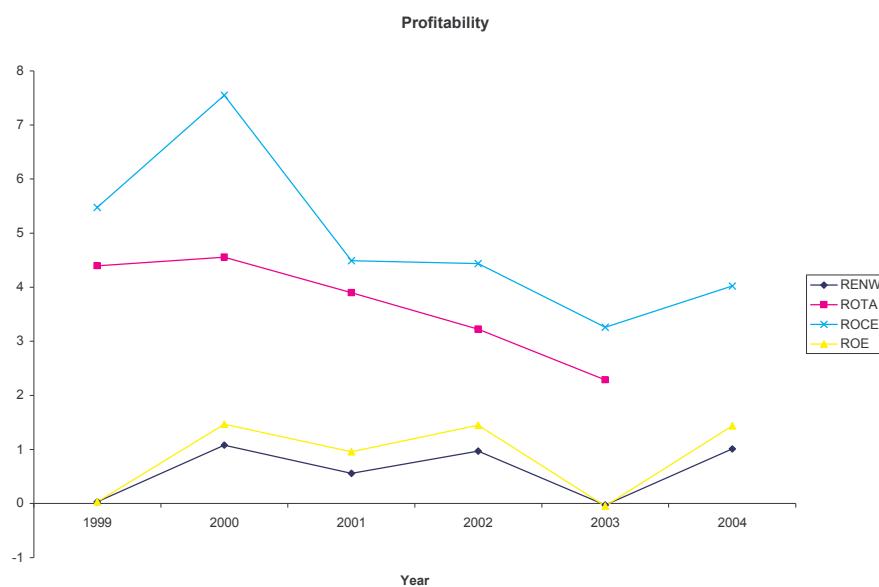
Six financial dimensions which emerged consistently for the six-year period are as follows:

1. Financial Profitability/Operating Costs: This factor is composed of four ratios which are return on net worth, return on capital employed, return on equity and return on total assets. These ratios suggest whether a particular hospital is profitable or not. All these ratios together indicate how the hospital is meeting the expectations of its shareholders.
2. Financial Structure: This factor is composed of three different ratios namely debt equity ratio, total debt to capital employed and total debt to net fixed assets. All these ratios show the importance of debt in the capital structure of hospitals, which in turn indicates whether hospitals use debt in their capital structure.
3. Operating Efficiency: This factor is composed of three ratios namely, capital employed turnover, net fixed assets turnover and total assets turnover. Higher efficiency also implies higher financial performance as return on capital employed is product of PBIT margin and efficiency (PBIT/Revenue x Revenue/Capital Employed). Hospitals generally face the challenge of increasing margins due to increasing competition and lower ability and willingness of people to pay for the services. However, if they will improve their efficiency, hospitals can improve their financial performance.

4. Profit Appropriation: After fixed interest payments are met, profit is available for distribution. In this factor, two ratios have loaded consistency; they are dividend payout ratio and dividend rate. This factor tells us how the profit is distributed by hospitals after meeting all obligations.
5. Fixed Assets Age: This factor is composed of two ratios namely accumulated depreciation to gross fixed assets and gross fixed assets to net fixed assets. With the advent of new technologies and machines, hospitals have become more capital-intensive units. The age of these machines and capacity utilisation will determine the revenue generating ability of the hospitals.
6. Current Assets Efficiency: We measure this by computing two ratios: current asset turnover and net current asset turnover. Use of current assets becomes very important since how the hospital manages resources for its day-to-day operations, depends on current assets. This factor indicates the utilisation of current assets by hospitals.

IV. Financial Performance of Hospitals

Financial Profitability: The key determinant of financial performance is the profit or surplus the organisation generates. The surplus generation is important for the hospitals to remain sustainable. In addition, the profitability measure of an organisation is an important factor to attract private capital. The profitability of hospitals can be measured at two levels: one is in terms of the amount of surplus generated, and the second is the return on capital invested. As discussed, we need to use financial ratios to explain profitability, and based on the findings of this study, we use the following ratios: (a) ROCE, (b) ROE, (c) ROTA, and (d) Growth in net worth (defined by RE/NW). The trends showed by these four ratios are presented in the following figure:

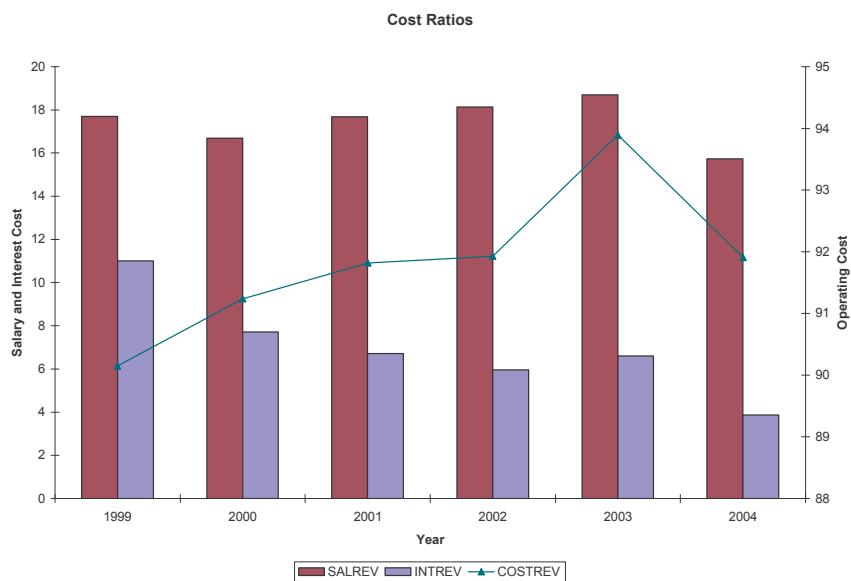


The main observations are as follows:

- ROCE: This measure gives us the return on capital employed and is computed by dividing the PBIT by capital employed. The average ROCE of sample hospitals reduced from around 5% in 1999, to 4% in 2004. Around 35% hospitals had negative ROCE in 1999, which came down 30% in 2004. Still, 30 per cent of hospitals are having negative ROCE.

- ROE: This measures the return shareholders get on their capital invested in the hospital. From the shareholders point of view, this is an important measure of profitability and determines whether the sector will be able to attract risk capital. The average ROE of sample hospitals increased from 0.03% in 1999 to 1.4% in 2004. Around 50% of hospitals had negative ROE in 1999 and this number was at the same level in 2004 also.
- Growth in Net Worth: This measure indicates the growth an organisation can sustain and finance from internal resources. This measure is also known as sustainable growth. The average growth of sample hospitals dropped to 1.01% in 2004 from 1.08% in 2000. The ability to sustain future growth opportunities from internal sources is limited. The hospitals will be required to raise funds from external sources to finance any requirement.
- ROTA: This measure gives the return on total assets employed by the firm. It is an important measure to observe how efficiently the company is using its assets. It decreased from 4.2 in 1999 to around 2.2 in 2004.

The cost structure plays an important role in determining the financial health of an organisation. We examine three costs of hospitals, (a) operating cost, (b) salary expenses, and (c) interest expenses. The trends showed by these three ratios are presented in following figure:

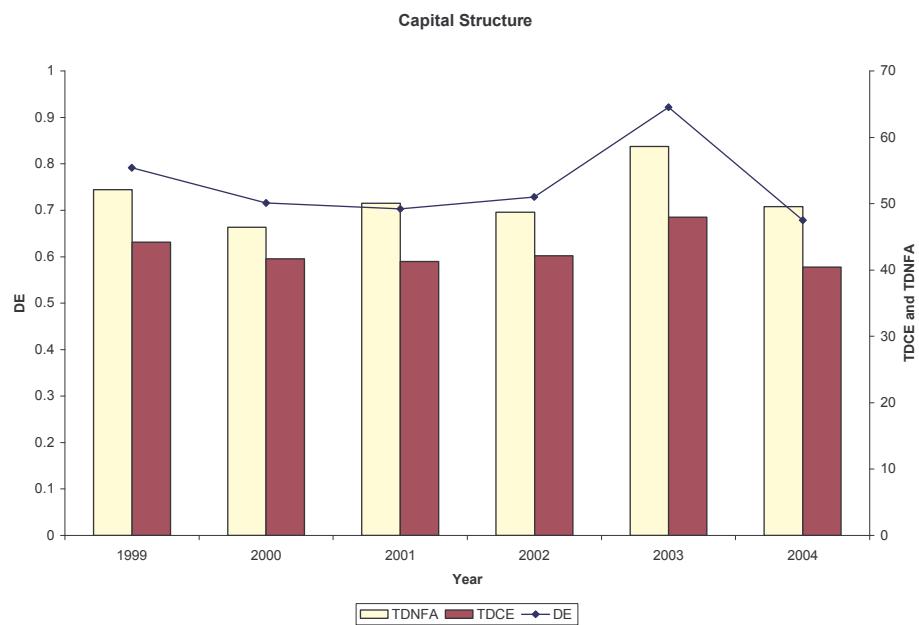


The main observations are as follows:

- Operating Cost: This cost shows how efficiently hospitals are managing their operating costs. Lower the operating cost as percentage of revenue, higher will be the profit. Here we see that COSTREV is increasing overall and it went to around 92% in 2004 from 90% in 1999. This shows that hospitals are not improving on their cost management.
- Salary expense: Hospital operations are people resource intensive. Salary represents the people resource intensiveness. The average salary of hospitals in our sample remains constant at around 16-17% for the period 1999 to 2004. The salary distribution is positively skewed. Half of the hospitals pay less than 15 per cent of their sales as salary.
- Interest expense: Interest constitutes one important item of expense which has to be paid irrespective of the profitability of the organisation. This is a reflection of the hospital's

financing decision and how much they rely on debt financing. The average interest payment of hospitals decreased from 11 per cent in 1999, which is significantly high, to around 3.9% in 2004. We can see that though the situation is a little better now, a huge amount of revenues are still being paid as interest, which means that servicing the debt is a problem. This has serious implications for the financial health of hospitals.

Financial Structure: The financial structure depicts the way the organisation has decided to finance its financial requirements. Broadly there are two major sources to finance the organisation and these are debt or borrowings and equity or owners funds. The borrowings create interest liability and if the organisation is not generating adequate surplus it may face difficulty in meeting these obligations. Also, the financial structure design has implications for the overall financial health of the organisation, as it determines the long-term solvency of the organisation. We use the following measures to discuss the financial structure of hospitals: (a) total debt to capital employed, (b) debt-equity ratio and (c) total debt to net fixed asset. The trends showed by these three ratios are presented in following figure:



The main observations are as follows:

- Total debt to capital employed: This ratio measures the percent of total capital employed that has been financed by debt. The average debt to total capital employed ratio which was 44% in 1999 dropped to around 40% in 2004. About 1/4th hospitals have this ratio less than 3 per cent in 1999 and this number has not increased in 2004. This shows that debt levels are not high.
- Debt-equity ratio: The average debt-equity ratio is 0.79 in 1999 which goes to around 0.92 in 2003 but again drops to 0.67 in 2004. About 45 per cent of hospitals have D/E ratio of less than 0.50 in 2004. Overall the debt ratios are not high. About 1/4th hospitals had a D/E ratio of more than 1.00 in 2004.
- Total debt to net fixed assets: The average of this ratio is 0.52 in 1999 which drop to 0.49 in 2004. In case of around 50 per cent of hospitals the ratio is 0.50 suggesting that a significant component of fixed assets are being financed using debt.

Operating Efficiency: Hospitals are generally capital intensive organisations. In our sample of 128 hospitals, the average fixed assets to total assets ratio is 54 per cent. The efficiency with which these assets are used, determines the financial health of the hospital. The importance of the overall efficiency measure can be explained by the following relationships:

$$\begin{aligned}
 \text{Efficiency} &= \frac{NR}{CE} = \frac{\text{Net Revenue}}{\text{Capital Employed}} \\
 &= \frac{NR}{\frac{\text{Bed Days}(\text{Beds} \times 365)}{\text{Patient days}}} \div \frac{CE}{\frac{\text{Bed Days}(\text{Beds} \times 365)}{\text{Patient days}}} \\
 &= \text{Per Bed day Revenue} \times \text{CE Invested Per Bed Day Capacity} \\
 &= \left[\frac{\text{Number of Patients}}{\text{Patient days}} \times \frac{\text{Patient days}}{\text{Bed days}(\text{Beds} \times 365)} \times \frac{NR}{\text{Number of Patients}} \right] \div \frac{CE}{\text{Bed Days}(\text{Beds} \times 365)} \\
 &= \left[\frac{1}{ALOS} \times \text{Occupancy Rate} \times \text{Net Revenue Per Patient} \right] \div \text{CE Invested Per Bed Day Capacity}
 \end{aligned}$$

The above relationships suggest that the following factors affect efficiency:

- Average Length of Stay (ALOS): Higher ALOS means lower efficiency
- Occupancy Rate (OR): Higher occupancy rate means higher efficiency
- Net Revenue per patient: Higher NR per patient means higher efficiency
- CE Invested Per Bed Day Capacity: Higher CE Invested means lower efficiency

There are significant interdependencies between various measures in the above equation. These need to be factored in before drawing any interpretations. For example, if the hospital is able to bring down the ALOS, it has more capacity to treat the patients. In case this capacity is not utilised and number of patients do not increase, it pulls down the occupancy rate and there is no change in efficiency. This happens because Occupancy Rate \times 365 / ALOS remain constant. The advantage gained by reduction in ALOS is exactly offset by decrease in OR.

Average length of stay (ALOS) has been an important indicator to measure hospital performance. It is considered to have significant influence on cost of care and can also be used as a surrogate measure for cost. Generally hospitals having high ALOS may be relatively inefficient in the use of resources and those with low ALOS are considered to be efficient. Sometimes, however, ALOS is assumed to relate to quality (Thomas, Guire and Horvat 1997). Reducing length of hospital stay (ALOS) is a policy aim in many countries to regulate their health care systems and is thought to indicate efficiency. For example, it is generally viewed that longer than expected ALOS is indication of poor quality of care. The financial ratio of efficiency captures these interdependencies. A lower ALOS is a reflection of good quality of care and is likely to enhance the image of the hospital. If a hospital is being managed efficiently and they ensure lower ALOS, the number of patients will go up and it will result in improvement in the efficiency.

Internationally, the best hospitals have an average length of stay of about 3.5 days. Similarly, on an average, across OECD countries, ALOS for acute care decreased from 9.6 days in 1985 to 6.9

days in 2000. ALOS fell particularly quickly during that period in the Nordic countries (Denmark, Finland and Sweden) and other European countries such as France and Austria.¹ Therefore, it is imperative to have a high turnaround of patients as this will help in improving the efficiency of the hospital. However, if the stay is too short, there may be an adverse effect on health outcomes or on the recovery of the patient, which in turn could lead to higher readmission rates.

Higher efficiency also implies higher financial performance, as return on capital employed is a product of PBIT margin and efficiency (PBIT/Revenue x Revenue/Capital Employed). As discussed earlier that hospitals generally face the challenge of increasing margins. This is due to increasing competition and lower ability and willingness of people to pay for the services. However, by improving the efficiency, hospitals can strategically improve their financial performance. We have examined three financial ratios which indicate the level of efficiency, (a) Total assets turnover, (b) Capital turnover, and (c) NFATO.

The main observations are as follows:

- Total assets turnover: This ratio is computed by dividing the total revenues by total assets. The average of this ratio increased from 0.34 in 1999 to 0.44 in 2004. In case of 58 per cent of hospitals, the ratio is less than 0.50 in 2004.
- Capital employed turnover: This ratio is arrived at after dividing the total revenues by capital employed (CE). The average CE turnover increased from 0.40 in 1999 to 0.62 in 2004. Fifty seven percent of hospitals have this ratio below 0.50 in 1999. In 2004, only 39% hospitals have this ratio below 0.50. Also, 25 per cent of hospitals have this ratio above 1. This implies that in case of 75 per cent of hospitals the return on capital employed is below their PBIT margin.
- NFATO: This ratio increased from 0.59 in 1999 to 0.82 in 2004. This shows that efficiency of hospitals have increased over time.
- CATO and NCATO: Both these ratios have increased over time which shows that hospitals are using their currents assets more efficiently. CATO increased from 2.55 in 1999 to 4.04 in 2004, while NCATO increased from 1.32 in 1999 to 1.74 in 2004.

This dimension of the financial characteristic of hospitals is extremely important as it provides a useful link between the hospital's efficiency in utilising its resources and the financial performance of the hospital. As indicated above, this ratio is also related to average length of stay, occupancy rate, capital invested and average revenue generated per patient. In case of 75 per cent of hospitals, this ratio is less than one which has repercussions on the overall financial performance of hospitals.

Profit/Surplus Appropriation: After meeting interest obligations, profits are available for meeting income tax obligations and dividend policy decisions. We have examined three financial ratios which indicate the level of efficiency viz. (a) dividend payout (b) dividend rate and (c) tax payment. The main observations are as follows:

¹ http://www.oecd.org/document/38/0,2340,en_2825_495642_16560422_1_1_1,00.html.

- **Dividend payout:** Dividend payout is computed by dividing the dividends by the profit after tax. This reflects, what per cent of profits available for distribution to shareholders, have been distributed to shareholders. The average dividend payout of hospitals is 6 per cent. Only a small number of hospitals pay dividends. In 1999 in the sample, 10 percent of hospitals paid dividend, while in 2004 this improved and around 19 percent of hospitals in the sample paid dividend. This also suggests that hospitals in India have poor financial profitability and suffer from liquidity constraints. In times to come, hospitals will need more resources to support and sustain higher growth. Since they do not depend on debt, limited internal generations are going to put a lot of financial constraints on their plans.
- **Dividend rate:** The dividend rate is another measure of the dividend decision of a hospital. This is calculated by dividing the dividend paid by paid-up-value of share capital. The average dividend rate of hospitals has increased from 3 percent in 1999 to 7 per cent in 2004.
- **Tax payment:** A part of profits, before they are distributed as dividends, are paid in the form of taxes to the government. Tax as per cent of sales increased from 1% in 1999 to around 4% in 2004. Almost 50 per cent of hospitals in our sample do not pay any taxes. This reflects the low profitability of hospitals and not having sufficient taxable incomes.

Fixed Asset Age: Technology plays a critical role in the hospital's operations. Most of the hospitals have invested in equipments and machines. The average investment in fixed assets will reflect this. Hospitals in our sample have an average investment of Rs. 143 million in gross fixed assets. There is one hospital which has an investment to the tune of Rs. 4 billion. The age and use of these equipments will suggest the revenue generating ability of the hospitals. This also reflects the capital expenditure requirements of hospitals in near future. We examine this financial dimension by (i) accumulated depreciation to gross fixed assets and, (ii) gross fixed assets to net fixed assets. The trends showed by these two ratios are presented in following figure:



The main observations are as follows:

- **Accumulated depreciation to Gross Fixed Assets:** This ratio reflects the age of fixed assets. The average of this ratio for hospitals in our sample has increased from 0.22 in 1999 to 0.30 in 2004. Relatively, the asset structure of hospitals in India is not old. The hospitals have the strength of having relatively recent technologies.
- **Gross Fixed Assets to Net Fixed Assets:** This ratio also reflects the age of fixed assets. The difference between gross fixed assets and net fixed assets is accumulated depreciation. The average ratio for sample hospitals improved from 1.28 in 1999 to 1.43 in 2004.

The technology intensity of the hospital will be reflected by the use of fixed assets. We estimate the net fixed assets turnover. The median NFA turnover increased from 0.61 in 1999 to 0.88 in 2004. This ratio has indicated improvement in efficiency but overall this ratio is low suggesting that the use of fixed assets in generating the revenues is not adequate and hence pulls down the overall efficiency. The lower efficiency of hospitals is because of less efficient use of fixed assets.

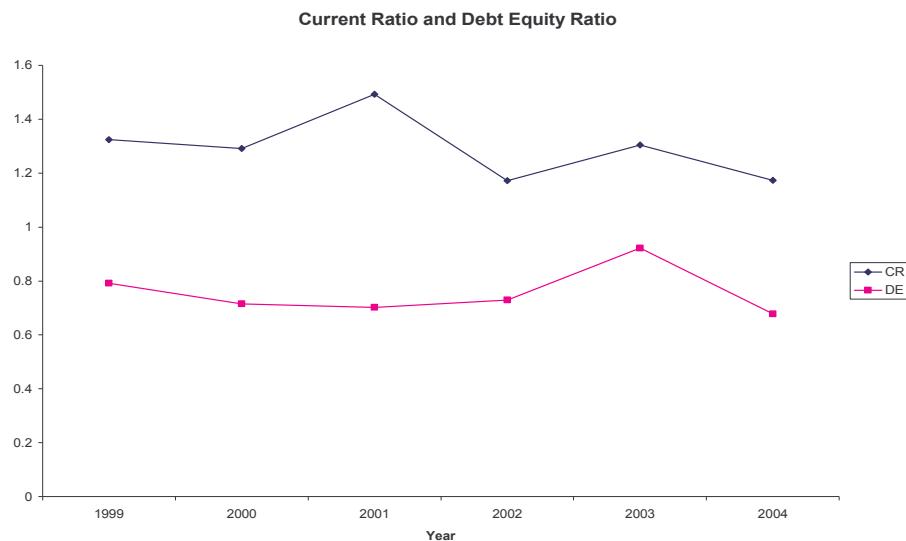
About 4 per cent of total assets are invested in investments which are generally outside the hospital. In 3/4th cases this is less than 1 percent. This should not have affected the efficiency of hospitals in using assets to generate revenues.

Current Assets Efficiency: About 30 per cent of the total assets of hospitals are invested in current assets. Therefore, the use of current asset would be an important determinant of the hospital's performance. We measure this by computing two ratios: current asset turnover and net current asset turnover.

- **Current Asset Turnover:** The median current assets turnover of hospitals increased from 2.25 in 1999 to 2.54 in 2004. This shows that the current assets are being used in a more efficient manner over time.
- **Net Current Asset Turnover:** The median net current assets turnover which was 0.87 in 1999 reached a high of 2.14 in 2001 but again declined in 2004.

Liquidity is defined as the ability to meet short-term obligations. During the process of operations, hospitals have many short-term obligations to pay to its suppliers and repayment of obligations which become due. The ability of an organisation to meet its obligation is measured by the current ratio.

- **Current Ratio:** The median current ratio decreases from 1.37 in 1999 to 1.21 in 2004. About 3/4th of the hospitals have a current ratio of 2.96 and below. In case of 30 per cent of hospitals, this ratio is less than one in 1999 while in 2004 this number is 40%. Overall, this ratio suggests the good liquidity position of hospitals, but it is deteriorating over time.



V. Challenges

Besides the financial performance of hospitals, it is important to understand the challenges faced by the hospitals. As compared to many other industries, hospitals as an organisation face many different and unique challenges. They have complex operations which expose them to greater risks. These risks arise because they need to provide appropriate quality of care, deal with humanitarian issues, tackle ethical dilemmas and handle emotional problems. Besides these, major concerns from the financial perspective include the assessment of (a) viability and sustainability of its operations, (b) significance of cost recovery mechanisms, and (c) operations and financial risks (who pays when, how and what happens if capacity is not utilised properly). The following factors also affect the operational and financial risks in the hospital sector and various challenges faced by managers in this sector:

Competition in the healthcare sector is intensifying with more and more hospitals being set up. This is because such growth is mainly restricted to metropolitan areas or big cities. With increasing competition and intensive use of technologies, hospitals are under pressure to provide cost effective services. To keep their operations sustainable, they need to focus on two important areas: (a) pricing of their services (prices cannot generally be adjusted to frequent changes in the environment, whereas input market sees frequent revision in prices) and (b) capacity utilisation (with unpredictable and fluctuating demand the economics of healthcare and service provision changes). By capacity, we mean both the capacity of hospitals in terms of number of beds and also capacity and usage of high cost technologies. If in the process, hospitals become financially vulnerable, they may resort to unethical practices such as inducing demand and promoting their services through fee-splitting practices.

Services can not be stored or transferred from one place to another. Therefore healthcare, unlike other industries, is faced with a limitation on expanding the capacities to gain economies of scale by creating large facilities. Only if a hospital can position itself to provide highly specialised service or it gains competitive advantage by having highly reputed or skilled doctors or provides high quality service at low cost, can it create facilities with a large capacity.

Managing human resources assume critical significance in knowledge industries. Hospitals face the challenge of ensuring that qualified professionals remain associated with it. Once Doctors leave a hospital, their patients tend to follow them.

There are no high-end hospital equipment manufacturing and healthcare technology firms in India. Most of the equipments are imported and are of high value, paid for in foreign currency. Due to the technological advances, there is always an increased risk of faster technological obsolescence. This contributes to risk on capital cost invested. In order to recover the cost, hospitals also face the challenge of having an appropriate pricing policy which ensures the recovery of the cost of these equipments and technologies. Often, higher pricing may lead to lesser utilisation of capacity because of lower purchasing power and willingness to pay. This will in turn give rise to longer payback periods, increasing the risk further. Therefore, hospitals face a challenge of finding a balance between the cost, pricing and utilisation rate.

Penetration of health insurance in India is still low. In the absence of insurance, the financial barriers to health care are high. This has implications for utilisation of hospital services. However, the management and implementation of health insurance in emerging markets is a challenge because of inadequate regulation of private providers. In the absence of good practices and regulation, health insurance may lead to high health care costs, defeating the purpose of health insurance and making the hospital sector vulnerable.

VI. Implications for the Hospital Sector

Increasing competition and growing attention to the Indian health sector has necessitated the need to improve the performance for Indian hospitals. To improve the performance, improvement in financial health is necessary. The results and analysis of this paper bring out the fact that the Indian hospital sector is financially vulnerable and is operating at wafer thin margins. Though their financial health has improved a bit over the years, they still have a long way to go in improving their overall financials and making them sustainable in the long run. In today's challenging environment, they need to develop strategies which help them to face the competition and embrace new technologies and ideas. The hospital sector is generally capital intensive and as new technologies are developing, it will need fresh capital. Margins in this sector are also low as compared to other manufacturing sector and until they increase efficiency, it is difficult to provide quality of care at a sustained level.

When we see the data related to dividend payments, we see that a large number of hospitals do not pay dividend. For example in 2004 less than 20% of hospitals paid any kind of dividend, with the average rate being 7%. A large number of hospitals are not even reporting profits. This creates a situation where this sector makes itself unattractive to the private sector because of low or negative returns. This creates more problems because to improve the performance, these hospitals need more capital and it is more difficult to get it through private sources.

The ability to manage operations efficiently is a key differentiator in many situations. The hospital sector thrives on the efficiency factor. The efficiency factor is embedded with various performance indicators of the hospital, such as occupancy rates, average length of stay and capital invested in operations. Low efficiency indicates problems on these fronts. Though we do not have data on a number of hospital performance indicators such as ALOS and occupancy rates, the efficiency variable provides a useful link here. The findings indicate that slack in efficiency has significant repercussions on the hospital performance indicators.

In India, the hospital sector got a boost in early 1990s, when it got the industry status and this helped it in getting a fresh wave of investments. Many private promoters and companies turned

towards banks and financial institutions to set up hospitals. However, this has not helped in improving the financial performance of hospitals. From our study, we find that a large number of hospitals are still performing below expectations. A few points emerged consistently from this study. For example, though the percentage of debt in the capital structure is not very high, the interest burden is still very high for the hospitals. Since the performance is poor, profitability low and dividend payout abysmal, private capital is difficult to attract. A high burden of interest also makes these organisations risky and may not attract more debt capital. They may be required to follow several restrictions from lenders. High capital expenditure along with a long gestation period, high operational fixed costs, high technology up-gradation costs and interest burden, are some of the key features which make hospitals vulnerable. We have an example of a few hospitals, where the interest burden is as high as 600% of total revenue.

If we compare the performance of hospitals with the manufacturing sector, we see that hospitals had median interest coverage of around 1 while the figure for manufacturing sector is 2. If we compare this with the debt equity ratio then we see that for the manufacturing sector median was 0.8 in 1999 and the same figure for hospitals in our sample is 0.6. So, we can see that interest burden is very high in this industry and it is not because debt proportion is very high, but because of higher interest burden.

High level of imports of medical equipments is another important reason for the financial vulnerability of hospitals. The Frost and Sullivan study in 2001 estimated the Indian medical hardware market (equipment and devices) at Rs 65.32 billion². The total imports of medical equipments during 2003 have been in the range of about Rs. 150 billion. This is about 12 per cent of the total private health expenditure. Each year we are adding medical equipments worth 12 per cent of the private expenditures (Bhat and Jain 2006). This dependency on imports gives rise to foreign exchange risks which in-turn increases the financial vulnerability of hospitals. Problems related to these equipments do not end with buying only; their maintenance is another important issue. The maintenance of these equipments also poses problems, as the dependence on consumables and disposable components is high. This end of the market is dominated by a fragmented group of small local manufacturers. Since the hospitals would be required to pay in foreign currency, the price-sensitivity and for quality reasons, the sourcing becomes quite important. This further jeopardises the financial position of the hospital. Recently a few equipment manufacturers have shown an interest in setting up manufacturing plants in India, which will help hospitals in reducing the cost and at the same time lead to saving on foreign currency.

In India, private out of pocket payments is the main source of health care financing. In fact, India is one of the highest private healthcare expenditure countries in the world. This system of private financing has its own sets of problems. It creates financial barriers to care and can have catastrophic implications on families needing hospital care. In many countries, health insurance has been considered as an important option to tackle the problems related to health care financing. It is more important in a country like India, where per capita income is very low and there is a large population which lives below the poverty line. Health insurance is a financial mechanism under which people are protected against catastrophic financial burden arising from unexpected illness or injury. Having a well functioning insurance system ensures pooling of resources to cover risks.

² www.sebi.gov.in/dp/dolphin.pdf

With the opening up of the insurance sector in India, the health insurance market is growing at a fast pace. Hospitals are an important link in this chain. Since health insurance is a tripartite agreement, it also assumes a financially sound provider. The health insurance companies have to tie up with hospitals to make the services available. A financially vulnerable provider will be a weak partner in the insurance setting. The recent spate between third party administrators and insurance companies and hospitals is indicative of the fact that there are challenges in developing these partnerships. The insurance puts an additional burden on the financials of hospitals and therefore there are difficulties experienced in sustaining these relationships. Implementation of insurance mechanisms need financially sound hospitals. Given their current financial situation, there will be difficulties in implementing insurance mechanisms. However, hospitals should be able to withstand this risk in the initial phase, when the volume is low, and to handle this kind of risk, they need to better manage their finances.

There is no accreditation of hospitals in India, which makes it difficult for an insurer to fix user fees and also to monitor the quality of care. Ensuring the quality of care will further increase the financial burden on hospitals.

The development of standards for provision of care and agreement on pre-determined rates for reimbursements, are two critical factors in developing an insurance based system of financing. Cost based out-of-pocket reimbursements leads to high cost and poor quality of care. The private health sector is also poorly regulated, as the sector is highly fragmented and regulators find it difficult to develop appropriate mechanisms to control them. In the absence of epidemiological data and less systematic information, health insurance providers also find it difficult to develop appropriate pricing of products, which take into account epidemiological data and are adjusted for risks. These have implications for hospital financials as they will continuously be under pressure to reduce costs. To address this challenge, hospitals need to develop a good database, which not only provides good quality financial data but also non-financial parameters. This will not only give quality information to hospital managers, but also to insurance companies.

We also observe a difference between listed hospitals and unlisted hospitals. To illustrate this point, we took 37 hospitals given in the PROWESS database of CMIE and when we compared them with the sample of unlisted private hospitals, we found that there was substantial difference between these two. Average PBIT margin for the listed hospitals comes out to be around 9-10%, while it was less than 2% for unlisted hospitals. Similarly, ROCE for listed hospitals is in the range of 10-11%, while it is around 5% for the unlisted hospitals. This suggests that governance and financial management of these two groups of hospitals are different.

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www.sebi.gov.in/ dp/dolphin.pdf

Number of hospitals across states

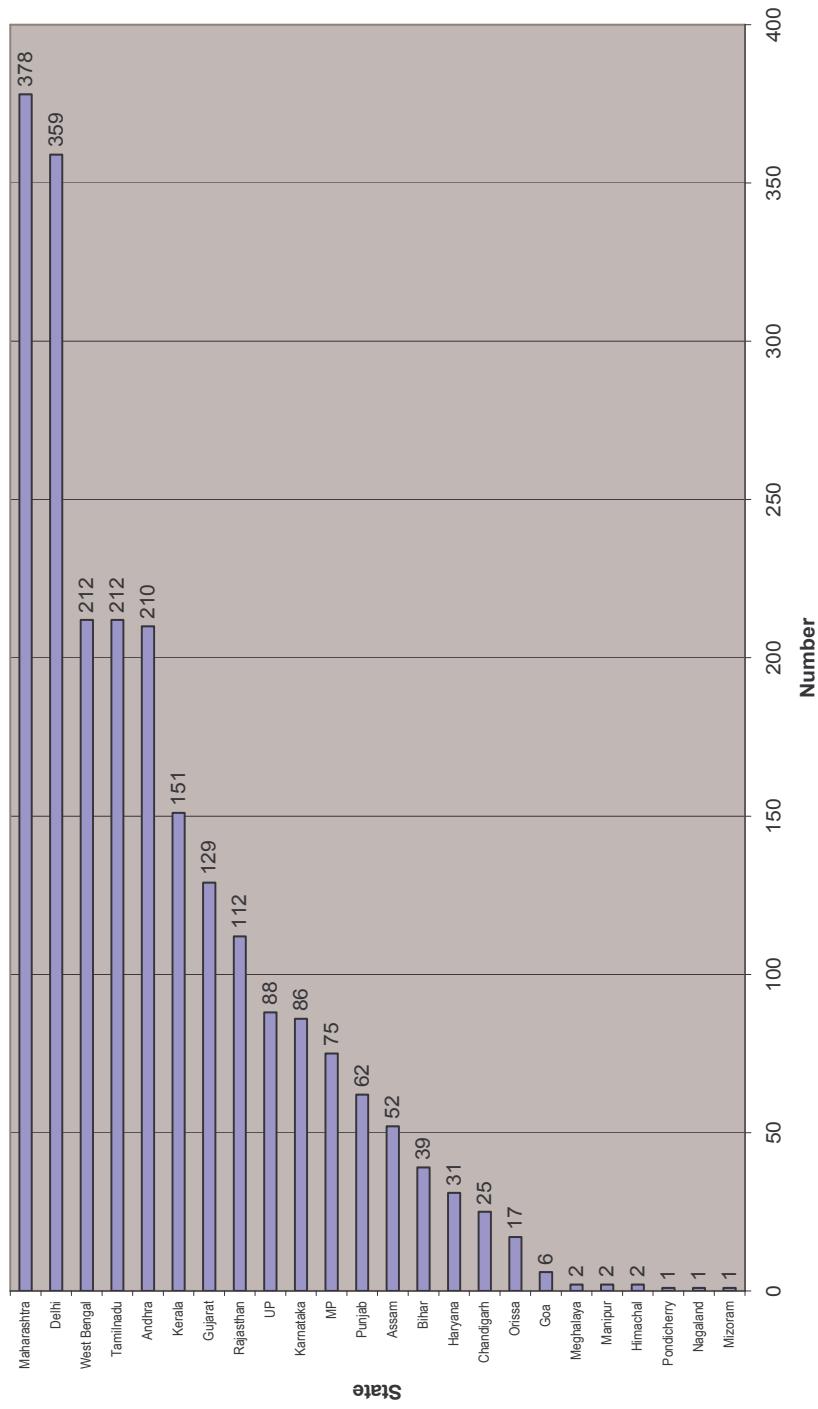


Exhibit 1

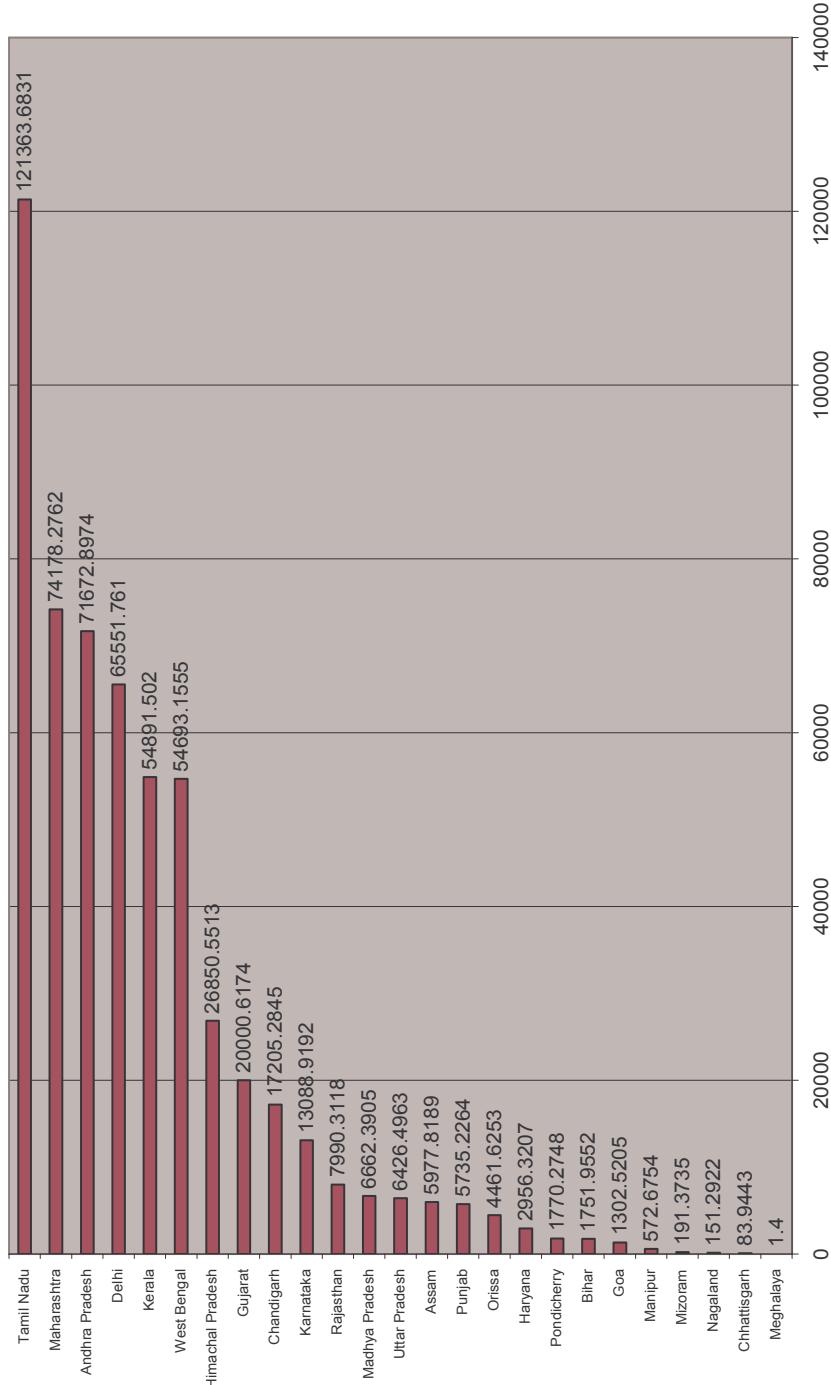
Total Assets

Exhibit 2

Appendix I Year 1999

Variable	N	Mean	Median	Std Dev	1st Pctl	25th Pctl	75th Pctl	99th Pctl
total_income	157	27538.10	6087.08	59429.14	0.36	1639.99	23916.04	234444.00
total_expenditure	157	28181.24	6383.18	59352.22	0.65	1784.00	27393.66	231225.00
salaries_n_wages	157	4755.45	909.63	10134.87	0.00	168.80	4055.31	46200.00
rent_n_royalty	157	460.84	28.00	1258.80	0.00	0.00	200.00	6990.86
interest	157	3999.31	408.68	10035.73	0.00	3.49	2300.00	59200.00
pbt	157	-634.16	2.00	9709.81	-30697.9	-562.90	558.00	30409.00
pat	157	-959.46	1.00	8865.01	-30697.9	-562.90	397.81	21240.00
dividends	157	146.53	0.00	880.13	0.00	0.00	0.00	5900.00
paidup_capital	157	17969.81	6000.00	36791.49	0.00	1195.00	16706.05	203600.00
share_cap_sus_app_mon	157	1486.57	0.00	5996.02	0.00	0.00	369.05	37251.08
reserves_n_surplus	157	10458.04	79.60	36383.81	0.00	0.00	3733.11	232104.59
revaluation_reserves	157	4223.71	0.00	28336.90	0.00	0.00	0.00	178400.00
total_borrowings	157	32643.37	5490.51	98526.38	0.00	137.00	18506.54	722900.00
secured_loans	157	21365.12	1860.20	76696.09	0.00	0.00	13488.36	567100.00
unsecured_loans	157	11278.25	180.00	51860.93	0.00	0.00	3432.02	252700.00
fixed_deposits	157	402.27	0.00	4633.22	0.00	0.00	0.00	2548.65
public_deposits	157	0.00	0.00	0.00	0.00	0.00	0.00	0.00
gfa	157	53759.91	15310.49	117483.01	0.00	1441.98	44100.00	583300.00
nfa	157	43292.69	11678.52	99627.41	0.00	1176.11	33800.00	412800.00
investments	157	1627.03	0.00	15126.46	0.00	0.00	13.00	14036.00
investment_in_cos	157	1365.31	0.00	14826.11	0.00	0.00	0.00	6850.50
invst_subsidary	157	27.39	0.00	286.14	0.00	0.00	0.00	800.00
net_current_assets	157	4111.32	458.53	30410.81	-90300.0	-482.32	2501.57	188600.00
current_assets	157	23336.36	2389.56	137793.45	0.00	562.78	8391.71	320100.00
current_liab	157	19031.52	1576.44	132872.72	0.00	202.14	5322.56	120600.00
misc_expenditure	157	1008.52	22.88	8216.76	0.00	1.82	113.64	11319.00
accumulated_losses	157	11031.64	83.49	60161.31	0.00	0.00	2876.55	268200.00
net_worth+total_borrowings	157	61071.21	14400.00	145599.91	3.30	4503.60	46535.40	1009700.00
buyback_shares_nos	157	0.00	0.00	0.00	0.00	0.00	0.00	0.00
buyback_shares_amt	157	0.00	0.00	0.00	0.00	0.00	0.00	0.00
dividend_rate	157	1.38	0.00	10.88	0.00	0.00	0.00	21.00
pat/(net_worth+total_borrowings)*100	156	-0.95	0.00	19.25	-47.80	-3.74	4.35	56.41

Year 2000

Variable	N	Mean	Median	Std Dev	1st Pctl	25th Pctl	75th Pctl	99th Pctl
total_income	211	48739.71	9446.78	227149.77	0.39	1638.38	31394.40	268035.19
total_expenditure	211	49632.05	9353.58	203883.29	1.25	1800.00	30990.52	458700.00
salaries_n_wages	211	7063.62	1413.33	24561.55	0.00	134.27	578.70	47400.00
rent_n_royalty	211	711.21	60.00	2903.67	0.00	0.00	300.00	6823.00
interest	211	8078.58	550.58	32339.23	0.00	3.78	2266.17	213700.00
pbt	211	-914.05	21.99	41736.48	-113534.8	-748.29	911.03	85100.00
pat	211	-1895.85	21.62	37452.72	-113534.8	-748.29	735.73	43300.00
dividends	211	968.37	0.00	10032.45	0.00	0.00	0.00	10200.00
paidup_capital	211	26644.55	7120.00	77178.62	0.00	1315.00	22230.60	315700.00
share_cap_sus_app_mon	211	2434.98	0.00	10870.73	0.00	0.00	471.00	59929.20
reserves_n_surplus	211	21317.35	348.62	156716.33	0.00	0.00	5028.34	236200.00
revaluation_reserves	211	3579.80	0.00	22163.08	0.00	0.00	0.00	157400.00
total_borrowings	211	39512.62	4888.66	132858.42	0.00	200.92	1905.63	772400.00
secured_loans	211	32233.28	1927.56	112541.23	0.00	0.00	13912.02	559300.00
unsecured_loans	211	7279.33	191.03	36248.12	0.00	0.00	2663.41	213100.00
fixed_deposits	211	1647.78	0.00	23088.82	0.00	0.00	0.00	2404.16
public_deposits	211	1621.09	0.00	22979.47	0.00	0.00	0.00	2404.16
gfa	211	75311.88	16879.73	251814.42	0.00	2001.98	56225.91	1126100.00
nfa	211	58622.68	11991.22	199400.74	0.00	1735.76	41569.00	1063600.00
investments	211	7196.33	0.00	77227.21	0.00	0.00	54.02	50000.00
investment_in_cos	211	1692.98	0.00	13062.54	0.00	0.00	0.00	20300.00
invst_subsidiary	211	704.27	0.00	9923.61	0.00	0.00	0.00	0.00
net_current_assets	211	2169.83	444.63	66662.71	-15980.0	-655.17	3098.36	69100.00
current_assets	211	28811.28	3721.22	154165.14	2.80	1008.12	12337.92	308200.00
current_liab	211	26641.44	2259.47	132486.67	0.00	474.89	11502.68	592500.00
misc_expenditure	211	1391.49	22.42	8940.81	0.00	2.54	101.39	26300.00
accumulated_losses	211	18094.19	0.19	93432.58	0.00	0.00	2796.60	426863.42
net_worth+total_borrowings	211	87474.52	16000.00	314938.11	33.14	4638.93	53444.01	1249000.00
buyback_shares_nos	211	0.00	0.00	0.00	0.00	0.00	0.00	0.00
buyback_shares_amt	211	0.00	0.00	0.00	0.00	0.00	0.00	0.00
dividend_rate	211	7.22	0.00	63.50	0.00	0.00	0.00	200.00
pat/(net worth+total borrowings)*100	211	-0.55	0.44	18.39	-81.73	-4.98	6.46	42.04

Year 2001

Variable	N	Mean	Median	Std Dev	1st Pctl	25th Pctl	75th Pctl	99th Pctl
total_income	224	58906.76	10276.70	259670.71	0.36	2194.95	37697.72	1145078.83
total_expenditure	224	57272.21	10986.14	229005.64	5.67	2478.76	36396.68	885886.58
salaries_n_wages	224	8747.63	1845.80	33044.03	0.00	262.92	6054.94	172600.00
rent_n_royalty	224	923.29	83.53	4044.20	0.00	0.00	495.06	9403.90
interest	224	6854.35	516.73	25728.55	0.00	5.16	3327.83	155000.00
pbt	224	1475.95	53.78	41748.06	-124600.0	-654.74	1353.97	165700.00
pat	224	246.64	40.63	35054.55	-124600.0	-674.81	1209.28	151500.00
dividends	224	1137.23	0.00	9483.20	0.00	0.00	0.00	16800.00
paidup_capital	224	31789.83	7519.75	80913.33	0.00	1519.00	28970.50	367682.87
share_cap_sus_app_mon	224	3101.47	0.00	15191.82	0.00	0.00	672.50	89548.09
reserves_n_surplus	224	29798.59	384.62	183920.94	0.00	0.00	7304.52	278121.64
revaluation_reserves	224	3252.33	0.00	20886.85	0.00	0.00	0.00	143600.00
total_borrowings	224	57247.22	5533.93	226725.36	0.00	657.11	25811.94	1162300.00
secured_loans	224	38369.45	2092.39	130282.51	0.00	0.00	15221.58	626700.00
unsecured_loans	224	19700.98	326.00	179087.33	0.00	0.00	3529.90	258900.00
fixed_deposits	224	1704.16	0.00	24687.11	0.00	0.00	0.00	2408.45
public_deposits	224	1673.27	0.00	24581.07	0.00	0.00	0.00	2408.45
gfa	224	94132.08	20125.26	293373.52	0.00	3245.40	66460.44	1397642.46
nfa	224	70747.39	12831.02	219779.77	0.00	2278.87	49960.31	1200000.00
investments	224	7595.65	0.00	69728.55	0.00	0.00	52.11	212507.84
investment_in_cos	224	4605.71	0.00	36257.80	0.00	0.00	0.00	161224.64
invst_subsidiary	224	884.38	0.00	12937.59	0.00	0.00	0.00	0.00
net_current_assets	224	18319.91	933.89	197220.27	-139400.0	-15.30	5813.94	406313.01
current_assets	224	45186.55	4154.40	230281.73	4.81	1259.96	16161.48	1221700.00
current_liab	224	26866.64	2408.98	113034.77	0.00	450.74	11738.32	778500.00
misc_expenditure	224	1668.93	19.52	10706.88	0.00	0.00	182.38	26800.00
accumulated_losses	224	20503.76	0.00	107915.91	0.00	0.00	3931.25	537700.00
net_worth+total_borrowings	224	118835.64	22246.46	383362.90	23.24	6530.95	70905.67	1571600.00
buyback_shares_nos	224	0.00	0.00	0.00	0.00	0.00	0.00	0.00
buyback_shares_amt	224	0.00	0.00	0.00	0.00	0.00	0.00	0.00
dividend_rate	224	7.12	0.00	56.44	0.00	0.00	0.00	200.00
pat/(net_worth+total_borrowings)*100	224	1.17	0.80	17.66	-59.84	-3.17	8.03	52.57

Year 2002							
Variable	N	Mean	Median	StdDev	1st Pctl	25th Pctl	75th Pctl
total_income	176	77790.93	128820.97	340520.80	18.70	3658.37	38287.46
total_expenditure	176	73937.94	16155.58	303462.82	1.50	4061.09	43070.04
salaries_n_wages	176	12462.09	2800.00	46760.90	0.00	517.80	7861.25
rent_n_royalty	176	1188.44	73.27	6004.26	0.00	0.00	700.00
interest	176	5313.64	674.88	19692.27	0.00	59.32	3958.98
pbt	176	3833.35	184.77	52995.03	-72400.0	-1670.34	2030.42
pat	176	1092.45	133.35	41054.31	-72400.0	-1670.34	1798.57
dividends	176	1367.71	0.00	9345.62	0.00	0.00	0.00
paidup_capital	176	40542.07	10365.00	93834.59	0.00	2477.85	33339.02
share_cap_sus_app_mon	176	2620.43	0.00	13274.11	0.00	0.00	140.65
reserves_n_surplus	176	36050.94	406.21	195877.79	0.00	0.00	8953.99
revaluation_reserves	176	4013.02	0.00	22738.82	0.00	0.00	0.00
total_borrowings	176	70200.22	7500.00	263843.05	0.00	1123.47	36745.78
secured_loans	176	50492.49	2320.96	160881.59	0.00	0.00	24296.27
unsecured_loans	176	35625.91	1056.61	219465.35	0.00	0.00	6414.36
fixed_deposits	176	3226.05	0.00	41296.22	0.00	0.00	0.00
public_deposits	176	3187.01	0.00	41296.41	0.00	0.00	0.00
gfa	176	129639.20	28149.00	380554.14	0.00	6393.68	90311.13
nfa	176	96573.71	18683.45	279200.92	0.00	3905.62	75032.52
investments	176	8738.68	0.00	69953.53	0.00	0.00	151.20
investment_in_cos	176	7189.65	0.00	58439.14	0.00	0.00	0.00
invst_subsidary	176	4318.75	0.00	50252.04	0.00	0.00	95200.00
net_current_assets	176	19182.78	863.42	225565.22	-477900	-711.00	4875.78
current_assets	176	55168.55	5240.82	271160.16	62.12	1899.92	19251.10
current_liab	176	35985.76	4252.28	138322.02	2.17	861.67	16041.99
misc_expenditure	176	2245.56	19.90	13633.15	0.00	0.00	282.87
accumulated_losses	176	24562.37	22.65	120256.60	0.00	0.00	8298.43
net_worth+total_borrowings	176	146793.22	33412.90	429361.29	322.70	8751.03	95583.50
buyback_shares_nos	176	0.00	0.00	0.00	0.00	0.00	0.00
buyback_shares_amt	176	0.00	0.00	0.00	0.00	0.00	0.00
dividend_rate	176	4.93	0.00	40.05	0.00	0.00	50.00
pat/(net worth+total_borrowings)*100	176	-10341.58	0.80	137170.94	-514.78	-5.37	6.15
							50.64

Year 2003

Variable	N	Mean	Median	Std Dev	1st Pctl	25th Pctl	75th Pctl	99th Pctl
total_income	136	95532.15	21466.94	420206.72	21.00	3885.93	5780.00	1580200.00
total_expenditure	136	94217.33	22131.52	381451.23	45.00	3767.32	64606.12	1392000.00
salaries_n_wages	136	14416.60	3130.92	54549.93	0.00	630.18	11500.00	222000.00
rent_n_royalty	136	1349.41	92.40	7269.74	0.00	0.00	897.30	10253.90
interest	136	6022.27	810.15	21664.62	0.00	100.00	3892.89	62100.00
pbt	136	1221.73	16.63	53705.85	-6290.00	-1802.41	1388.84	188200.00
pat	136	-1597.56	4.82	42355.02	-6290.00	-1946.46	1026.34	111900.00
dividends	136	2253.56	0.00	13944.34	0.00	0.00	0.00	87900.00
paidup_capital	136	51300.06	11817.85	112636.15	0.00	2531.84	44835.52	454000.00
share_cap_sus_app_mon	136	2985.78	0.00	18399.34	0.00	0.00	260.00	34552.82
reserves_n_surplus	136	35393.03	676.60	170561.45	0.00	0.00	6069.80	428000.00
revaluation_reserves	136	3206.18	0.00	21343.90	0.00	0.00	0.00	158700.00
total_borrowings	136	87530.05	10819.32	294963.74	0.00	2516.72	51311.62	1709900.00
secured_loans	136	62081.125	4388.69	161583.92	0.00	0.00	41362.42	907100.00
unsecured_loans	136	32131.15	1413.91	244779.32	0.00	0.00	7186.36	591600.00
fixed_deposits	136	35550.89	0.00	39571.91	0.00	0.00	0.00	9400.00
public_deposits	136	3502.76	0.00	39573.57	0.00	0.00	0.00	9400.00
gfa	136	157056.44	32610.33	413707.70	7.13	8459.59	110255.14	2207300.00
nfa	136	122105.09	21197.59	315417.50	5.10	4870.69	85100.00	1646600.00
investments	136	9226.10	0.00	79720.09	0.00	0.00	529.97	80952.08
investment_in_cos	136	7705.58	0.00	71543.18	0.00	0.00	0.00	80092.00
invst_subsidary	136	6150.74	0.00	70588.29	0.00	0.00	0.00	12300.00
net_current_assets	136	21761.79	985.51	251853.02	-450600.0	-1132.10	7450.00	818300.00
current_assets	136	71530.65	8259.13	321887.46	114.06	2752.98	28746.89	1841800.00
current_liab	136	49768.85	5594.01	179116.68	5.40	1145.70	20827.11	958900.00
misc_expenditure	136	1616.80	21.82	7339.41	0.00	0.00	400.00	23400.00
accumulated_losses	136	25944.11	717.76	90186.40	0.00	0.00	11048.29	519400.00
net_worth+total_borrowings	136	174223.14	37763.59	460906.53	545.79	12222.98	126928.75	2682700.00
buyback_shares_nos	136	0.00	0.00	0.00	0.00	0.00	0.00	0.00
buyback_shares_amt	136	0.00	0.00	0.00	0.00	0.00	0.00	0.00
dividend_rate	136	5.86	0.00	45.48	0.00	0.00	0.00	50.00
pat/(net_worth+total_borrowings)*100	136	-0.79	0.09	14.29	-65.84	-5.60	4.85	27.23

Year 2004

Variable	N	Mean	Median	Std Dev	1st Pctl	25th Pctl	75th Pctl	99th Pctl
total_income	63	194345.12	25800.00	676207.17	600.00	1010.00	94900.00	5053200.00
total_expenditure	63	181576.14	31794.78	600181.98	600.00	930.00	95800.00	4467000.00
salaries_n_wages	63	26896.22	5600.00	88237.34	0.00	1056.28	20600.00	657000.00
rent_n_royalty	63	2766.09	200.00	12774.09	0.00	0.00	10000.00	100600.00
interest	63	9537.19	1000.00	27216.65	0.00	200.00	5390.64	194600.00
pbt	63	12698.02	206.07	86133.96	-147300.0	-380.00	4800.00	58200.00
pat	63	4939.27	100.00	58360.72	-147300.0	-380.00	4800.00	371500.00
dividends	63	5526.98	0.00	23642.03	0.00	0.00	0.00	156000.00
paidup_capital	63	70588.43	22500.00	140955.08	0.00	750.00	85000.00	916700.00
share_cap_sus_app_mon	63	1382.34	0.00	5375.18	0.00	0.00	0.00	39200.00
reserves_n_surplus	63	65290.05	2000.00	272752.42	0.00	0.00	10063.81	2071500.00
revaluation_reserves	63	2596.83	0.00	19833.32	0.00	0.00	0.00	157400.00
total_borrowings	63	88462.94	13500.00	252271.80	0.00	1700.00	52200.00	1564000.00
secured_loans	63	69412.10	3997.77	165936.22	0.00	0.00	29052.53	916300.00
unsecured_loans	63	19050.83	1700.00	124400.57	-454300.0	0.00	11400.00	647700.00
fixed_deposits	63	6714.68	0.00	47574.99	0.00	0.00	0.00	377600.00
public_deposits	63	6692.46	0.00	47577.84	0.00	0.00	0.00	377600.00
gfa	63	233386.46	52092.46	586932.43	831.79	17151.68	177600.00	3951600.00
nfa	63	167532.20	32583.47	414903.73	401.82	940.00	112421.27	2719400.00
investments	63	19872.61	0.00	115852.21	0.00	0.00	600.00	909700.00
investment_in_cos	63	16420.39	0.00	104617.87	0.00	0.00	0.00	821600.00
invst_subsidary	63	15682.54	0.00	103985.33	0.00	0.00	0.00	816200.00
net_current_assets	63	14706.83	2100.00	138811.82	-452800.0	-7487.03	10200.00	879600.00
current_assets	63	105968.08	14800.00	369408.84	60.34	340.00	50300.00	2165700.00
current_liab	63	91261.25	9700.00	273276.27	55.12	1740.83	45900.00	1778500.00
misc_expenditure	63	3159.95	16.59	10614.38	0.00	0.00	1224.67	56500.00
accumulated_losses	63	36124.32	2700.00	90665.13	0.00	0.00	34800.00	531500.00
net_worth+total_borrowings	63	224341.41	47100.00	551950.80	700.00	17956.54	256100.00	4030700.00
buyback_shares_nos	63	0.00	0.00	0.00	0.00	0.00	0.00	0.00
buyback_shares_amnt	63	0.00	0.00	0.00	0.00	0.00	0.00	0.00
dividend_rate	63	6.27	0.00	21.58	0.00	0.00	0.00	131.25
pat/(net_worth+total_borrowings)*100	63	-2.49	0.17	21.04	-112.10	-7.30	5.59	35.36

Appendix II

Variable	Mean						Median					
	1999	2000	2001	2002	2003	2004	1999	2000	2001	2002	2003	2004
No. of Hospitals	1.57	2.11	2.24	1.76	1.36	6.3	1.57	2.11	2.24	1.76	1.36	6.3
SALREV	28.82	23.25	33.44	27.41	22.45	20.31	16.77	15.88	15.97	16.12	16.67	16.67
ROYREV	2.96	2.52	10.21	4.64	2.18	0.49	0.52	0.58	0.49	0.40	0.40	0.96
INTREV	114.62	35.90	706.77	19.92	11.84	8.36	7.15	5.87	4.96	5.54	5.20	3.72
TAXREV	1.09	1.41	0.86	0.64	0.59	3.91	0.00	0.00	0.00	0.00	0.00	0.00
DIVAYOUT	4.52	6.38	4.17	5.02	8.54	10.15	0.00	0.00	0.00	0.00	0.00	0.00
DIVRATE	3.24	3.92	4.27	5.21	6.99	7.24	0.00	0.00	0.00	0.00	0.00	0.00
RENW	-0.95	-0.55	1.17	-10341.58	-0.79	-2.49	0.00	0.44	0.80	0.80	0.09	0.17
TATO	0.56	0.53	0.70	0.50	0.50	0.59	0.34	0.36	0.40	0.35	0.37	0.45
NEATO	3.49	3.12	28.07	7.79	13.64	2.39	0.61	0.73	0.74	0.76	0.78	0.88
CATO	3.59	4.44	3.63	3.76	4.02	5.05	2.25	2.17	2.41	2.30	2.59	2.95
NCATO	1.88	3.81	11.72	5.25	-27.10	-4.71	0.87	1.47	2.15	0.95	0.90	0.84
CETO	1.01	0.90	0.92	38.21	1.00	1.14	0.40	0.50	0.50	0.47	0.53	0.62
CLPP	2559.96	1263.71	3144.12	415.65	5519.12	332.10	83.41	97.28	85.89	95.72	97.59	98.04
CR	33.12	20.73	16.58	37.53	53.49	9.28	1.37	1.39	1.68	1.31	1.31	1.22
ROTA	1.83	1.06	-9.88	1.42	2.80	3.65	2.78	3.59	4.05	3.20	2.23	3.38
ROCE	6.74	7.38	7.54	-10258.33	5.15	5.54	5.08	4.71	5.14	4.20	2.90	4.08
TDCE	37.58	35.37	36.06	36.71	39.95	32.14	36.79	32.46	34.95	40.09	45.00	38.80
DE	39.32	94.34	152.25	78.31	1.95	1.17	0.58	0.47	0.54	0.67	0.82	0.63
TDNFA	383.48	332.12	51436.95	74062.02	110804.61	68.08	48.98	46.30	47.94	45.66	56.24	46.65
ROE	-91.31	-1948.36	-9117.34	-11267.23	-17.38	-30.59	0.03	0.97	1.04	1.36	0.12	0.18
ACDSPGFA	22.30	24.44	25.31	28.33	28.89	34.99	21.83	23.96	25.53	27.37	28.80	33.00
GFA	1.39	1.45	1.46	1.54	1.55	1.75	1.28	1.32	1.34	1.38	1.40	1.49
INVSITA	66.21	20.83	20.04	41.86	22.90	6.24	0.00	0.00	0.00	0.00	0.00	0.00
NFASAL	6099.28	13719.79	5342.51	6038.90	4247.79	2021.20	742.55	686.77	676.88	766.99	830.16	650.00
COSTREV	205.52	295.93	312.59	170.31	176.26	95.16	93.63	91.31	92.83	92.29	93.74	91.74

Appendix III

Variable	Mean					Median						
	1999	2000	2001	2002	2003	2004	1999	2000	2001	2002	2003	2004
No. of Hospitals	98	135	149	131	94	44	98	135	149	131	94	44
SALREV	19.85	20.82	22.31	22.74	20.75	19.58	17.70	16.69	17.68	18.14	18.70	15.74
ROYREV	2.85	2.28	2.94	2.53	2.07	1.85	0.86	0.83	0.74	0.80	0.67	0.91
INTREV	21.44	17.65	14.46	15.46	11.17	7.51	11.00	7.72	6.72	5.96	6.60	3.87
TAXREV	0.40	0.89	0.64	0.73	0.76	1.23	0.00	0.00	0.00	0.00	0.00	0.00
DIVAYOUT	3.42	6.58	3.13	4.87	5.41	10.31	0.00	0.00	0.00	0.00	0.00	0.00
DIVRATE	1.02	2.05	0.96	1.78	1.84	3.15	0.00	0.00	0.00	0.00	0.00	0.00
RENW	-1.36	0.36	0.59	0.25	-0.45	-0.51	0.03	1.08	0.56	0.97	-0.03	1.01
TATO	0.47	0.51	0.52	0.46	0.49	0.51	0.34	0.42	0.40	0.38	0.42	0.47
NFATO	1.29	1.91	2.32	1.80	1.63	1.30	0.60	0.79	0.71	0.66	0.73	0.83
CATO	3.83	4.07	3.71	3.91	3.96	5.24	2.56	2.92	2.77	2.61	2.90	4.09
NCATO	-1.25	1.46	6.37	3.93	3.92	-7.98	1.31	1.97	2.52	1.35	2.57	1.75
CETO	0.74	0.84	0.74	0.77	0.79	0.78	0.41	0.57	0.52	0.50	0.58	0.61
CLPP	246.48	220.96	213.39	213.66	167.37	213.00	87.45	95.63	84.96	99.03	92.53	98.04
CR	4.17	3.19	5.66	2.47	4.47	5.21	1.32	1.29	1.49	1.17	1.30	1.17
ROTA	4.03	5.02	3.60	2.58	2.79	2.82	4.40	4.55	3.90	3.22	2.29	3.30
ROCE	5.76	8.40	6.65	6.12	5.12	5.02	5.48	7.55	4.49	4.44	3.26	4.02
TDCE	41.96	39.00	40.29	38.68	43.31	35.17	44.19	41.71	41.27	42.16	47.96	40.41
DE	1.24	1.15	1.10	1.06	1.27	0.83	0.79	0.72	0.70	0.73	0.92	0.68
TDNFA	63.61	74.19	89.29	92.58	73.83	50.49	52.11	46.46	50.05	48.72	58.60	49.56
ROE	-6.18	-5.01	-1.31	-3.09	-5.55	-5.41	0.03	1.46	0.96	1.45	-0.04	1.44
ACDSPGFA	21.88	25.97	24.45	27.69	28.23	33.10	21.89	25.21	25.00	26.73	26.45	30.27
GFANFA	1.36	1.46	1.41	1.49	1.50	1.62	1.28	1.34	1.33	1.36	1.36	1.43
INVESTA	3.13	4.41	1.84	8.99	1.82	2.42	0.00	0.00	0.00	0.00	0.00	0.00
NIFASAL	2850.67	1882.10	2357.26	2832.31	1467.18	1100.51	977.02	711.75	867.18	855.63	859.39	749.76
COSTREV	97.46	101.85	121.30	109.18	102.03	98.42	90.15	91.24	91.82	91.93	93.89	91.91