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Models for measuring and predicting shareholder value: A study of third party software service providers

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Abstract. In this study, we use the strategic profit model (SPM) and the economic value-added (EVA to measure shareholder value). SPM measures the return on net worth (RONW) which is defined as the return on assets (ROA) multiplied by the financial leverage. EVA is defined as the firm's net operating profit after taxes (NOPAT) minus the capital charge. Both, RONW and EVA provide an indication of how much shareholder value a firm creates for its shareholders, year on year.

With the increasing focus on creation of shareholder value and core competencies, many companies are outsourcing their information technology (IT) related activities to third party software companies. Indian software companies have become leaders in providing these services. Companies from several other countries are also competing for the top slot. We use the SPM and EVA models to analyse the four listed players of the software industry using the publicly available published data. We compare the financial data obtained from the models, and use peer average data to provide customized recommendations for each company to improve their shareholder value. Assuming that the companies follow these rules, we also predict future RONW and EVA for the companies for the financial year 2005. Finally, we make several recommendations to software providers for effectively competing in the global arena.

Keywords. Shareholder value; strategic profit model (SPM); economic value-added (EVA).

1. Introduction

With the increasing global competition, companies are focusing their efforts on creating shareholder value in order to survive the intense competition. In view of this, it is becoming important for companies to measure the value they create for their shareholders. Keeping track of the value created year-on-year enables companies to evaluate past decisions and make decisions that will improve shareholder value.

With the increasing focus on core competencies, many companies are outsourcing their information technology (IT) related activities to third party software service providers. For

example, Indian software companies have become global leaders in providing these services due to their access to lower cost labour and highly skilled workforce. These software service providers have been facing severe backlash from the West where jobs are being lost due to outsourcing. With such challenges, it becomes important for the companies to become aware of their position (in terms of shareholder value creation, revenue and expenditure) in comparison with their competitors. Knowing these will enable the companies to define and redefine their strategy to improve their profit margins and also capitalize on their individual strengths to enhance shareholder value creation.

This paper is arranged as follows: we begin with a survey of present literature on shareholder value analysis and the models used to measure this value. We then introduce the four Indian software companies that are used in this study. The companies have been given fictitious names to provide confidentiality. Following this, we apply the models to the companies selected. We use the data provided by the models (in the period 2002–2004) to provide an in-depth analysis of the companies and their competitive position, and the measures that each of them can take to improve their shareholder value. In addition, we use the past data available to us to predict the shareholder value (RONW and EVA) for 2005.

2. Literature survey

Existing research on shareholder value is focused on determining the methods of measuring this value, and applying these methods to study the creation of shareholder value for various industries. Copeland *et al* (1994) discuss the benefits of shareholder value measurement and Lambert & Burduroglu (2000) provide methods for measuring this value. Lambert & Burduroglu (2000) discuss SPM, while Stewart *et al* (2002) discuss EVA. Stapleton *et al* (2002) have applied the SPM to players of the athletic footwear industry. Walters (1999) develops the general operating value drivers for EVA. In this paper, two of the methods, the strategic profit model (SPM) and economic value-added (EVA) are used.

Existing research concentrates on shareholder value analysis on manufacturing companies. The research in this paper introduces two methods of measuring shareholder value, and applies them to the Indian software industry. Such an analysis would enable firms in this industry to know their competitive advantages and disadvantages, and provide focus on the key areas of improvement of shareholder value.

2.1 *Measuring shareholder value*

2.1a *Value-based performance measurement:* Performance measurement is the method of assessing a company's progress towards achieving its preset goals. Through key performance measures, an organisation's strategy is linked to its operations. The objective of performance measurement and management is to increase the shareholder value, profitability, growth, competitiveness, quality, customer satisfaction, etc. of an organisation resulting in improved performance (Moncla & Arents-Gregory 2003).

An important concept in performance measurement is benchmarking. Benchmarking is the systematic process of searching for the best business practices, innovative ideas and effective operating procedures to fuel progress and improvement (Bogan & English 1994, p. 1). Benchmarking enables companies to compare their key performance measures internally or externally. An organisation can study practices and measure performance from within itself, or against its industry peers. Benchmarking helps organisations refine their strategy through the re-examination of products, prices, practices, strategies, structures and services against competitors and other industry leaders (Bogan & English 1994, p. 9).

A particular category of performance measures are financial performance measures. Financial measures indicate to top-management whether their strategy execution is leading to better bottom-line results (Niven 2003, p. 19). The financial metrics are based on information obtained from balance sheets, income statements and cashflow statements (Bogan & English 1994, p. 57). Some examples of these metrics are revenue, gross profit, operating income, net income, earnings per share, long-term debt, cash flow, debt/equity ration, etc. By adopting a performance measurement system based on financial measures, companies can identify the key performance metrics that would result in improved financial outcomes.

As customers place an increasing demand on companies to provide "value-added" services, it is becoming vital for companies to be able to measure the value of these services in order to justify a premium price for the services and ensure continued profitability (Lambert & Burduroglu 2000). Many organisations have adopted a new breed of performance measures that are based on shareholder value, known as value-based management.

Shareholder value is the financial value created for shareholders by the companies in which they invest (Christopher & Ryals 1999, p. 2). A shareholder is any holder of one or more shares in a company. The evidence of being a shareholder is in the form of a stock certificate. The shareholder value theory states that a company creates this value when it meets or exceeds a cost of capital that suitably reflects its investment risk (Lambert & Burduroglu 2000, p. 10).

Companies are choosing to employ a system of measuring shareholder value for many reasons (Copeland *et al* 1994, p. 22). First, value is the best metric of performance as it is the only measure that is comprehensive and hence is useful for decision-making. By increasing shareholder value, companies can maximize the value for other stakeholders (customers, labour and government (through taxes paid) and suppliers of capital). Second, shareholders are the only stakeholders of a company who simultaneously maximize everyone's claim in seeking to maximize their own. Finally, companies that are unable to create shareholder value will find that capital flows away from them and towards their competitors who are creating shareholder value.

The most common methods for measuring shareholder value are (Lambert & Burduroglu 2000, p. 2):

- Customer satisfaction and customer value-added (CVA)
- Total cost analysis
- Profitability analysis
- Strategic profit model (SPM)
- Economic value-added (EVA)

The strategic profit model (SPM) and economic value-added (EVA) methods of measuring shareholder value are used here to analyse the Indian software industry. The advantages of the SPM and EVA models are that they enable the company to focus on shareholder value, are the most financially comprehensive of the above methods and provide a long-term orientation in their analysis. They are reliable and consistent methods of measuring the value of business, and how alternative strategies and investments will affect the company's total shareholder value. Due to these advantages, the SPM and EVA models were chosen as methods of measuring shareholder value.

2.2 *Strategic profit model (SPM)*

The strategic profit model (SPM) measures the return on net worth (RONW) of a company. RONW is a tool that is used to measure the increase or decrease in the shareholder value

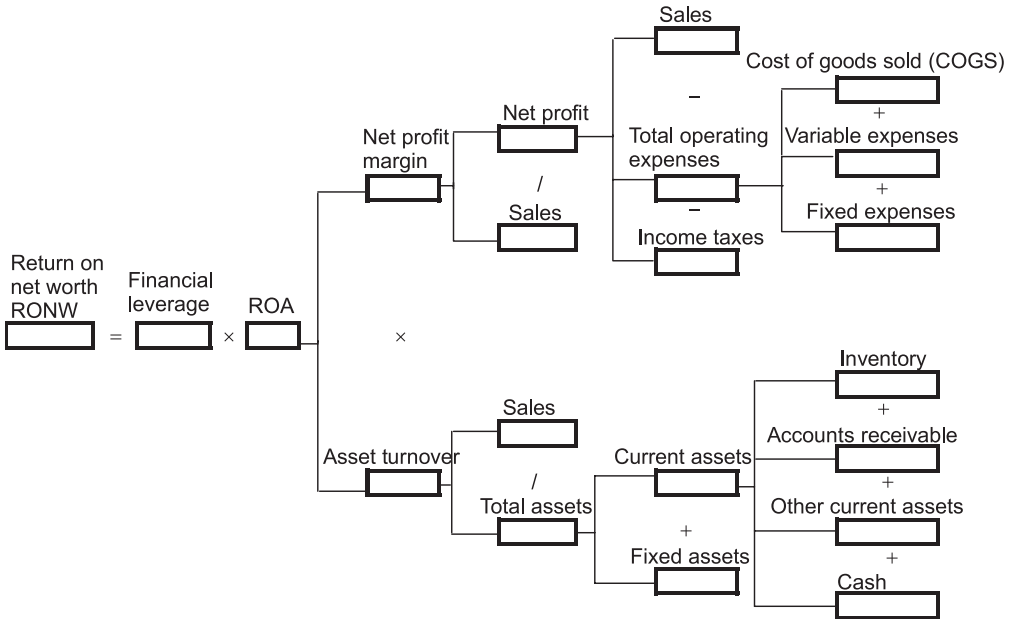

Figure 1. Strategic profit model (SPM).

of an organisation. RONW is made up of three basic components namely net profit, asset turnover and financial leverage. These components can be controlled by the managers of a company.

Net profit is defined as the difference between sales and expenses. Related to net profit is the net profit margin of a company which is the net profit as a percentage of sales. This measures how efficiently a company manufactures and sells its products. Asset turnover, which is the sales divided by the total assets of a company, shows how efficiently the company employs its assets in order to achieve a certain level of sales. The return on assets (ROA) of a company is calculated by multiplying the net profit margin with the asset turnover. This measure relates the profitability of a company to the value of the assets employed. The ROA of a company can be improved by increasing the net profit and/or reducing the assets employed. The financial leverage of a company provides a relationship between the total equity (liabilities and shareholder's equity) of the firm and the amount invested by the shareholders (Jablonsky & Barsky 2001, p. 22). Since total equity is equal to total assets, financial leverage is the total assets under the control of management divided by the net worth or amount of shareholder's investment in the company. From these financial figures, the RONW is obtained by multiplying the return on assets by the financial leverage. This provides an indication of how well a company is utilizing the investment made by their shareholders (see figure 1) (Stapleton *et al* 2002, p. 90; Jablonsky & Barsky 2001, p. 16).

The information required in the calculation of RONW is obtained from a company's income statement and balance sheet. The data on sales and total operating expenses (comprising of cost of goods sold (COGS), variable expenses and fixed expenses) are obtained from the income statement, while the data for current and fixed assets are obtained from the balance sheet.

A company can increase its RONW by implementing one of the following.

- Increase sales
- Reduce operating expenses
- Reduce total assets

We assume that the financial leverage of a company remains the same since asset reduction in one area (e.g. inventory or accounts receivable) would result in the cash being used in other more productive assets.

2.3 *Economic value-added (EVA)*

Stern Stewart & Co (www.sternstewart.com/) created the EVA to aid managers in their decision-making by incorporating two basic concepts of finance. The first is that the objective of any business is to maximize the value created for the company's shareholders. Second, the value of a company is dependent on the extent to which shareholders expect earnings to be greater than or less than the cost of capital. A continuous increase in EVA will result in an increase in the market value of the company.

EVA has been adopted by many companies including Coca Cola Inc, DuPont, AT&T, Quaker Oats and General Motors. In a Stern Stewart Research Special Report (Stewart *et al* 2002), companies that implemented the EVA in the 1990s outperformed their peers by an average of 8·3% per annum over the five years following its adoption, and created total excess shareholder wealth of $116 billion. The report also showed that even in periods of economic slowdown, EVA clients earned a total return of 36·5% and beat the S&P 500 by a total of 69·8%.

The reason so many companies have adopted the EVA and have realized financial benefits are due to the advantages of its use. EVA highlights the areas of the company that create value. This enables managers to take decisions on increasing the efficiency of their capital and operations by focusing work on areas with higher productivity. EVA-based financial management gives managers superior information, motivation, empowerment and accountability to ensure that their decisions create the greatest amount of shareholder value. EVA aligns the decisions managers take with the creation of shareholder wealth.

EVA is the net operating profit after tax (NOPAT) minus the capital charge of a company. The NOPAT of a company is defined as the operating profit after taxes have been deducted. It is the return on the company's total capital invested. The capital charge is an appropriate charge for the opportunity cost of all capital invested in a company. EVA shows the dollar amount of wealth a company has created or destroyed. The information required to calculate a company's EVA is obtained from a company's income statement and balance sheet. Table 1 shows how to calculate a company's EVA.

Figure 2 shows how the above steps lead to the calculation of the EVA of a company.

The significant components of a company's capital (C) are the working capital, the fixed assets and the intangible assets (e.g. goodwill and patents). The company's working capital is difference of the total current assets and the current liabilities. The current assets include the company's accounts receivables, inventory, prepaid expenses, cash and other current assets. The current liabilities is the sum of accounts payable, notes payable and accrued liabilities, less short-term debt. This is shown in figure 3.

A company can increase its EVA in the following ways.

- Increasing NOPAT by increasing operating income
- Reducing the capital charge by reducing the company's capital and cost of capital

Table 1. Calculation of EVA.

	Year
Earnings before interest and taxes, EBIT	Input
Income tax	Input
NOPAT (Net operating profit after tax)	EBIT − tax
Total assets	Input
Current liabilities	Input
Capital investment (C)	Total assets − Current liabilities
Total equity (shareholders funds/equity)	Input
Average equity proportion	Total equity/total assets
Equity cost	Input
Average debt proportion	1 - Average equity proportion
Debt cost (debt interest rate)	Interest expense/LT debt
Tax rate	Input
Cost of capital (COC)	Average equity proportion × equity cost + Average debt proportion × debt cost × (1-tax rate)
Capital charge	C × CCR
EVA	NOPAT − COC
EVA (in million US$)	EVA × exchange rate

3. Case study: Third party software service providers

This explosion of software services outsourcing was fuelled by the "Year 2000" or "Y2K" problem. India has become a leader in providing these services and exports software and services to nearly 95 countries around the world (Embassy of India, www.indianembassy.org). The US market dominates Indian software export, accounting for 65% of total exports (Heeks 1998). The Indian software industry has grown to an amazing US$7·8 billion in 2003 (Embassy of India, www.indianembassy.org). The National Association of Software and Ser-

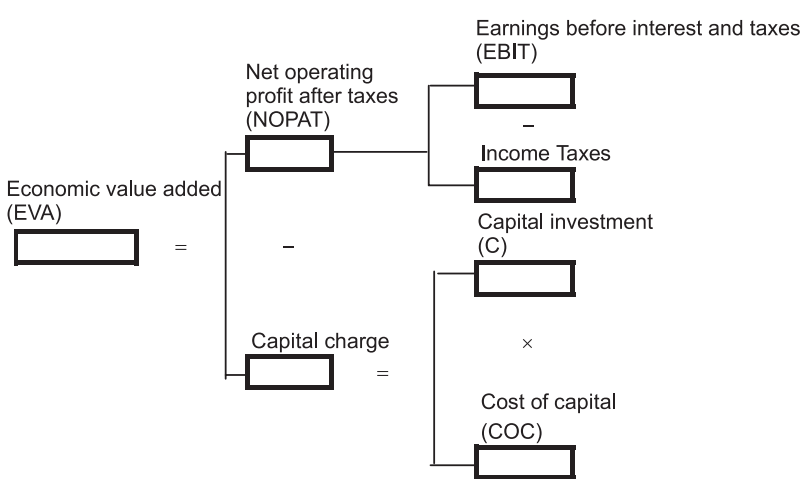

Figure 2. Economic value-added (EVA).

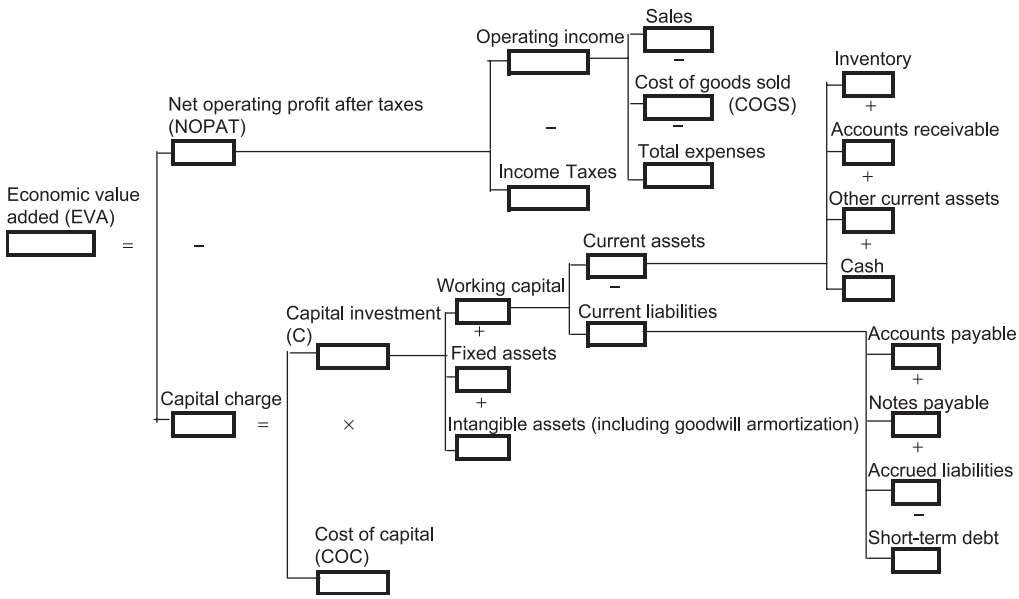

Figure 3. Detailed EVA showing variables that affect its value.

vice Companies (NASSCOM) predicts that Indian software services export revenues will increase by between 30 and 32% in 2004 to around 16·3 billion dollars (www.nasscom.org).

The software companies chosen in this study provide consulting as well as information technology (IT) related services on a global scale. Their markets include USA, Canada, Asia Pacific, Japan and Europe. The objective of these companies is to define, optimize and align their client's business strategy with technology initiatives. The services provided include enterprise IT programs, communications and IT product development, engineering product design and data management. These services help address the following issues: streamlining processes with IT, managing IT enabled processes, optimizing IT resources and creating better business value. The clientele of the above companies come from a wide range of industries including engineering and utilities, financial services, healthcare, life sciences, manufacturing, retail and distribution, technology, telecom and transportation.

4. Applying the models

In this section we analyse the performance of four software service providers. We name them A, B, C and D for the sake of anonymity. Table 2 compares these companies in terms of

Table 2. Comparison of software industry players considered here (2004).

Company name	Revenue (Rs. crores)	Number of employees (above)
A	5260	29000
B	4761	25000
C	2636	12000
D	1667	6000

revenues and number of employees.The financial data for the years 2002–2004 of A, B, C and D obtained from the published balance sheets and income statements is entered into the SPM and EVA models to observe how the decisions that managers make affect the RONW and EVA, and hence shareholder value. Using the Microsoft Excel spreadsheet, "what-if" analysis to improve shareholder value can be carried out easily (Stapleton *et al* 2002, p. 93). The results obtained highlight the areas of improvement and can be used by the managers of these software companies to provide a direction for their strategy formulation.

In the next few sections, each of the four firms is analysed. This analysis is performed one company at a time. In 2002 and 2003, the software industry experienced a slowdown due to currency appreciation, pricing pressures and higher wage costs. These gave rise to a decline in the financial data and ratios of the companies in 2003. By analysing the companies in 2003, we develop strategies based on the 'worst-case' financial data. D's 2004 financial data were not available at the time of writing this report, and hence comparison of the firms was only possible for the years 2002–2003.

The goal of our analyses is to find ways to improve the RONW and EVA by 15% or to the peer group average level depending on each firm's situation. First, the company is compared to the peer group average. Next, strategies are proposed that investigate the changes in the different variables of the two models to achieve a desired goal. These strategies are considered in isolation, one variable at a time. We then present our recommendations for each company, which may involve varying one or more variables to achieve the desired result. We compare these recommendations with the financial data obtained from the balance sheet and income statement of A, B and C for the year ending March 2004. Lastly, we predict the level of RONW and EVA if the firms follow our recommendations of a 15% increase RONW and EVA for the year 2005, with the exception of D, whose RONW and EVA is predicted for 2004.

4.1 *Assumptions*

There are several assumptions that have been made in using the SPM and EVA models to analyse the main players of the software industry. For the purpose of this exercise, and in the spirit of comparison, it is assumed that these companies compete in the same markets making the comparisons more valid and meaningful.

Strategic profit model (SPM) assumptions:

(1) The model assumes that the total operating expense is the sum of the cost of goods sold (COGS), variable expenses and fixed expenses. This is to overcome the difference in definitions of these terms among the companies to enable comparison.
(2) The SPM is designed to allow changes of one variable to be monitored. However, in the case of sales, the model has been modified. Changes in sales cause changes in the total operating expense and the accounts receivable for the software companies. For instance, when sales increase, the level of total operating expenses and accounts receivable also increase. The value of these two variables as a percentage of sales is first calculated. It is assumed that this percentage remains constant through the changes in sales, and is used to compute the new value of total operating expenses and accounts receivable. It is also assumed that when changing any of the other variables (excluding sales), the remaining variables remain unchanged.
(3) The variables that can be altered for this model are sales, total operating expenses, inventory, accounts receivables and fixed assets. Fixed expenses are not controllable in the

short-run since most rentals and insurance policies that constitute this variable, are over a long period of time (30–40 years). In addition, changes in the cash reserves of a company will not lead to significant changes in the total assets since the cash will be reinvested into the business.

Economic value-added (EVA) assumptions:

(1) It is assumed that when changing any of the variables (Net Operating Profit after Tax (NOPAT), capital investment or cost of capital), the remaining variables remain unchanged.
(2) In the calculation of the change in Earnings before Interest and Tax (EBIT) required to achieve the change in NOPAT as predicted by the model, the income tax rate is assumed to be constant. The income tax rate is equal to the income tax divided by EBIT.
(3) The variables that can be controlled for the EVA model are the NOPAT, capital investment (C), and the cost of capital (COC). By altering these variables, improvements in EVA can be obtained.

4.2 *Strategic profit model (SPM)*

Table 3 compares the key variables that the companies can control in the year 2003 (some of these variables are expressed as a percentage of sales and compared to the peer average). Figure 4 shows the change in RONW for the four companies. From the graph in figure 4, it is evident that B is leading the group in terms of RONW, followed by A and D. C is the worst performer of the group in terms of RONW. It is evident from the graph that the two largest firms in the industry, A and B, experienced a decline in shareholder value (measured by its RONW) in the year 2003. In 2004, A, B and C have created shareholder value.

The companies can implement one or a combination of the following to improve their RONW:

- Increase sales
- Reduce operating expenses
- Reduce total assets

Table 3. Comparison of SPM variables in 2003 for the companies A,B,C and D.

					Expressed as a percentage of sales			
		Sales (Rs. crore)	RONW	Asset turnover	Total operating expenses	Total assets	Accounts receivable	Fixed assets
Peer average		2897·64	0·22	2·11	81·39%	62·53%	17·09%	13·85%
A	Actual	4040·29	0·25	2·12	76·52%	47·25%	19·31%	16·06%
	vs. peer	1142·65	0·03	0·01	−4·87%	−15·29%	2·23%	2·21%
B	Actual	3622·69	0·31	1·38	70·10%	72·35%	14·14%	21·33%
	vs. peer	725·05	0·08	−0·73	−11·29%	9·82%	−2·95%	7·48%
C	Actual	2261·54	0·15	0·95	83·17%	105·52%	21·73%	15·05%
	vs. peer	−636·10	−0·08	−1·16	1·78%	42·99%	4·65%	1·20%
D	Actual	1666·04	0·19	4·00	95·76%	25·01%	13·16%	2·97%
	vs. peer	−1231·60	−0·03	1·89	14·37%	−37·52%	−3·92%	−10·88%

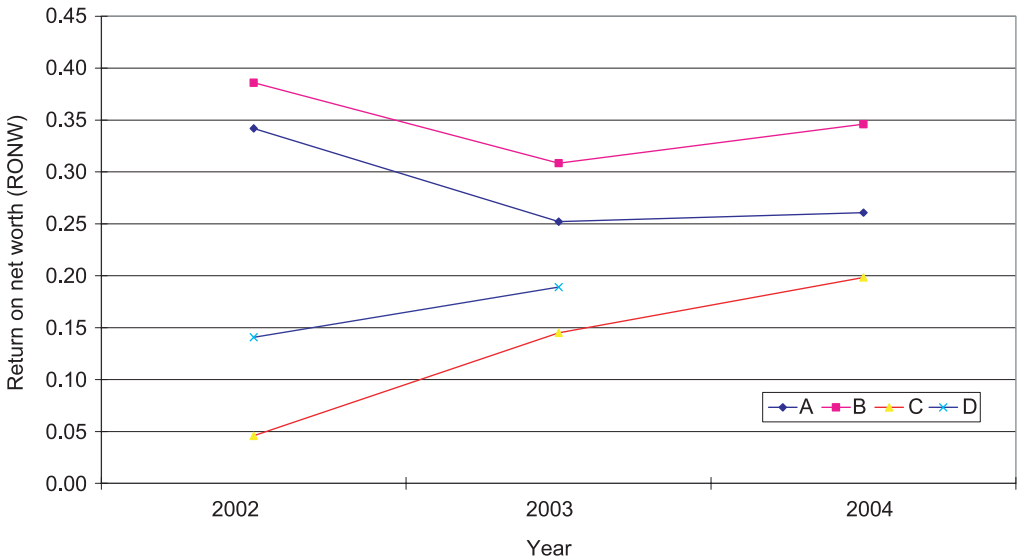

Figure 4. Graph showing variation in RONW over time for A, B, C and D.

4.3 *Economic value-added (EVA)*

Table 4 compares the key ratios for A, B, C and D from the data calculated from the calculation of their EVA. The graph figure 5 shows the change in EVA for the four companies over time. In 2004, it is interesting to note that A has made a comeback and its EVA is higher than that of B'. A, B and C have created shareholder value in 2004 compared to 2003.

The companies can implement one or a combination of the following to improve its EVA:

- Increase NOPAT
- Reduce the capital charge by reducing the company's capital (C) and its cost of capital (COC)

Table 4. Comparison of EVA variables for 2003 for A, B, C and D.

		EVA (Rs. crore)	NOPAT	Sales (Rs. crore)	C (Rs. crore)	COC	Capital charge (Rs. crore)
Peer average		245·79	554·76	2897·64	1842·34	16·28%	308·97
A	Actual	372·88	842·43	4040·29	2809·02	16·72%	469·55
	vs. peer	127·09	287·67	1142·65	966·67	0·43%	160·58
B	Actual	525·20	957·93	3622·69	2559·65	16·91%	432·73
	vs. peer	279·41	403·17	725·05	717·31	0·62%	123·76
C	Actual	38·43	348·90	2261·54	1842·97	16·85%	310·46
	vs. peer	−207·36	−205·86	−636·10	0·63	0·56%	1·49
D	Actual	46·65	69·78	1666·04	157·73	14·66%	23·13
	vs. peer	−199·14	−484·98	−1231·60	−1684·61	−1·62%	−285·84

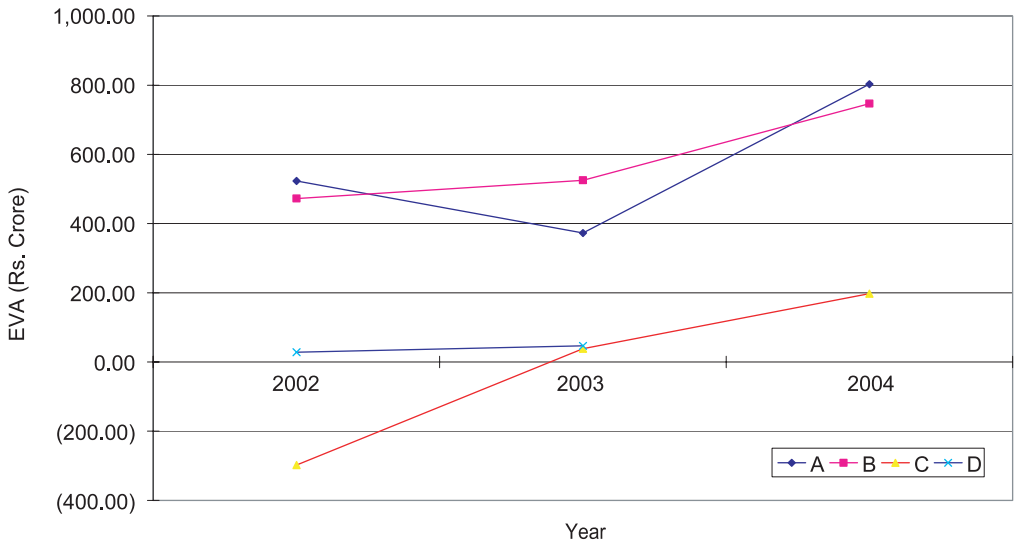

Figure 5. EVA over time for A, B, C and D.

4.4 *Company A*

4.4a *A's status in 2003 based on SPM and EVA:* A has the highest sales revenue of the four companies. Its RONW and EVA have declined from 2002 to 2003 due to reduced net profit margins and reduced asset turnover. This is due to the company experiencing higher operating costs and hence reduced profit margins, as well as increased total assets. A had a higher EVA than B in 2002 and is in keen competition with B for revenues.

4.4b *Strategies for improvement:* Table 5 summarizes the key financial measures in which A is better than the peer average, and those in which it is performing worse than the peer average.

The three basic strategies that A's management can use to improve its RONW are to increase sales, decrease total operating expenses or reduce assets. Assuming that A desires to increase its RONW by 15%, each of these changes is independently evaluated. A 15% increase in RONW will translate into an increase of RONW to 0·29. By using the SPM to analyse A's financial data, the areas for improvement are determined.

Table 5. Summary of A's positive and negative financial measures for 2003.

Better than peer average	Lower than peer average
• Sales	• Accounts receivable
• RONW	• Fixed assets
• Total operating expenses	• Capital investment (C)
• Asset turnover	• Cost of capital (COC)
• Total assets	• Capital charge
• EVA	
• NOPAT	

A's declining RONW is due to its decreasing profit margins. A could increase its sales or reduced its operating expenses. This would improve the company's profit margin. In order to improve the RONW by 15%, A would have to increase sales by 2·85%. This translates into an increase of Rs. 117 crores in sales revenues. To achieve the increase in RONW, the company would have a corresponding increase in total operating expenses, inventory and accounts receivable. The asset turnover increases helping to improve the RONW.

The second strategy available to A's managers is to reduce expenses. Assuming all else remains the same, the total operating expenses would have to decrease by 3·49% or Rs. 110 crores to achieve a 15% increase in RONW. A's total operating expenses are just below the peer average but are higher than its closest competitor B. Since A's profit margins have suffered over the past year, a slight reduction in its operating expenses will increase its RONW.

The last strategy that A's managers can adopt is to reduce the total assets. This can be achieved by reducing accounts receivable and fixed assets. The company would not benefit from a reduction in inventory since inventory is a very small proportion of total assets and hence its influence on the asset turnover and hence ROA is minimal. Again, by holding all else constant, the change of each of these is evaluated independently. To achieve the desired level of RONW, A would have to reduce its accounts receivable by about 29% which translates to a reduction in Rs. 233 crores. This change is substantial and could result in lost sales due to a tighter credit policy. The company could reduce its fixed assets by 35% or Rs. 229 crores to improve its RONW by 15%. However, such a large reduction may not be realistic due to assets being an integral part in the running of the business and assets not being easy to sell.

To improve its EVA, A can adopt three main strategies: increase NOPAT, reduce C or reduce COC. A's EVA (Rs. 372·88 crore) is above the industry peer average. Hence, A's management's should aim to increase its EVA by 15% to Rs. 428·81 crore.

To achieve an EVA of Rs. 428·81 crore, A's management would have to increase NOPAT by about 6% or Rs. 56 crores. To achieve this increase, A would have to increase its EBIT by about 6%, assuming that the income tax rate remains constant. Alternatively, A's management could reduce its C or COC. By reducing both of these by 12%, A would be able to reduce the capital charge by 12% to Rs. 413·63 crore, to achieve the EVA of Rs. 428·81 crore. This translates into reducing C by Rs. 335 crores and COC to 14·72%.

4.4c *Recommendations:* From the data obtained from the SPM, it can be observed that A has the highest sales revenue and hence increasing sales by a significant amount may be difficult. Though A's total operating expenses as a percentage of sales are below the peer average, it is higher than that of B. A's accounts receivables and fixed assets as a percentage of sales are above the peer average. However, it should be noted that A's total assets as a percentage of sales are less than the peer average owing to the company's policies on holding less cash.

From the above observations, it appears that A's efforts to increase its RONW by 15% may be best spent on a combination of reducing total operating expenses, accounts receivables and fixed assets. The model demonstrates, for example, that a modest decrease in total operating expenses of 1·3% (Rs. 39·7 crores), coupled with a reduction of 12% (Rs. 93 crores) in accounts receivables and about 10·5% in fixed assets, will result in a 15% increase in RONW. These changes are easier to achieve than if the variables are modified independently.

From the EVA model, it can be seen that A's NOPAT is well above the peer average, while its capital charge is the highest of the group. Therefore, A's strategy should be to decrease its capital charge to achieve an increase in EVA of 15%. A can adopt a combination of reducing the C and COC. A can, for example, reduce its C by 7·44% and COC to 15·91%. This would

Table 6. Summary of B' positive and negative financial measures for 2003.

Better than peer average	Lower than peer average
• Sales	• Asset turnover
• RONW	• Total assets
• Total operating expenses	• Fixed assets
• Accounts receivable	• Capital investment (C)
• EVA	• Cost of capital (COC)
• NOPAT	• Capital charge

result in 12% decrease in the capital charge and hence a 15% increase in the EVA of A. This is a more realistic goal for the company to achieve, rather than changing C or COC independently.

4.5 *Company B*

4.5a *B' status in 2003 based on SPM and EVA:* B can pride itself on having the best financial figures in 2003. B has the highest RONW and EVA. Since 2002, B's RONW has decreased and its EVA has increased. B has the highest net profit margin and NOPAT of the group in 2003 due to the company having the second highest sales revenues as well as having total operating expenses that are less than that of A. This has resulted in B having overtaken its main competitor, A, in terms of EVA to become the company with the highest EVA in 2003. However, B has the highest capital charge.

4.5b *Strategies for improvement:* Table 6 summarizes the key financial measures in which B is better than the peer average, and those in which it is performing lower than the peer average.

B has the highest RONW and EVA in 2003. However, it should be noted that B has the highest fixed assets, capital investment and cost of capital of the group. In addition, B' total assets are the second highest owing to high fixed assets and holding of cash. Since B' RONW and EVA are above the peer average, the company's efforts should be channelled to improving both these metrics by 15%.

Increasing the RONW of B by 15% would bring its RONW to 0·38. This can be achieved by increasing sales, reducing total operating expenses or reducing total assets. Each of these is evaluated independently. B's management could increase its sales by 2·7% (Rs. 97 crores) to achieve the desired result. Alternatively, B could reduce its total operating expenses by 5% (Rs. 124 crores). The final approach is to reduce the total assets to increase the RONW by 15%. To do this, the inventory, accounts receivable and fixed assets can be reduced. B does not carry any inventory and hence this variable cannot be manipulated to affect RONW. The accounts receivable can be reduced by a significant 59% (Rs. 210 crores), or alternatively the fixed assets can be reduced by 39·18% (Rs. 300 crores).

B has three options to improve its EVA. It can increase its NOPAT, reduce C or reduce COC. B's EVA is the highest in 2003 at Rs. 518·67 crore, which is significantly greater than the peer average. Therefore, B's managers would be interested in increasing the EVA by 15% to Rs. 596·47 crore.

To improve the company's EVA, its managers can increase B' NOPAT by 8% (Rs. 78 crores). This would be made possible by an increase in EBIT of 7% or Rs. 78 crores). This is assuming that the income tax rate remains constant. Another option is to reduce its C or COC.

By reducing each of these by 17%, B can reduce the capital charge by the same percentage to Rs. 361·46 crore. This can be achieved by reducing C by Rs. 453 crore and COC from 17·16% to 14·12%.

4.5c *Recommendations:* B should focus on areas that are under-performing relative to the peer group. Since B has the lowest total operating expenses as a percentage of the sales and its accounts receivable is less than the peer average, B should focus on increasing sales and reducing the total assets so as to improve the asset turnover, and hence RONW. SPM predicts that the usage of a strategy targeting these few factors would be the best solution. In this case, for example, an increase in sales of just 2·1% or Rs. 77 crores) combined with a decrease in fixed assets of 14·6% or about Rs. 113 crores would result in the 15% increase in RONW. These changes complement each other to achieve the desired results with less drastic changes.

It should be noted that B holds a large portion of cash. The company may consider reducing the cash held, thereby helping to improve the asset turnover and hence RONW.

B managers should aim to increase its EVA by 15% to Rs. 596·47 crore. The company's capital charge is higher than the peer average and needs to be reduced. This is partly due to B having the highest cost of capital. Given these conditions, B can adopt a strategy that combines increasing NOPAT with reducing C and COC (in turn, reducing capital charge). For example, B could increase NOPAT by 3·35% or Rs. 32 crores, reducing C by 6·24% (Rs. 160 crores) and reducing COC to 16·4%. This would reduce capital charge by 10% resulting in an increase in EVA of 15%. By controlling a few variables, the company is better able to achieve its target EVA to improve shareholder value, without being required to make extremely drastic changes.

4.6 *Company C*

4.6a *C's status in 2003 based on SPM and EVA:* C is the smallest player (in terms of number of employees) we have considered. The company's RONW and EVA are below the peer average. Its EVA was negative in 2002 indicating financial difficulties. However, C has created shareholder value from 2002–2003, indicated by the increasing RONW and EVA.

4.6b *Strategies for improvement:* Table 7 summarizes the key financial measures in which C is better than the peer average, and those in which it is performing lower than the peer average.

C has experienced an increase in sales revenue and a decrease in total operating expenses resulting in increased profit margins. C's sales revenue and net profit margin are the third highest in the group. However, C has the lowest asset turnover due to the company having the highest total assets as a percentage of sales. This is due to the company's high accounts receivables, fixed assets and cash. C's capital investment and cost of capital are above the peer average. Its capital charge is marginally less than the peer average. In C's case, increasing the RONW and EVA by 15% will result in the company's RONW and EVA still being less than the peer average. Therefore, C's management should aim to increase its RONW and EVA to the peer average level so as to keep up with its competitors.

C's management should aim to increase its RONW to the peer average of 0·23. To do this, C can increase sales, reduce total operating expenses or reduce total assets. An increase in sales of 5·7% (Rs. 129 crores) will result in increase in the RONW to the peer average. The increase in sales will cause C's asset turnover to increase (since inventory and accounts receivable are assumed to increase as the sales level increases) helping to improve the RONW. The next approach available to C is to reduce its total operating expenses. This can be achieved through

Table 7. Summary of C's positive and negative financial measures for 2003.

Better than peer average	Lower than peer average
	• Sales • RONW • Total operating expenses • Asset turnover • Total assets • Accounts receivable • Fixed assets • EVA • NOPAT • Capital investment (C) • Cost of capital (COC) • Capital charge

an 8% decrease in expenses, which translates to a Rs. 150 crore decrease, keeping all else constant. The increase in RONW to the peer average can also be achieved by reducing the inventory, accounts receivable or fixed assets. However, when evaluated independently, these figures are a very small proportion of the total assets and even if they are reduced to zero, the impact of the RONW is not significant to increase the RONW to the peer average.

C's managers should increase its EVA to the peer average of Rs. 244·16 crores. They can do so by implementing one or a combination of the following strategies: increase NOPAT, reduce C and/or reduce COC. C's managers could increase NOPAT by 58·97%, which translates to an increase in Rs. 205 crores. To achieve this increase in NOPAT, assuming that the income tax rate is constant, C's EBIT would have to increase by 50·1% or Rs. 205 crore. C's managers could also independently decrease its C or COC by 66% to achieve the increase in EVA. This decrease in C or COC would decrease the company's capital charge to Rs. 104·74 crore.

4.6c *Recommendations:* Given C's condition, it is vital that the company improve its net profit margin. This can be achieved by increasing sales, which is less than the peer average. It should be noted that C's total assets, accounts receivables and fixed assets as a percentage of sales are above the peer average. By using a combination of strategies, C should aim to increase its RONW. This approach would not result in very drastic changes having to be made by the company. To increase the RONW to the peer average of 0·23, C can, for example, increase sales by 5·5% (Rs. 123 crores) and reduce accounts receivables by 32% (Rs. 168 crores) and reduce fixed assets by 12% (Rs. 40 crores). These changes are more realistic for the company to achieve. C's cash at hand is also very high and accounts for most of the total assets of the company. Hence, C should aim to reduce the amount of cash held.

C's C and COC are above the peer average and need to be reduced. Hence, C's strategy to improve its EVA to the peer average can be achieved by increasing NOPAT by 29% (Rs. 101 crores) and reducing C by 18% (Rs. 343 crores), as well as reducing COC to 13·72%. These changes would result in the capital charge being reduced by 3·4%.

4.7 *Company D*

4.7a *D's status in 2003 based on SPM and EVA:* D has the lowest sales revenue and is hence the smallest player among the four companies. D ranks third in terms of RONW and EVA.

Table 8. Summary of D's positive and negative financial measures for 2003.

Better than peer average	Lower than peer average
• Total assets	• Sales
• Accounts receivable	• RONW
• Fixed assets	• Total operating expenses
• Capital investment (C)	• Asset turnover
• Cost of capital (COC)	• EVA
• Capital charge	• NOPAT

The company has kept its RONW and EVA positive and is increasing over time, indicating shareholder value creation.

4.7b *Strategies for improvement:* Table 8 summarizes the key financial measures in which D is better than the peer average, and those in which it is performing lower than the peer average.

D has the lowest sales revenue and the highest total operating expenses as a percentage of sales thus resulting in the company having the lowest net profit margins. The company also has the lowest total assets, accounts receivable and fixed assets as a percentage of sales. This translates into D having the highest asset turnover of the group. This has enabled the company to be in third place with respect to its competitors in spite of having the lowest profit margins. Having the lowest NOPAT and capital charge has resulted in the company having the lowest EVA.

Increasing D's RONW and EVA by 15% will not result in D's RONW and EVA being equal to the peer average. Hence, D's management should aim to increase its RONW and EVA to the peer average. This means that the RONW and EVA will have to reach 0·23 and Rs. 244·16 crore respectively.

D can increase sales, reduce total operating expenses or reduce total assets in order to achieve the increase in RONW. To increase RONW to 0·23, D could increase sales by just 0·84% or Rs. 14 crores. Alternatively, D could reduce total operating expenses by 0·78% or Rs. 12 crores, holding all else constant. D could reduce inventory, accounts receivable or fixed assets to achieve a reduction in total assets and hence increase RONW. D could reduce its inventory by 75% (Rs. 22 crores) which would result in the RONW reaching 0·23. This is a very significant decrease in inventory and may not be realistic or achievable, unless the firm introduces just-in-time practices. The company could reduce its accounts receivables by 30% (Rs. 67 crores) to achieve the same result. D's fixed assets are a very small proportion of total assets and hence even reducing the figure to zero will not result in significant increase in RONW.

D can increase its EVA to the peer average of Rs. 244·16 crore by increasing NOPAT or reducing capital charge by reducing C and/or COC. An increase in NOPAT of 283% or Rs. 198 crores will result in the EVA of D reaching the peer average. To achieve this change in NOPAT, D's EBIT would have to increase by 280%. This is a very large change that the company needs to make if it chooses to manipulate only its EBIT. D's C and COC are the lowest of the group and a change in these will not have a significant impact on the EVA of the company.

4.7c *Recommendations:* To improve its RONW, D's efforts may be best spent on increasing its sales and reducing its total operating expenses to improve its net profit margin. D's total

Table 9. Comparison of SPM variables in 2004.

		Sales (Rs. crore)	RONW	Asset turnover	Total operating expenses	Total assets	Accounts receivable	Fixed assets
					Expressed as a percentage of sales			
Peer average		4218·71	0·27	1·58	75·65%	72·65%	18·74%	15·72%
A	Actual	5259·67	0·26	2·34	79·36%	42·76%	20·20%	15·11%
	vs. peer	1040·96	−0·01	0·76	3·71%	−29·89%	1·46%	−0·61%
B	Actual	4760·89	0·35	1·47	71·59%	68·07%	13·29%	20·38%
	vs. peer	542·18	0·08	−0·11	−4·06%	−4·58%	−5·46%	4·66%
C	Actual	2635·57	0·20	0·93	76·00%	107·12%	22·74%	11·66%
	vs. peer	−1583·14	−0·07	−0·65	0·35%	34·47%	4·00%	−4·06%

assets as a percentage of sales is the lowest and hence reducing it further may prove difficult. D could adopt a combined strategy of increasing sales and reducing total operating expenses. For example, by increasing sales by a mere 0·06% (Rs. 0·96 crores) and decreasing total operating expenses by 0·72% (Rs. 11·44 crores), D can increase its RONW to the peer average of 0·23.

D has the lowest capital investment and cost of capital resulting in the lowest capital charge of the four players. As a result, D's efforts to increase its EVA would be best spent by increasing its NOPAT. D can achieve the peer average EVA of Rs. 244·16 crore by increasing its NOPAT by 283%. However, such a change is very large, and D may only be able to achieve such an increase in the long-run.

4.8 *Comparison of recommendations with 2004 data*

From figures 4 and 5, it is observed that in 2004, A, C and D have experienced shareholder value creation indicated by increasing RONW and EVA. This is inline with the rebound of the IT sector and the rising wave of software service outsourcing. Tables 9 and 10 below compare the key variables for 2004 for both models.

Table 10. Comparison of EVA variables in 2004.

		EVA (Rs. crore)	NOPAT	Sales (Rs. crore)	C (Rs. crore)	COC	Capital charge (Rs. crore)
Peer average		582·35	856·82	4218·71	1910·41	15·90%	274·47
A	Actual	802·91	918·40	5259·67	568·35	20·32%	115·49
	vs. peer	220·56	61·58	1040·96	−1342·06	4·42%	−158·98
B	Actual	746·61	1125·75	4760·89	2680·38	14·14%	379·14
	vs. peer	164·27	268·93	542·18	769·98	−1·76%	104·66
C	Actual	197·52	526·31	2635·57	2482·49	13·24%	328·79
	vs. peer	−384·83	−330·51	−1583·14	572·08	−2·66%	54·32

Table 11. Summary of positive and negative financial measures for 2004 of A, B and C.

Company	Better than peer average	Lower than peer average
A	• Sales • Asset turnover • Total assets • Fixed assets • EVA • NOPAT • Capital investment (C) • Capital charge	• RONW • Total operating expenses • Accounts receivable • Cost of capital (COC)
B	• Sales • RONW • Total operating expenses • Total assets • Accounts receivable • EVA • NOPAT • Cost of capital (COC)	• Fixed assets • Asset turnover • Capital investment (C) • Capital charge
C	• Fixed assets • Cost of capital (COC)	• Sales • RONW • Total operating expenses • Asset turnover • Total assets • EVA • NOPAT • Accounts receivable • Capital investment (C) • Capital charge

Using the above tables, we compare A, B and C's financial data against the peer average. Table 11 summarizes the key financial measures in which each company is better than the peer average, and those in which it is performing worse that the peer average.

4.8a *Company A:* From our recommendations in §4·4, A should have aimed at reducing its operating expenses, accounts receivable and fixed assets helping to improve the RONW by 15% to 0·29. From the actual data available from the company's annual reports for the year ended March 2004, A managed to improve its RONW to 0·26. In 2004, A's sales revenues remained the highest of its competitors. However, its net profit margin reduced due to increase in the value of total operating expenditure as a percentage of sales. A's accounts receivables as a percentage of sales also increased. The rise in total operating expenses and accounts receivable, both expressed as a percentage of sales, were in opposition to our recommendations. This indicates that the company needs to take strategic decisions that reduce these financial measures to achieve an even greater improvement in RONW. On the other hand, A did reduce its fixed assets helping to improve its asset turnover in 2004 as compared to 2003.

Our recommendations suggested that A improve its EVA by 15% to Rs. 428·81 crore by reducing its capital charge. A did reduce its capital investment drastically (approximately to a quarter of its value in 2003) in 2004, which resulted in a reduction in capital charge, in spite of an increase in the cost of capital. This, coupled with the improvement in NOPAT, helped A exceed our recommended level of EVA.

A's RONW in 2004 is slightly less than the peer average. However, A, being the leading company in terms of RONW, should aim to increase it by 15%, and not to the peer average. A should in future aim to reduce its operating expenditure and accounts receivable to help improve its RONW by 15% to 0·30. The company should aim to reduce its cost of capital, though this is largely dependent on macroeconomic conditions, to help improve its EVA by 15% to Rs. 923·35 crore.

4.8b *Company B:* From our analysis in §4·5, B should have increased its sales and reduced its fixed assets to achieve a 15% increase in RONW to 0·38 from 0·31. B's RONW increased to 0·35 in 2004, slightly less than the recommended 0·38. B remained in second place in terms of sales revenues. Its sales increased by 31·42%. However, B's operating expenses increased reducing its net profit margins. The company reduced its total assets through a reduction in fixed assets and accounts receivables helping to improve its asset turnover and RONW. Though B's fixed assets as a percentage of sales have reduced, it is still above the peer average, and further reduction needs to take place. B's cash as a percentage of sales revenue has reduced helping to improve the asset turnover and hence RONW. Since B's RONW is above the peer average, the firm should take measures to reduce its fixed assets to improve its asset turnover to achieve a 15% increase in RONW to 0·40.

In terms of B's EVA, we suggested that the company increase its NOPAT, reduce its capital investment and cost of capital. B has managed to achieve all three of these in 2004. Its EVA in 2004 far exceeded our predictions of Rs. 596·47 crore. Since EVA in 2004 is above the peer average, B should aim to increase its EVA by 15% to Rs. 858.61 crores. This can be achieved by a further reduction in its capital change charge by reducing its capital investment.

4.8c *Company C:* C, despite experiencing lower financial rations, has been creating value for its shareholders through a continuous increase in RONW and EVA since 2002. Our recommendations suggest that C drastically increase its market share by increasing its sales revenues. In addition, we suggested that C reduce its accounts receivable and fixed assets. From the data available in 2004, it can be seen that C improved its profit margins by increasing sales by more than 16%, which is three times as much as what we had recommended, and reducing its operating expenditure as a percentage of sales. The company has also reduced its fixed assets as a percentage of sales. However, its accounts receivables and cash, both as a percentage of sales, have increased resulting in a reduction in asset turnover. C has increased its RONW to 0·20, which is slightly less that the recommended 0·23. C should, in the future, aim to increase its RONW to the peer average of 0·27, by further increasing its market share and hence sales revenue, as well as reducing its operating expenditure and accounts receivable.

Based on C's data from 2003, we recommended that the company increase its NOPAT and reduce its capital charge by reducing its capital investment and cost of capital. The company did increase its NOPAT in 2004 due to its increased sales revenues. However, C's capital charge has increased due to an increase in capital investment which was greater than its reduction in cost of capital. The increase in NOPAT resulted in C's EVA increasing to Rs. 197·52 crore, which was less than the peer average in 2003 (244·16). C should aim to increase its EVA to the peer average of Rs. 582·35 crore by increasing its NOPAT (through increased market share and lower operating expenditure) as well as reducing its capital investment.

4.8d *RONW and EVA in 2005:* Using the above recommendations for the future level of RONW and EVA for A, B and C, we have plotted the following graphs shown in figures 6

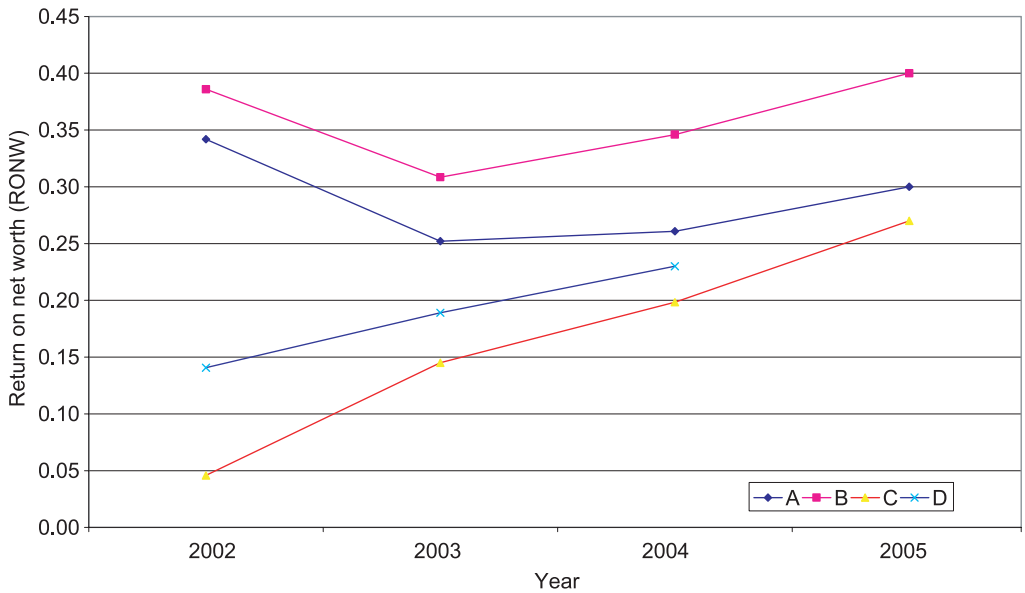

Figure 6. Future SPM for A, B, C and D.

and 7. SPM and EVA values have been extrapolated based on the SPM and EVA values for 2002–2004. For D, we have shown the level of RONW and EVA in 2004 as the recommended values from §4·7. From figures 6 and 7, it can be seen that the competition between A, B and C will become keener as C increases its market share. Companies A and B remain the close competitors.

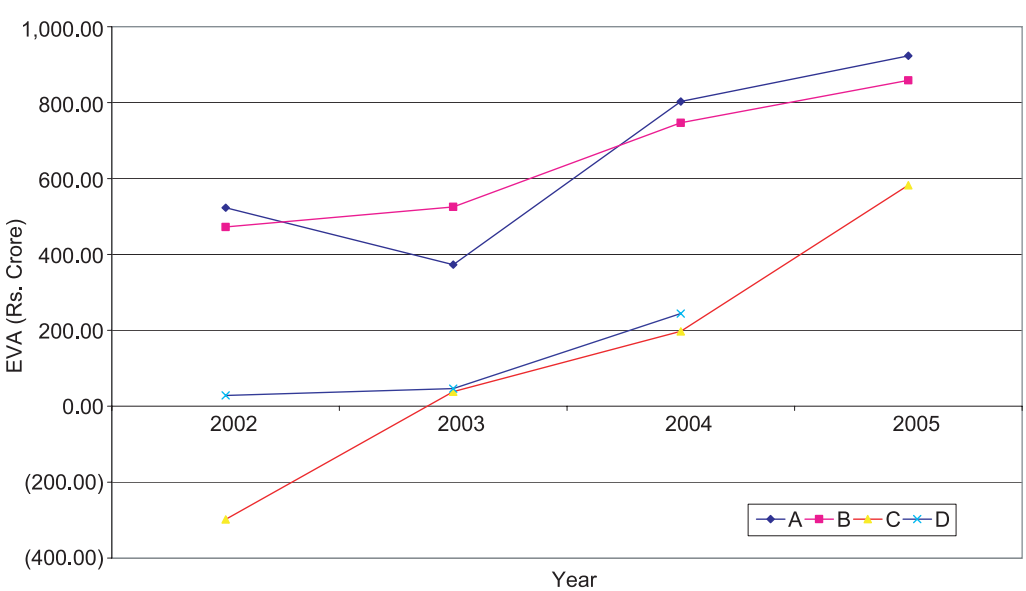

Figure 7. Future EVA for A, B, C and D.

5. Discussion and future work

The global software industry is facing a number of challenges. The cost of software production and maintenance is escalating. The high profit margins and the employment potential of the industry attracted the attention of all countries and companies. Companies in this field are facing increased pressure from the true globalization of this industry. Our discussion here is concerned with three different aspects of the software industry, about the modelling methodology used in this paper, risks faced by the software industry due to globalization, need for developing managerial best practices, and finally a few remarks on the software industry in India.

5.1 *SPM and EVA*

In this study, we have used two models SPM and EVA to measure shareholder value. From our discussions companies seem to generally use EVA. SPM provides a very clear picture of the expenses and assets of the companies. Companies wishing to assess the impact of decisions that may shift expenses or assets (such as outsourcing) on shareholder value can use the SPM. On the other hand, companies who wish to take into account the capital charge (i.e. cost of capital) into the assessment of shareholder value should use the EVA model. Companies may wish to use both the models as we have done in this study. In doing so, we are able to obtain a clear picture of the determinants of shareholder value and the impact of changes in a variety of components. This provides us with a holistic understanding of shareholder value, and may aid top management when making decisions such as outsourcing that affect shareholder value.

5.2 *Risks for third party software service providers*

Outsourcing of software services has become common and Indian software companies have received much attention in recent times. This globalization and doing business with companies in the West creates risks of its own. The volatility in foreign exchange markets such as the appreciating Indian Rupee and undervalued Chinese Yuan, pressure on billing rates and higher employee costs are further reducing profit margins for these companies. The industry is experiencing volume growth and many of the players we examined in this report are reporting an increase in customer acquisitions. Also, customers are demanding partners rather than just service providers. A few of the Indian software companies are changing towards this trend by providing more value-added services and moving up the value chain. Indian software companies are acquiring the capabilities to create business value through high-quality services for their customers.

The biggest risk the software industry faces now is its dependence on US and Europe for their contracts. In fact, a large proportion of their revenue comes from finance and manufacturing firms and from North America. During the recent economic downturn, manufacturing experienced extreme pressure on their IT spending. Indian software companies for example have spent difficult years in the recent past. The companies should thus aim to diversify their client base, both across different industries and regions to lower their exposure to revenue volatility.

Human resources form a big part of the contributor and also expenditure in a knowledge based industry of this kind. There are several issues with these resources. They are very mobile sometimes creating intellectual property loss. Like in many other businesses, the demand for software services by private and public sector companies is uncertain and forecasting techniques are used. Many software companies hire people in the expectation of a new business

line or technology in the future. In some cases, such deals never come through and they are left with an excess of employees on their payroll. This is similar to the "bull-whip" effect of the manufacturing industry. The industry also faces problems such as idle manpower in between contracts, and high attrition rates. With expected continuation in wage hikes, companies could consider paying performance-based salaries to help reduce the wage costs. In addition, companies could employ their programmers on a contract-basis. This "on demand" style employment could help software companies deal with increased wage costs. In addition to this, companies need to increase their marketing spend and build lasting customer and employee relationships to reduce the attrition rates and increase sales revenues.

5.3 *Indian software companies*

The Indian software industry is currently dominated by five major players: Tata Consultancy Services, Wipro Technologies, Infosys Technologies Limited, Satyam Computer Services Limited and HCL Technologies Ltd. During our analysis, we found the need for Indian software companies to reduce their fixed assets, accounts receivable and operating expenditure. The largest components of fixed assets are machinery and furniture/ fixtures. Given the nature of the industry, companies should consider allowing staff to work from home. Doing this would reduce the office space required. To reduce accounts receivable, Indian software companies could reduce their order-to-cycle time by accelerating their payment schedules. The two largest components of operating expenditure are travel and salaries. Companies should increase the use of video conferencing and the internet to communicate with their clients. Employees can go to the customer-site during the integration stage of the project implementation. This would help to lower the travelling expenditure.

Indian software companies need to reduce their cost of capital. In India, the cost of capital is generally regarded to be in the 15–20% range (PricewaterhouseCoopers 1999), and in some cases, even higher. From the EVA model, Indian software companies have cost of capitals in the range of 13% to 20%. In the US, on the other hand, the cost of capital is in the 8–12% range (PricewaterhouseCoopers 1999). Inflationary pressures, higher perceived business risk and market imperfections are sighted as the main reason for the higher cost of capital (PricewaterhouseCoopers 1999). While macroeconomic conditions and market imperfections are beyond the control of these companies, Indian software companies could try to enhance their business focus, improve investor perception, diversify to reduce revenue volatility, and ensure that they comply with strict reporting norms that encourage corporate transparency as well as increase their investor base. By filing for patents, Indian software companies can gain financial rewards through licensing and royalty revenues. This may change the fact of their company and pave the way for the industry in the future.

In addition, there is a need for innovation in software products. For some time now, there have been no new products. Also, firms need to focus on knowledge management to help improve their efficiency and the speed at which they deliver results to their customers. Indian software companies need to become more patent-savvy like their US counterparts. By creating a new idea of doing something and filing for a patent, Indian software companies can not only gain financial rewards through licensing and royalty revenues, but they can change the face of their company, and pave the way for the industry in the future. By increasing the number of patents to its name, a company proves to its clients that it has technological expertise, and the company can use this to build confidence in its customers and increase its client-base.

5.4 *Development of best practices*

There is a growing need for the development of 'best-practices' for the Indian software industry management. Such practices have been developed for manufacturing industries. In the software area, software engineering focuses on the technical aspect of the business. There have been tremendous developments such as the capability maturity model, software development tools, communication platforms etc. What is needed is the development of managerial 'best-practices' for service industries. Right now the software industry is following the same pattern as the auto industry of the sixties. Will the software industry follow the path of the heavy industry? Only time will tell.

6. Conclusions

Our study is significant in extending the measurement of shareholder value using SPM and EVA to listed third party software providers. Reducing fixed assets, accounts receivables and operating expenditure have been identified as areas that require attention by the companies in this industry. However, these results are limited due to the data being restricted to published income statements and balance sheets. Future work should address the need for 'best-practices' for the industry. Currently Indian software service providers are choice partners for software out sourcing. A frequently raised question about the future of Indian software industry is "how long the bullish trend is likely continue" with competition looming from several countries such as China. Global competitive analysis of the software industry or a SWOT analysis of the Indian software industry may reveal strategies for continued predominance of the Indian software industry.

This study can be extended to various other sectors of the Indian economy including the Indian logistics industry and outsourcing industry, and to study the impact of new technologies (such as radio frequency identification, RFID) on shareholder value.

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