

# A STUDY ON VALUE CREATION THROUGH EVA AND MVA OF SELECTED SOFTWARE COMPANIES

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**ABSTRACT**

There are two key objectives of the financial management namely profit maximisation and wealth maximisation. This discipline follows the concept of managing finance using two approaches viz., traditional approach and modern approach. In traditional approach, financial managers have mainly prioritized profit maximisation as its primary objective. The modern approach requires managers to focus on wealth maximisation by adopting various tools of value creation and value enhancement. At times these two objectives conflict as in the process of maximising profits, managers inadvertently destroy the wealth. If a firm has to survive in the long run, it has to build a roadmap for sustainable growth. This can be achieved by adoption of one of the superior measure of wealth creation and performance viz. Economic Value Added (EVA). EVA is the trade mark developed by Stern Stewart in early 1990. EVA stands superior to other measures on the ground it considers the cost of equity which was ignored by traditional tools; thus not reflecting the true value. EVA is a metric to assess whether a company has produced any value for their shareholders. Market Value Added (MVA) on the other hand is a wealth metric which enables the stakeholders to analyse the degree of wealth created or destroyed by the business. This paper makes an attempt to measure the value /wealth creation with the help of EVA and MVA, of software companies, which were part of NIFTY for all the last seven years ending 31<sup>st</sup> March 2017.

Key words: EVA, MVA, Cost of Capital, NOPAT, Value Creation

## INTRODUCTION

The shareholder value creation is a very wide concept which has gained immense importance in today's competitive market scenario. After Stern Stewart introduced this measure in financial world, several research studies have been conducted in this area to formulate a comprehensive and uniform way to measure shareholder value. But each study has suggested myriad ways for measuring shareholder value – each with its own merits and demerits – with no effective consensus. Maximizing shareholders value has become the new corporate paradigm in recent years. EVA ignites fire to create value for the shareholders.

The conventional measures which are usually considered by the market such as ROI, ROE, and EPS are completely based on the accounting profits, which suffer from numerous drawbacks. They do not reflect the true profit as some variables can be manipulated to present the better picture such as depreciation, inventory valuation etc. Further, mixing operating decisions with financing or investing decision deters the very purpose of financial statements. The reliance by the market on these traditional tools influences the market price to a large extent. It means manipulating and falsifying of accounting numbers can trigger the price to rise or to fall. In that event market price would be unjust

and unfair. EVA eliminates these accounting distortions by considering economic profit and economic capital as suggested by stern Stewart. Building positive EVA goes a long way in creating value by impressing the market and in consequence reflecting the fair price of the stock.

The developers of EVA, i.e. the consulting firm Stern Stewart & Co., succeeded in redefining the traditional concept of residual income (RI) into a measure that purports to minimize the generally accepted accounting principles (GAAP)-based distortions in economic earnings. He suggested close to 160 adjustments to accounting profit to arrive at economic profit and economic capital. However, rationally speaking approximately 10 major adjustments should be considered to justify EVA. The other adjustments may have miniscule or insignificant impact on EVA or MVA. These two metric would not help in assessing the wealth created by the companies for the shareholders but may also serve as a tool for motivating managerial personnel by linking their incentives though EVA. The EVA culture once understood, adopted and implemented successfully, it will help the business managers and owners in enhancing the value of the enterprise. This in turn would build a solid foundation and earn reputation in the market. Consequently investors trust and confidence will rise. Such healthy relation with stakeholders would open up immense opportunities of growth in the future as raising funds would be no difficult task.

According to Stern Stewart traditional measures like Earnings per Share (EPS), Return on Investment (ROI) or Return on Equity (ROE) are misleading measures of corporate performance” (Stewart, 1991, p. 66). A company should not only seek to make a profit from its business – it should also make enough profit to cover the cost of equity invested by shareholders. Traditional approach has always ignored the cost of equity. It’s like you want to protect outsiders (debenture holders) but not insure the owners (shareholders). That is simply unjust and unfair..!!

Performance measurement is the base of investing and financing decisions. Investors (shareholders) can decide on selling or keeping their shares; creditors can analyze the risk of their investment and security and in addition, managers will be able to measure the performance of their companies. The choice of performance measures is one of the most critical challenges faced by the organization. Poorly chosen performance measures provide wrong signals to managers, driving them to take poor decisions and consequently undesirable results.

One must understand that there are several hidden costs of such poor decisions which ultimately are paid by the shareholders in the form of over investment and acquisitions of assets that do not pay off. It is the wrongly chosen performance measures, which in turn push management to take improper decision, which do not yield any monetary or non monetary gain to the company. To conclude, market based measures do not reflect the actual performance of the company as there are several external factors which influence the market value of the firm, which in fact, are irrelevant to the actual performance of the firm. Thus there is a need for adoption of suitable internal measures which can withstand under all circumstances and drive the management towards creation of value.

### LITERATURE REVIEW

In 1991, **Stern Stewart & Co.** revised and improved the computation of Residual Income (RI) through a series of accounting adjustments and the result was the trademarked variant of RI, the EVA ®. McConville (1994), Jackson, Mauboussin and Wolf (1996), Dierks and Patel (1997), Stewart (1998), Prober (2000), Ray (2001), and Grant (2003)

promoted the usefulness of EVA® as a financial reporting tool and described it as a vital measure of total factor productivity, one that reflects all the dimensions by which management can increase value.

**Stewart (1990)** was the first to study whether or not a relationship exists between EVA and MVA. For the study, 18 U.S. companies were selected. The study concluded a strong correlation between EVA and MVA.

**Kroll (1997)** concluded that a successful business is one which aims to generate the enough profits not only to cover the cost of debt but cost of equity too. Why equity shareholders should be punished by not insuring them with their minimum expectation? He suggested that the company which adopts economic value added will show an exemplary improvement in its performance as they set higher target for their managers. Many companies in US have adopted economic value added and improved its performance with the help of it. EVA has an added advantage of showing true value of an enterprise, which in turn may help stakeholders in fetching the right value of the business.

**Lehn and Makhija (1996)** studied the effectiveness of both the metric namely MVA and EVA as measures of performance. They opined that the firms having greater focus primarily in their business activities had higher EVA and consequently higher MVA than less focused counterparts. Lehn & Makhija (1997) further investigated the degree of correlation between different performance measures and stock market returns. Their results indicated that EVA is the most highly correlated measure with stock returns than other traditional measures. .

**Bao and Bao (1998)** investigated the usefulness of value added and abnormal economic earnings of 166 US firms. The results indicated that value added is a significant explanatory factor in market returns, and its explanatory power is higher than that of earnings.

**Geyse & Hall (2004) and Russell (2005)** found that there are several methods to measure the performance of the company but the best amongst these methods is economic value added which creates its own space due to the performance value addition. Economic value added calculates the true economic profit of the company with the help of net operating profit after tax and cost of capital. If the profit is more than the cost of capital it means that the company is creating the wealth for the shareholder.

**Panigrahi (2005)** undertook a case study of ITC Ltd. which has adopted EVA as its performance measure. The study found that by increasing EVA there was creation of shareholders' wealth. Thus the study established the fact that EVA, as a measure of performance, is superior to MVA.

**Fontaine et al (2008)** compared EVA and MVA using a portfolio separation test and the results revealed the significant difference between the highest and lowest performers. The portfolio separation test was further used to compare the best (highest) and worst (lowest) EVA performers from each of the years between 1995 and 2004. The researchers concluded that EVA has explanatory power on relative shareholder wealth creation across both bull and bear market environments.

**Ramana Reddy (2012)** studied the financial performance of selected Indian cement companies in India and ranked them on the basis of their mean EVA and MVA for the period from 2001-02 to 2010-11. The study clearly proved that based on these two metrics viz. EVA and MVA, ACC Ltd, and Grasim Cements Ltd etc have performed satisfactorily with consistent returns to the shareholders. The two measures are having relative importance to assess the performance of a company.

In respect of the predictive power of EVA in evaluating and explaining MVA or shareholder wealth is concerned, Uyemura, Kantor and Petit, 1996; McCormack and Vytheeswaran, 1998; O'Byrne, 1996; Milunovich and Tsuei, 1996; Grant, 1996 and several others have observed that EVA is better correlated with MVA or shareholder wealth than other traditional parameters like ROCE, RONW, EPS, etc. Despite EVA being proved as superior performance measure by EVA proponents, there are some adverse studies too.

**Chen & Dodd (1997)** were of opinion that EVA should completely replace accounting earnings as a performance measure may not hold good in isolation, the accounting profit measures are still of significant information value even if EVA is already in use. The empirical evidence suggest that along with EVA, companies should continue monitoring the traditional measures of accounting profits such as earnings per share, return on assets and return on equity. **Hamel (1997)** was critical about the superiority of EVA. He opined that EVA reveals little about a company's share of new wealth creation.

**Biddle, Bowen, and Wallace (1997)** studied the incremental content and concluded that earnings reflect stock returns better than EVA. The study did not find any evidence to support Stewart's (1991) claim that EVA dominates earnings in relative information content.

### Objectives of Study

The objectives of the study are as follows:

1. To measure the EVA of selected Software Companies
2. To measure the MVA of the selected Software Companies
3. To analyse the relationship between EVA and MVA in value creation.

### Research Methodology

The research has been conducted on four leading Software Companies which were part of the Nifty for the period of all seven years ending 31<sup>st</sup> March 2017. The research data have been extracted from CMIE Prowess in addition to annual reports of these companies.

- I. Computation of EVA:** Stern & Stewart recommend 164 adjustments while calculating NOPAT & Capital Employed. EVA proponents differ in this respect. Ideally speaking 5 to 10 adjustments in accounting variables will provide substantially more or less the same result than otherwise. In the present study  $EVA = NOPAT - \text{Cost of Capital}$ , where

**a. Computation of NOPAT:**

The Net Operating Profit after Taxes has been determined as under:

	( )	( )
Operating Profit before Provisions & Contingencies*		xxx
Add; Interest on Borrowings	xxx	
Non Recurring Expenses/Losses	xxx	
Extra ordinary Expenses/Losses	xxx	
Prior Period Expenses/Losses	xxx	

	( )	( )
Write offs	xxx	xxx
Less: Non Recurring Incomes/Gains	xxx	
Extra ordinary Incomes/Gains	xxx	
Prior Period Incomes/ Gains	xxx	xxx
Adjusted Operating Profit before Tax		xxx
Less: Tax (at Effective rate of Tax)		xxx
Add: Notional Gain/(Loss) due to deferment of tax		xxx
<b>NOPAT</b>		<b>xxx</b>

\*The Operating Profit Before Provisions & contingencies have been arrived at after providing for

- (i) Depreciation on the assumption that the depreciation have been charged over the economic life of the asset.
- (ii) Amortizing the research and development expenditure over the period of economic benefit.
- (iii) Non-cash items such as provisions for bad debts or losses in order to ascertain the economic profit close to cash profit by eliminating certain non-cash items unless otherwise necessary to prevent the true value of economic profit.

Tax on Adjusted Operating Profit has been calculated by applying the effective rate of tax of the respective year/s. Effective rate of tax is the rate of tax as applicable on the profit before tax of the corresponding financial year.

#### b. Computation of Weighted Average Cost of Capital (WACC)

1. Equity capital has been taken at its market value as at the end of the respective years based on the average number of shares held during the year. The fact of taking at market value is based on the premise of opportunity cost forgone by the equity holders.
2. Debt capital comprising of long term borrowings and short term borrowings has been taken at its book value by averaging the same.
3. Cost of equity capital ( $k_e$ ) has been calculated by following Capital Asset Pricing Model (CAPM):

$$\text{Cost of Capital} = \text{Risk free rate of return} + \text{Risk Premium}$$

$$K_e = R_f + \beta (R_m - R_f)$$

- a. Risk free rate of return ( $R_f$ ) of respective years has been taken at the average of monthly return offered by 10 year GOI Bonds during the corresponding year.
- b. Market Rate of Return ( $R_m$ ) has been computed on the basis of average return of the last 10 years taking index of nifty 500 as bench mark.
- c. Beta ( $\beta$ ) of the stock has been taken from cmie prowess. Beta is a tool for measuring systematic risk which is inherent in every stock. It measures the degree of volatility of the stock in relation to market as a whole. Beta of market is equal to 1. Any security having beta of greater than 1 is regarded as aggressive

and highly volatile than market; thus risky. On the other hand a security having beta of less than 1 considered as less volatile; thus less risky.

- d. Risk Premium ( $R_m - R_f$ ) signifies the return offered by the market over and above the risk free rate of return. The amount of premium offered on any security is governed by the beta of that security; which sets down the degree of risk taken by the potential investor.
- c. The cost of debt has been computed by dividing the interest cost with average borrowings. Further, post tax interest cost was determined after deducting the benefit of tax at the effective rate of tax of the corresponding year.

## II. Computation of Market Value Added (MVA)

Market Value Added (MVA) is calculated as Market Value of Equity Shares as reduced by the Book Value of the Equity Shares (Kramer, 1997). Various authors like Kramer, Kyriazis and Anastassis (2007), Bacidore (1997), Ignacio Vélez-Pareja (2003), Weissenrieder (2004) have observed that the corporate performance and expected corporate performance gets reflected in the company's share price. MVA is also considered to be a good measure following the Efficient Market Hypotheses (EMH) which states that all the available information is discounted and duly already reflected in the market price. Hence, they have used MVA as a measure to reflect the corporate performance. MVA can also be construed as PV of future EVA as the current market price discounts the benefit which the stock may have in the future based on efficient market hypotheses.

Market Value Added (MVA) = Market Value of Equity – Book Value of Equity (Average Net Worth)

### Analysis & Interpretation

- ❖ **Economic Value Added (EVA):** The results of Table 1 clearly depicts TCS as the leading company in respect of earning "economic profit" for the shareholders as the average EVA of TCS during the period of these 7 years stands far ahead of the average EVA of other companies under research. As far as Wipro is concerned (which stands at the bottom as regards average EVA) in the first three years EVA being negative; it failed to cover the cost of equity but in later years succeeded in earning positive EVA. On analysing the incremental EVA (as shown in the very next row of EVA), it may further be noted all the companies lost the economic profit especially during the year 2014-15. Infosys and TCS have shown positive EVA in all these years but the rate of growth has been inconsistent. At the same time, all the companies under study have performed exemplary well during the year 13-14, when EVA drastically increased. If a company is successful in turning EVA positive; that indicates the possibility of creating wealth for the shareholders.

**Table 1: Economic Value Added ( ` In Millions)**

		Mar-11	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17	Av.
1	HCL Tech. Ltd.	-3341	2715	13275	37880	36816	23697	46767	22544
			6056	10560	24604	-1064	-13119	23070	
2	Infosys Ltd.	24987	39521	35127	48891	49846	69873	73833	48868
			14534	-4394	13764	954	20028	3960	
3	TCS Ltd.	45616	71445	78649	137267	126044	172951	165514	113927
			25829	7204	58618	-11222	46907	-7438	
4	Wipro Ltd.	-3630	-9697	-5736	31802	29930	38700	30938	16044
			-6067	3960	37538	-1872	8770	-7762	

❖ **Market Value Added (MVA):** Market value added signifies the role of market, as to what market has added to the wealth of the shareholders. It is the surplus of market capitalization over the book value (net worth) of the equity. As shown in Table 2, MVA of TCS is the highest, followed by Infosys, HCL and Wipro. This corresponds with EVA. The MVA of TCS has increased in all these years in relation to previous years except in the year 2016-17, when MVA of all the companies have reduced. It means the companies have destroyed the wealth in that year. During the year 2013-14, these companies have substantially added to the wealth of the shareholders. This analysis indicates the changing preferences and sentiments of the investors towards software industry during certain years due to various reasons.

**Table 2: Market Value Added ( ` In Millions)**

		Mar-11	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17
1	HCL Technologies Ltd.	231055	268829	359772	633097	999622	1060673	964534
			37774	90942	273325	366525	61051	-96139
			16.35	33.83	75.97	57.89	6.11	-9.06
2	Infosys Ltd.	1448363	1482166	1323462	1381381	1765608	2129196	1931380
			33804	-158704	57919	384227	363588	-197816
			2.33	-10.71	4.38	27.81	20.59	-9.29
3	TCS Ltd.	1750049	2081196	2399751	3248605	4143035	4432404	4166663
			331148	318555	848854	894430	289369	-265741
			18.92	15.31	35.37	27.53	6.98	-6.00
4	Wipro Ltd.	913218	901989	836475	940261	1126293	1097906	891687
			-11228	-65514	103785	186032	-28387	-206219
			-1.23	-7.26	12.41	19.79	-2.52	-18.78

❖ **EVA & MVA Relationship:** On referring table 3 and charts 1-4, the researcher has observed that the positive correlation of 0.95, 0.85 and 0.82 and corresponding P value at 0.05 significance level of TCS, Infosys and HCL respectively explains that EVA and MVA are significantly positively correlated. On the other hand P value of Wipro being greater than 0.05 indicates that the correlation of EVA and MVA is non-significant. However, taking all the companies together, P value of less than .05 indicates about the positive significant correlation between EVA and MVA. Thus it can be inferred that largely,  $\Delta$ EVA causes  $\Delta$ MVA in the same direction. Thus, companies focussing on various drivers of EVA to enhance value successfully generate wealth for their shareholders.

**Table 3: Correlation between EVA and MVA ( ` in Millions)**

		Mar'11	Mar'12	Mar'13	Mar'14	Mar'15	Mar'16	Mar'17	r	Rank	P Value
1	<b>HCL</b>										
	EVA	-3341	2715	13275	37880	36816	23697	46767	0.82	3	0.02390
	MVA	231055	268829	359772	633097	999622	1060673	964534			
2	<b>INFOSYS</b>										
	EVA	24987	39521	35127	48891	49846	69873	73833	0.85	2	0.01541
	MVA	1448363	1482166	1323462	1381381	1765608	2129196	1931380			
3	<b>TCS</b>										
	EVA	45616	71445	78649	137267	126044	172951	165514	0.95	1	0.0010
	MVA	1750049	2081196	2399751	3248605	4143035	4432404	4166663			
4	<b>WIPRO</b>										

	EVA	-3630	-9697	-5736	31802	29930	38700	30938	0.66	4	0.10668
	MVA	913218	901989	836475	940261	1126293	1097906	891687			
5	<b>AVG</b>										
	EVA	15908	25996	30329	63960	60659	76306	79263	0.93		0.0024
	MVA	1085671	1183545	1229865	1550836	2008640	2180045	1988566			

Chart 1: HCL

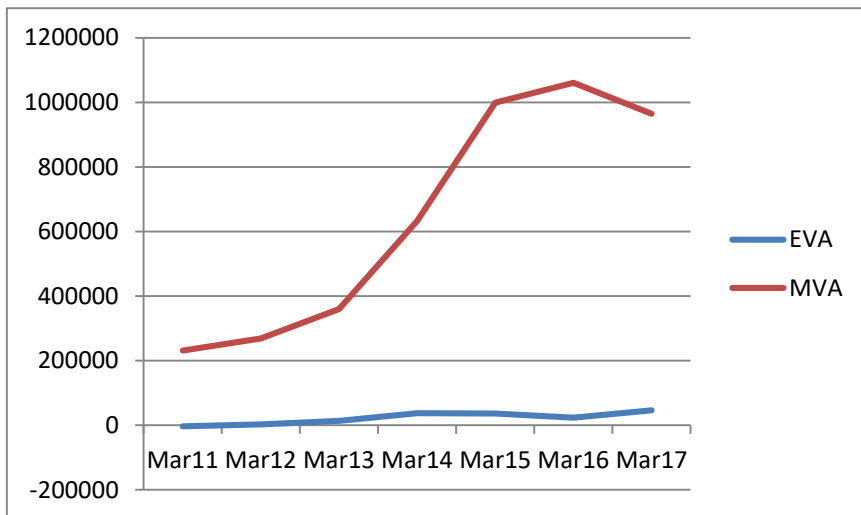


Chart 2: INFOSYS

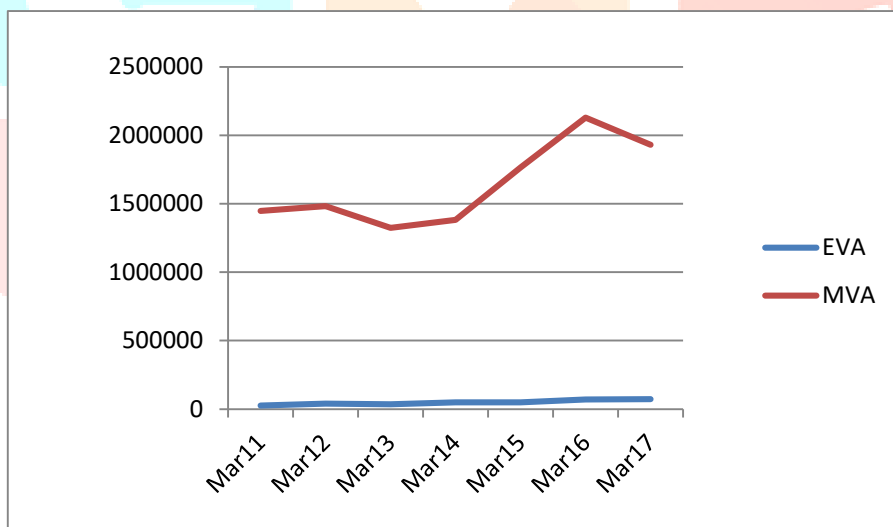




Chart3: TCS

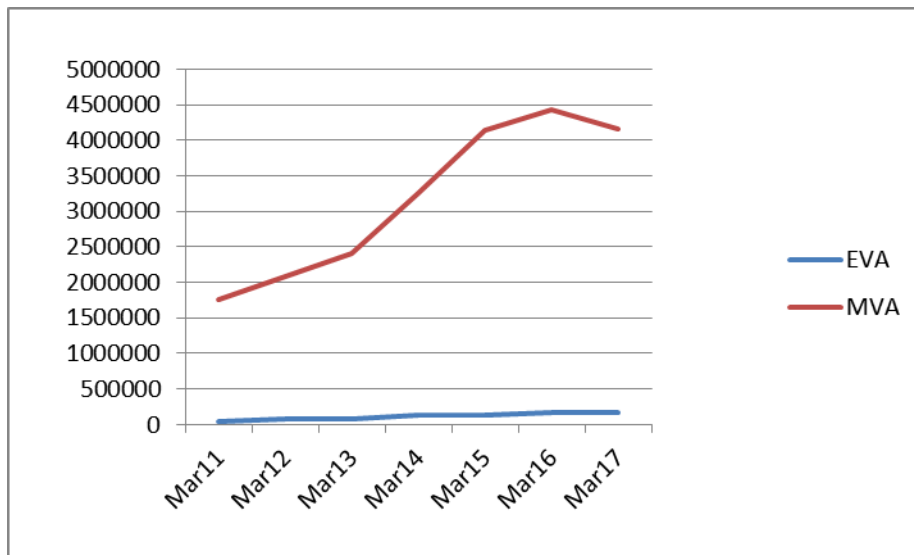
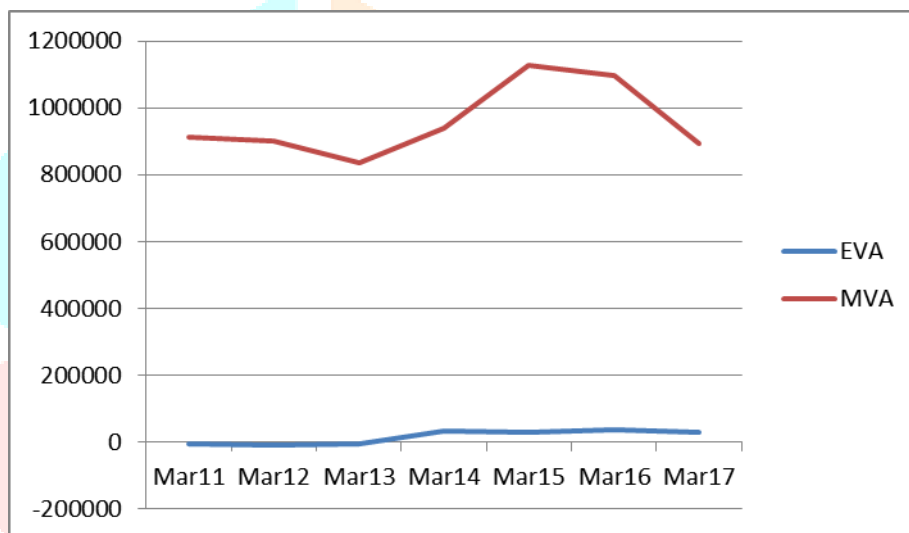


Chart 4: WIPRO



**Findings & Conclusion**

This paper analyses the creation of wealth by the four major software companies using Stern Stewart’s measure of performance namely Economic Value Added (EVA) and Market Value Added (MVA). The study reveals that in most of the years EVA has been positive except in case of Wipro when EVA in the first three years was negative. The negative EVA signifies the higher cost of capital as compared to the returns leading to destruction of wealth of its shareholders. It is very pertinent to note that in all these cases WACC has been computed on the basis of capital structure composition of debt and equity wherein debt was taken at book value whereas equity was taken at market value. If equity would be taken at book value the EVA values would be higher. But taking equity at market value sound more sensible and thus resulting EVA will be refined EVA.

Despite EVA being negative, market may show increased price of stock; thereby increased market capitalisation and in consequence increased MVA. In such a case, one should not neglect the factors which contribute in deciding the price in the market. Market players play a major role in the market besides the fundamentals. What drives market price to rise or fall is crucial and that is normally a temporary phase as fluctuation is ingredient in the market, which means equity holders money is exposed to risk at all times. Ultimately, in the long run what matters is sound

fundamentally strong performance which goes a long way in creating value for the shareholders and that can be earned by adopting these two metrics of value creation. In order to improve EVA, one needs to understand the costs and profits of different activities and services offered by these companies. Only then would they be able to know which line of activity should be focussed upon and which one should be ignored or dropped. Thus, one has to understand the various drivers of these two metrics to enhance the value and create wealth for the shareholders. The management of these companies will have to adopt measures to increase the EVA such as linking incentives with EVA else investors would not be adequately rewarded, which in turn would make it difficult for these companies to raise new capital, if required for expansion later in the future. These factors may also lead to slowing down of industrial and economic growth, lower levels of economic activities etc. which is not a healthy sign for the economy as a whole.

In view of above, we can conclude that the focus should be on earning economic profits (EVA) which triggers the MVA than the accounting profits which suffers from several drawbacks and keeps 'value creation' at bay. If one desires to create or enhance value that can sustain in the long run; it must adopt the following principles of value creation:

- Adopt tools to increase the returns by more efficiently using the existing assets.
- Utilise the surplus cash to earn the returns at the rates greater than its cost.
- Unused cash should be returned to investors through legitimate mechanism e.g. by way of buying back equity which would not only increase EPS but may also lead to increase in market price.

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#### Annexure I: Computation of EVA & MVA

HCL TECHNOLOGIES LTD		₹. In Millions						
		Mar-11	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17
A	Op Profit before Prov. & Cont.	12899	23607	44512	74624	76323	57348	83150
B	Interest	976	872	654	727	787	534	733
C	Net Non Op Income	11	24	-689	478	1458	1345	-147
D	Operating Profit Before Tax (A)+(B)-(C)	13864	24455	45854	74873	75651	56537	84030
E	Effective Rate of Tax (%)	7.1	17.38	18.48	19.1	17.57	18.38	16.95
F	NOPAT (D*E)	12879	20205	37380	60572	62359	46145	69786
G	Notional Gain/(Loss) on Deferred Tax	-319	-550	-942	-509	-307	-1217	-1109
H	Revised NOPAT	12561	19655	36438	60064	62052	44929	68677
I	Average (Net Worth+Debt)	66399	72995	92593	135940	178841	205867	239202
J	WACC (%)	0.2395	0.2321	0.2502	0.1632	0.1411	0.1031	0.0916
K	WACC (₹) (I)*(J)	15902	16939	23162	22184	25236	21231	21910
L	EVA (H)-(K)	-3341	2715	13275	37880	36816	23697	46767
M	Net Worth	53975	62329	84222	129955	175795	202495	233602
	Market Value of Equity	285030	331158	443993	763052	1175417	1263168	1198135
O	MVA (₹) (N)-(G)	231055	268829	359772	633097	999622	1060673	964534

## Annexure II: Computation of EVA &amp; MVA

INFOSYS LTD		In Millions						
		Mar-11	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17
A	Op Profit before Prov. & Cont.	88210	116740	123570	140020	163860	176000	189380
B	Interest	0	0	0	0	0	0	0
C	Net Non Op Income	0	0	-60	190	5730	2270	2180
D	Operating Profit Before Tax (A)+(B)-(C)	88210	116740	123630	139830	158130	173730	187200
E	Effective Rate of Tax (%)	26.96	27.45	26.23	27.2	27.59	27.88	27.04
F	NOPAT (D*E)	64429	84695	91202	101796	114502	125294	136581
G	Notional Gain/(Loss) on Deferred Tax	-386	-312	-543	-724	-615	-410	-336
H	Revised NOPAT	64043	84382	90658	101072	113887	124884	136245
I	Average (Net Worth+Debt)	232810	271415	329080	390755	450800	543845	641830
J	WACC (%)	0.1678	0.1653	0.1687	0.1335	0.1421	0.1012	0.0972
K	WACC (₹) (I)*(J)	39056	44861	55531	52181	64041	55011	62412
L	EVA (H)-(K)	24987	39521	35127	48891	49846	69873	73833
M	Net Worth	232685	271290	329080	390755	450800	543845	641830
N	Market Value of Equity	1681048	1753456	1652542	1772136	2216408	2673041	2573210
O	MVA (₹) (N)-(G)	1448363	1482166	1323462	1381381	1765608	2129196	1931380

## Annexure III: Computation of EVA &amp; MVA

TCS LTD		In Millions						
		Mar-11	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17
A	Op Profit before Prov. & Cont.	87004	133663	157032	235445	240216	293390	300660
B	Interest	200	164	306	234	796	130	160
C	Net Non Op Income	-84	259	-2183	-4679	-495	-1460	180
D	Operating Profit Before Tax (A)+(B)-(C)	87289	133568	159521	240357	241507	294980	300640
E	Effective Rate of Tax (%)	12.99	17.88	18.57	21.53	21.56	21.35	21.33
F	NOPAT (D*E)	75950	109686	129898	188608	189438	232002	236513
G	Notional Gain/(Loss) on Deferred Tax	0	0	36	-62	-45	-2219	-2059
H	Revised NOPAT	75950	109686	129934	188546	189393	229782	234455
I	Average (Net Worth+Debt)	172865	221907	287475	384008	449283	554131	714355
J	WACC (%)	0.1755	0.1723	0.1784	0.1335	0.1410	0.1026	0.0965
K	WACC (₹) (I)*(J)	30333	38241	51285	51279	63348	56831	68941
L	EVA (H)-(K)	45616	71445	78649	137267	126044	172951	165514
M	Net Worth	172481	221181	286094	382571	447342	551877	712215
N	Market Value of Equity	1922529	2302377	2685845	3631176	4590377	4984281	4878878
O	MVA (₹) (N)-(G)	1750049	2081196	2399751	3248605	4143035	4432404	4166663

## Annexure IV: Computation of EVA &amp; MVA

WIPRO LTD		In Millions						
		Mar-11	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17
A	Op Profit before Prov. & Cont.	56739	59635	71869	96091	103027	105411	104429
B	Interest	723	842	893	881	616	979	858
C	Net Non Op Income	590	783	868	1121	952	1371	4853
D	Operating Profit Before Tax (A)+(B)-(C)	56872	59694	71894	95851	102691	105019	100434
E	Effective Rate of Tax (%)	15.1	20.84	21.58	23.11	22.39	22.59	23.63
F	NOPAT (D*E)	48284	47254	56379	73700	79698	81295	76701
G	Notional Gain/(Loss) on Deferred Tax	-23	-55	-129	-14	-145	-339	-88
H	Revised NOPAT	48262	47199	56250	73686	79553	80956	76613
I	Average (Net Worth+Debt)	246434	278519	299820	321317	373316	440051	497785
J	WACC (%)	0.2106	0.2043	0.2067	0.1304	0.1329	0.0960	0.0918
K	WACC (₹) (I)*(J)	51891	56896	61987	41884	49623	42256	45675
L	EVA (H)-(K)	-3630	-9697	-5736	31802	29930	38700	30938
M	Net Worth	195062	228364	242910	267927	319888	375473	432171
N	Market Value of Equity	1108280	1130353	1079385	1208188	1446181	1473379	1323858
O	MVA (₹) (N)-(G)	913218	901989	836475	940261	1126293	1097906	891687

## Annexure V: Computation of Return on Equity

	Mar-11	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17
Risk Free Rate of Return (%)	7.92	8.44	8.19	8.43	8.28	7.73	6.93
Return on Market Portfolio (%)	27.18	26.02	27.49	18.48	19.67	12.50	14.09
<b>Name</b>	<b>Beta Values</b>						
1 HCL Technologies Ltd.	0.87	0.87	0.89	0.79	0.51	0.54	0.31
2 Infosys Ltd.	0.46	0.46	0.45	0.49	0.52	0.50	0.39
3 TCS Ltd.	0.50	0.50	0.50	0.49	0.51	0.53	0.38
4 Wipro Ltd.	0.73	0.73	0.70	0.51	0.48	0.47	0.37
<b>Name</b>	<b>Return on Equity using CAPM (%)</b>						
1 HCL Technologies Ltd.	24.67	23.74	25.37	16.37	14.09	10.31	9.15
2 Infosys Ltd.	16.78	16.53	16.87	13.35	14.21	10.12	9.72
3 TCS Ltd.	17.55	17.23	17.84	13.35	14.09	10.26	9.65
4 Wipro Ltd.	21.98	21.28	21.70	13.55	13.75	9.97	9.58

## Annexure VI: Weighted Average Cost of Capital (₹ in millions)

WACC (₹ In Millions)								
		Mar-11						
Company Name	Equity	Debt	W <sub>e</sub>	W <sub>d</sub>	K <sub>e</sub>	K <sub>d</sub>	WACC	
1 HCL Technologies Ltd.	285030	12424	0.9582	0.0418	0.2467	0.0730	0.2395	
2 Infosys Ltd.	1681048	125	0.9999	0.0001	0.1678		0.1678	
3 Tata Consultancy Services Ltd.	1922529		1.0000	0.0000	0.1755		0.1755	
4 Wipro Ltd.	1108280	51372	0.9557	0.0443	0.2198	0.0119	0.2106	
		Mar-12						
1 HCL Technologies Ltd.	331158	10666	0.9688	0.0312	0.2374	0.0676	0.2321	

2	Infosys Ltd.	1753456	125	0.9999	0.0001	0.1653	0.0000	0.1653
3	Tata Consultancy Services Ltd.	2302377		1.0000		0.1723		0.1723
4	Wipro Ltd.	1130353	50155	0.9575	0.0425	0.2128	0.0133	0.2043
<b>Mar-13</b>								
1	H C L Technologies Ltd.	443993	8371	0.9815	0.0185	0.2537	0.0636	0.2502
2	Infosys Ltd.	1652542		1.0000		0.1687		0.1687
3	Tata Consultancy Services Ltd.	2685845	1381	0.9995	0.0005	0.1784	0.1806	0.1784
4	Wipro Ltd.	1079385	56910	0.9499	0.0501	0.2170	0.0123	0.2067
<b>Mar-14</b>								
1	H C L Technologies Ltd.	763052	5985	0.9922	0.0078	0.1637	0.0982	0.1632
2	Infosys Ltd.	1772136		1.0000		0.1335		0.1335
3	Tata Consultancy Services Ltd.	3631176	1437	0.9996	0.0004	0.1335	0.1278	0.1335
4	Wipro Ltd.	1208188	53390	0.9577	0.0423	0.1355	0.0127	0.1304
<b>Mar-15</b>								
1	H C L Technologies Ltd.	1175417	3046	0.9974	0.0026	0.1409	0.2129	0.1411
2	Infosys Ltd.	2216408		1.0000		0.1421		0.1421
3	Tata Consultancy Services Ltd.	4590377	1942	0.9996	0.0004	0.1409	0.3215	0.1410
4	Wipro Ltd.	1446181	53428	0.9644	0.0356	0.1375	0.0089	0.1329
<b>Mar-16</b>								
1	H C L Technologies Ltd.	1263168	3372	0.9973	0.0027	0.1031	0.1292	0.1031
2	Infosys Ltd.	2673041		1.0000		0.1012		0.1012
3	Tata Consultancy Services Ltd.	4984281	2254	0.9995	0.0005	0.1026	0.0454	0.1026
4	Wipro Ltd.	1473379	64578	0.9580	0.0420	0.0997	0.0117	0.0960
<b>Mar-17</b>								
1	H C L Technologies Ltd.	1198135	5601	0.9953	0.0047	0.0915	0.1086	0.0916
2	Infosys Ltd.	2573210		1.0000		0.0972		0.0972
3	Tata Consultancy Services Ltd.	4878878	2140	0.9996	0.0004	0.0965	0.0588	0.0965
4	Wipro Ltd.	1323858	65614	0.9528	0.0472	0.0958	0.0100	0.0918