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MEASURING CORPORATE SUCCESS: STATISTICAL ANALYSIS OF FINANCIAL PERFORMANCE INDICATORS

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ABSRTACT

The Financial Theory has long for suggested that the corporate objective is to maximize the wealth of its shareholders by maximizing the market price of its shares. In other words performance on the stock market is an index of corporate success. Any corporate entity experiencing a rise in the market price of its stocks is considered a good bet by the investors. Although Share prices in the market are sensitive to a large number of factors, there is no denying the fact that the profitability of an enterprise is a prerequisite for its performance in the stock market. Also a large number of profitability measures such as Return on Investment (ROI), Return on Capital Employed (ROCE), Return on Net Worth (RONW), Return on Sales, (ROS) and the most recent measure Economic Value Added (EVA) are used to gauge the financial health of a business corporate. The present paper aims at Measuring Corporate Success through various profitability indicators for selected Indian Corporates. The study empirically evaluates these measures for the 30 selected companies from major industry sectors of India. Statistical Estimation of the relationship between these performance indicators and market price of the shares of these Corporates for the period of five years 2005 to 2009 has been carried out using Correlation and Step-wise Multiple Regression Analysis. A comparative Analysis of the performance indicators for Indian Corporates is conducted by ranking the selected companies as regards various indicators and the variations in the rankings are statistically examined. The results of the study contribute in two ways: Firstly, they help to find out the best profitability measure for Indian Industries and secondly, to estimate the financial strength of the companies and its relation to the company share prices for the period under consideration.

KEYWORDS
Corporate Success, EVA, ROCE, RONW.

INTRODUCTION
The financial theory has for long suggested that corporate objective is to maximize the wealth of its shareholders by maximizing the market price of its shares. In other words performance on the stock markets is an index of corporate success. Financial markets play a vital role in mobilization of savings in the economy for investment purposes.

Although share prices in market are sensitive to a large number of factors, there is no denying the fact that profitability of an enterprise is a pre-requisite for its performance in the stock market. Also a large number of traditional profitability measures viz. Return on Capital Employed(ROCE), Return on Net Worth(RONW), Return on sales(ROS), Earning per Share(EPS), etc., are used to gauge the financial health of a business corporate. However, very few attempts are made to find out whether Economic Value Added (EVA) & returns from equity shares are having any relationship in Indian context. EVA is a criterion which has recently gained popularity as an indicator of corporate performance, which should be considered by shareholders for making investment decision. No enterprise survives or grows if it fails to generate wealth for ultimate stakeholders. An enterprise may exist without making profit but cannot survive without adding value. Economic Value Added is a broader financial measure of judging the output of a corporate in particular and the industry in which such corporate works in general to economic growth and development of nation. Hence, the mounting significance of the EVA concept has necessitated the investigators to carry out a self-regulating study for throwing some light on its practical face in India. The central idea of EVA is subtracting the cost of capital from the firm's profits to measure, as the term indicates, the economic added value produced by the firm to its owners over the weighted average cost of the capital employed.

OBJECTIVES
The present paper aims at
- Comparing various profitability measures to evaluate Corporate Success.
- Estimating the relationship between traditional variables of profitability & Equity Returns.
- Ranking Sample Company's on basis of EVA & other profitability indicators.
- Assessing the relevancy of EVA in explaining its contribution to the shareholder's wealth.

RESEARCH METHODOLOGY
A sample of 30 leading companies from various industrial sectors of Indian Industries was selected for this study. Data on major financial variables was collected for the period of five years, from financial year 2004-05 to 2008-09. Annual reports, Company websites, and ICICI Research data base form the major Data Sources. Simple statistical tools such as correlation and Stepwise Regression Analysis were used for the analysis purpose.

HYPOTHESIS OF THE STUDY
It is hypothesized that the accounting-based rates of return (ROI, ROCE and ROS) fail to assess the true or economic return of a firm as these are based on historical asset values and that EVA is a better indicator of a firm's performance measured in terms of market price of equity and equity returns.

ANALYSIS
In order to analyze the relationship between Equity Returns and profitability measures Karl Pearson's correlation coefficients are calculated and the corresponding 'p' values are used for testing statistical significance.

DESCRIPTIVE STATISTICS

	Mean	Std. Deviation	N	C.V.
RETURNS	.015522	.0224340	30	1.4453
EVA	1092.179928	0.0019306408	30	0.0000017
EPS	27.896133	33.8856030	30	1.2147
RONW	14.699667	11.7165958	30	0.797065
ROCE	11.194046	12.9325854	30	1.155309
ROS	8.636411	7.9655553	30	0.92232

CORRELATIONS

		RETURNS		EVA	EPS	RONW	ROCE	ROS
Pearson Correlation	RETURNS	1.000		-.186	.041	-.292	-.332	-.322
	EVA	-.186		1.000	.482	.570	.525	.564
	EPS	.041		.482	1.000	.598	.384	.501
	RONW	-.292		.570	.598	1.000	.881	.967
	ROCE	-.332		.525	.384	.881	1.000	.973
	ROS	-.322		.564	.501	.967	.973	1.000
Sig. (1-tailed)	RETURNS	.		.163	.415	.059	.037	.041
	EVA	.163		.	.003	.001	.001	.001
	EPS	.415		.003	.	.000	.018	.002
	RONW	.059		.001	.000	.	.000	.000
	ROCE	.037		.001	.018	.000	.	.000
	ROS	.041		.001	.002	.000	.000	.

The above table indicates that EVA is the most consistent variable on the basis of co-efficient of variation of all the variables. The correlation matrix indicates negative relationship between equity returns and EVA is found to be insignificant equity returns are negatively correlated with the other profitability measures such as RONW, ROCE & ROS and all are found to be insignificant. Thus, there is no statistically reliable relationship between EVA and equity returns. The correlation co-efficient between EVA & EPS is found to be 0.482 & hence, R^2=0.2323 which indicates that EPS explains the total variation in shareholders wealth only up to 23%. Similarly, the correlation co-efficient between EVA & RONW is found to be 0.57 and that between EVA & ROCE is 0.525. Hence, R^2=0.3249 and R^2=0.2756 respectively which indicates that RONW explains 32% of total variation in shareholders wealth and ROCE explain 27% variation in shareholders wealth. Thus, there exists relatively high correlation between EVA and RONW and ROCE and low correlation between EVA & EPS.

Further Analysis was carried out by assigning ranks to the selected companies as regards different profitability measures and market returns. The results are summarized in the table below:

NAME OF THE COMPANY	RETURN	NOPAT	EVA	EPS	ROCE	RONW	ROS
ALEMBIC LTD. 1	25	22	22	20	13	12	11
ARVIND MILLS 2	1	23	23	26	26	27	27
BANK OF INDIA 3	6	8	8	11	25	10	18
BHARAT PETROLIUM CORPORATION LTD. 4	19	10	10	9	14	15	14
BINANI INDUSTRIES LTD. 5	3	26	26	21	28	29	28
CADILA HEALTHCARE LTD. 6	24	17	17	13	9	7	8
DUTRON POLYMERS LTD. 7	10	28	28	27	27	21	24
GSFC LTD. 8	16	16	16	7	7	9	9
HINDUSTAN PETROLIUM CORPORATION LTD. 9	23	11	11	10	19	22	20
HP COTTON TEXTILES LTD. 10	7	29	29	29	29	30	29
ICICI BANK 11	18	6	6	8	24	19	22
INDIA CEMENTS LTD. 12	9	15	15	19	16	17	16
INDIAN OIL CORPORATION LTD.13	20	3	3	6	12	11	10
INFOSYS TECH. LTD. 14	27	5	5	3	2	2	2
JINDAL STEEL POWER LTD. 15	2	12	12	1	8	3	5
NAGARJUNA FERTILIZERS CHEM. LTD. 16	4	25	25	28	22	26	26
NILKAMAL LTD. 17	17	27	27	17	20	23	23
RANBAXY LABORATORIES LTD. 18	28	21	21	22	18	18	17
RASHTRIYA CHEMICALS FERTILIZERS LTD. 19	15	19	19	25	11	16	12
RAYMOND LTD. 20	26	24	24	23	21	25	25
SAIL LTD. 21	8	1	1	18	1	1	1
SATYAM COMPUTER SERVICES LTD. 22	29	9	9	12	5	8	6
SBI 23	14	2	2	2	23	13	19
SINTEX INDUSTRIES LTD. 24	11	20	20	16	15	14	13
TATA COMMUNICATION LTD. 25	5	14	14	15	17	24	21
TATA STEEL LTD. 26	22	4	4	4	3	4	3
TATA TELY SERVICES (MAMHARASHTRA) LTD. 27	13	30	30	30	30	28	30
ULTRA TECH. 28	12	13	13	5	6	6	7
WIPRO LTD. 29	30	7	7	14	4	5	4
ZEE COMMUNICATIONS LTD. 30	21	18	18	25	10	20	15

The rankings obtained indicate that SAIL is the best performer as regards the profitability measures but it ranks eighth as per its equity returns. On the other hand ARVIND MILLS has very low profitability ratios and still it provides the highest market returns. This clearly points out that the equity returns of a company do not depend only on the profitability of the firm. To prove this result statistically and to search out the best profitability measure for Indian Industries, Stepwise Regression Analysis was carried out between Average Market Price per Share and the Profitability Measures in order to estimate the relationship between them.

The various estimated Regression Equations were as under:

MP = 228.566 + 18.477 ROCE R^2=0.442
MP = 54.832 + 25.889 RONW R^2=0.315
MP = 323.28 + 0.103EVA R^2=0.134
MP =133.998 + 34.899 ROS R^2=0.264
MP= 217.446 + 0.52 EVA + 14.401 ROCE R^2=0.221
MP = 30.297 + 0.22 EVA + 43.629RONW-30.111ROS R^2=0.331

Correlation Analysis:

	RONW	ROS	ROCE	EVA
MP	0.561	0.514	0.442	0.367

The following deductions were made thereby:

- The size of the intercept term is very high indicating that share prices are determined by a number of other variables which have not been included explicitly in the model.
- The fact is further verified by the low values of R^2 throughout.
- Coefficients of RONW and ROS are found to be statistically significant but since RONW has greater contribution in explaining the total variation in the Share Prices, we can consider ROCE to be a better measure for reflecting profitability of Indian Industry. But RONW explains only 31% of the total variation in the share prices supporting the dominance of other determinants rather than the profitability measures.
- EVA has the lowest correlation with the share prices and it explains only 13% of the total variation in the share prices. There is no indication whatsoever that EVA is conveying any statistically significant signals different from traditional performance indicators.

Thus our hypothesis of the study stands rejected. This analysis reveals that the so-called newly innovated concept of EVA has not correlated very well with the shareholder's wealth. Thus the shareholders cannot rely only upon the profitability measures of a firm in order to make their investment decisions.

MAJOR FINDINGS AND CONCLUSIONS

The above study clearly points out the following major findings:

- Most profitable companies do not necessarily perform well in maximizing their shareholder's wealth.
- RONW also explains relatively a better proportion of the total variations in Equity Returns.
- Though coefficient of variation for EVA is the least, it has not correlated well with the shareholder's wealth.
- Equity Prices and the Profitability measures have a very weak statistical relationship.
- Non-quantifiable factors are more dominating in explaining the patterns of fluctuations in Equity Returns.

Thus Profitability measures are not the sole indicators of the Corporate Success and hence the shareholders must not rely upon only these measures for their investment decisions.

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ANNEXURE

LIST OF FORMULAE

ECONOMIC VALUE ADDED

Economic Value Added of a company in a year is calculated by deducting the capital charge from the Net Operating Profit after Tax (NOPAT) of that year. That is, $EVA_{it} = NOPAT_{it} - KO_{it}$ (Total capital Employed),where, EVA_{it} is the Economic Value Added of the company 'i' at the financial year 't', KO_{it} is the weighted average cost of long term capital sources of the company 'i' in the financial year 't'.

NET OPERATING PROFIT AFTER TAX

The NOPAT of a company is calculated as the difference between the Profit before Interest and Tax and the amount of Tax paid by the company. Symbolically,

$NOPAT_{it} = PBIT_{it}(l-T_{it})$

Here, $NOPAT_{it}$ is the Net Operating Profit after Tax of company 'i' in the financial year 't'.

$PBIT_{it}$ is the Profit Before Interest and Tax of the company 'i' in the financial year 't'.

Tit is the effective tax rate of the company 'i' during the financial year 't'.

OVERALL WEIGHTED AVERAGE COST OF CAPITAL

The overall cost capital is calculated by finding out the weighted average of cost of equity capital, cost of preference capital (if any) and the effective cost of debt. Symbolically it is denoted as,

$KO_{it}= Ke_{it}\, We_{it} + Kp_{it}\, Wp_{it} + Kd_{it}\,(1-T_{it})\, Wd_{it}$ .....(1)

Here, KO_{it} is the weighted average cost of capital of the company 'i' in the financial year 't'.

Ke_{it} is the cost of equity capital of the company 'i' in the financial year 't',

We_{it} is the percentage of equity capital to the total capital employed of the company 'i' in the financial year 't',

Kp_{it} is the cost of preference share of the company 'i' in the financial year 't', Wp_{it} is the percentage of preference capital to the total capital employed of the company 'i' in the financial year 't',

Kd_{it} is pre tax cost of debt capital of the company 'i' in the financial year 't'.

Wd_{it} is the percentage of long term borrowings to the total capital employed of the company 'i' in the financial year 't'

T_{it} is the effective tax rate of the company 'i' in the financial year 't'. It is the rate of tax paid on the profit before tax.

COST OF EQUITY

The cost of equity capital is calculated by using the Security Market Line equation in the Capital Asset Pricing Model, which is given as,

$Ke_{it}=R_{ft}+(R_{mt}-R_{ft})\beta_{it}$

In this equation the Ke_{it} is the cost of equity capital of ith Company in the financial year 't',

R_{mt} is the return from the market portfolio during the financial year 't',
$R_{f\,t}$ is the risk free rate of return during the financial year 't',
β_{it} is the Beta value of the company 'i' in the financial year 't'.
The risk free rate of return (R_f) is the return available from the risk free asset in the market State Bank of India (SBI) is the largest public sector bank with branches operating all over India. Therefore, in the present study fixed deposits accepted by SBI is taken as the proxy of the risk free asset. Its interest rate on fixed deposits for one year period as on 1 April of a year 't' is taken as the risk rate of return for the year 't'.
In the equation, the value β_{it} is an index of systematic risk of ith company during the financial year 't'. It is measured as ratio of covariance between individual security returns and market return to the variance of the market return. It can be given as,

$$\beta_{it} = \frac{COV(R_i, R_m)}{VAR(R_m)}$$

Where, Cov(R_i, R_m) is the covariance of returns of ith security with market return and Var(R_m) is the variance of the return from the market. The return from the market is measured by using BSE SENSEX as the proxy of market price movement. Percentage of change in the monthly average of BSE SENSEX is taken as the return from the market. Similarly the rate of change in the monthly average price of the equity share of a company 'i' is taken as the return from the equity share. Using these monthly returns from the market and equity share of the company 'i' of the financial year 't' the beta value of the company T is calculated for the financial year 't' as mentioned above.

COST OF PREFERENCE SHARE CAPITAL

Dividing the annual preference dividend by the closing balance of the preference share capital of the company 'i' in the financial year 't' the cost of preference capital of the company 'i' in the year 't' is calculated.

PRE TAX COST OF DEBT

The pre tax cost of debt of the company 'i' in the financial year 't' is the ratio of interest paid by the company on the total long term debt funds of the financial year 't'. That is, interest paid during the financial year 't' is divided by the total amount of long term debt fund existing at end of the financial year 't' in the balance sheet of the company 'i' is taken as the pre tax cost of debt. It is given as

$KD_{it} = (I_{it} / LD_{it}) \times 100$

Here, KD_{it} is the pre tax cost of debt of the company 'i' in the financial year 't',
I_{it} is the interest paid by the company 'i' during the financial year 't',
LD_{it} is the long-term Borrowings at the end of the financial year 't'.
After calculating the cost of equity share capital, cost of preference share capital and the after tax cost of debt of the company 'i' in the financial year 't' the weighted average cost of capital of the company is calculated as per the equation.

RETURN ON SALES

$$ROS = \frac{NOPAT}{Total\ Sales}$$

RETURN ON CAPITAL EMPLOYED

$$ROCE = \frac{NOPAT}{Total\ Investment}$$

RETURN ON NET WORTH

$$RONW = \frac{NOPAT}{NetWorth}$$

EARNINGS PER SHARE

$$EPS = \frac{NOPAT}{No.of\ Equity\ Shares}$$

REQUEST FOR FEEDBACK

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With sincere regards

Thanking you profoundly

Academically yours

Sd/-

Co-ordinator