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AN EXPLORATION OF FINANCIAL PERFORMANCE'S DETERMINANTS: EVIDENCES FROM INDIAN CORPORATE SECTOR

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ABSTRACT

The main objective of the present study is to identify the determinants of firm's financial performance (both capital market based and accounting based) in Indian context. In the present study the data of a sample of 233 companies is used to evaluate the financial performance measured in terms of shareholders' value, growth and profitability using a set of independent variables during the period ranging from 1996 to 2008. The study documents the robust negative presence of leverage in the shareholders' value creation in Indian corporate sector during the last twelve years, which indicates the acceptance of null hypothesis regarding leverage. The empirical results regarding growth in sales depict age as significant negative determinant leading to acceptance of null hypothesis regarding age. The study exhibits age as significant negative determinant of gross profit margin while size, working capital and leverage as positive determinant. On the other hand, the age and leverage come out to have significant negative effect on net profit margin, another component of profitability. The empirical results have wider implications corporate strategists, policy makers, regulators, fund managers, equity investors and other stakeholders of a firm.

Keywords - *Tobin's Q ratio, Leverage, Gross profit margin, Regression, Size.*

INTRODUCTION

The analysis of performance of corporate sector is of great importance to its various stakeholders. Economists and government need to analyse the performance for variety of purposes, including as guide to antitrust policy and in regulating the prices of natural

monopolies. On the other hand for common equity investors, it assumes immense significance since they are investing their hard earned funds in the expectation of higher returns. Though the performance of corporate sector can be analyzed on various dimensions, the present study remains confined to its financial aspect. The theory of corporate governance gives central place to the shareholder value maximization as an objective of a firm. Taking cue from this objective, the present study followed it as conceptual and operational framework for evaluating the firm's performance. Shareholder value, which reflected in financial performance, is dependent on several factors such as firm's current profitability, its risk and its growth hence; there is a need to systematically study the determinants of performance over a long time-period. The present study is concerned with two sets of performance measures one based on capital market valuation of a firm and the other set based on accounting measures of profitability and financial performance. Broadly, there are three sets of variables which affect the financial performance of firm –

a. Factors, such as the level of marketing expenditure of a firm, which is (to a large extent) a reflection of strategic choice of firm managers or operating characteristic of the firm;
b. Factors such as ownership pattern of the firm's equity that can affect its governance
c. Factors such as size and age of the firm which are shaped more by the history of its evolution.

In this study an attempt has been made in this study to identify the determinants of firm's financial performance (both capital market based and accounting based) during the period of twelve years ranging from January 1996 to December 2008.

REVIEW OF LITERATURE

In this section, an attempt is made to incorporate the findings of some of the relative and significant studies conducted across the world. Banz (1981) examined the historical monthly returns for NYSE common stocks for the period 1931-1975 and found that the size of the firm had been highly correlated with stock returns. The study indicated that the larger the market value of firm's common stock, the lower the rate of return generated by the stock. Roll (1981) studied the relationship between investment performance and market-capitalisation investment strategy. The study tested small firm effect anomaly and reported that misstatement of risk had the potential to explain why small firms, low P/E ratios firms displayed large excess returns. Varaiya et al (1987) examined predictions drawn from value-based planning models. The results indicated that profitability and growth influenced shareholder value in the manner predicted; however, the relationships were conditional. Wernerfel and Montgomery (1988) used Tobin's q as a measure of performance and found that industry effects accounted for the majority of the explained variance. The findings were consistent with profit maximization by firms with different factor endowments.

Chaganti & Damanpour (1991) showed that the size of outside institutional stockholdings has a significant effect on the firm's capital structure. Berger and Ofek (1995) examined the effects of diversification on firm value and found that diversification reduced value and this value loss average 13 per cent to 15 per cent over the 1986-91 sample period, occurred for firms

of all sizes. Loderer and Martin (1997) examined the relation between managers' financial interests and firm performance. It found no evidence, however, that larger stockholdings lead to better performance. McGahan & Porter (1997) examined the importance of year, industry, corporate-parent, and business- specific effects on the profitability of U.S. public corporations within specific 4-digit SIC categories. The results indicated that year, industry, corporate-parent, and business-specific effects accounted for 2 percent, 19 percent, 4 percent, and 32 percent, respectively, of the aggregate variance in profitability. Pandya and Rao (1998) found that on average, diversified firms showed better performance compared to undiversified firms on both risk and return dimensions. It also tested the robustness of these results by classifying firms by performance class. The results showed that among the best performing class of firms, undiversified firms had higher returns, but these returns were accompanied by high variance. While the highly diversified firms showed lower returns, and much lower variance. Bharadwaj et al (1999) used Tobin's *q*, a financial market-based measure of firm performance and examined the association between IT investments and firm *q* values. The results based on data from 1988-1993 indicated that, in all of the five years, the inclusion of the IT expenditure variable in the model increased the variance explained in *q* significantly. The results also showed that, for all five years, IT investments had a significantly positive association with Tobin's *q* value. Kakani et al (2001) attempted to provide an empirical validation of the widely held existing theories on the determinants of firm performance in the Indian context. The study found that size, marketing expenditure, and international diversification had a positive relation with a firm's market valuation.

Rogers (2001) examined the association between diversification and firm performance in a sample of up to 1449 large Australian firms (1994 to 1997). Results from the full sample showed that more focused firms have higher profitability. Tsuru (2001) examined the bank relationships and firm performance and discovered weak evidence that firms with stronger ties with banks might have had higher profitability in the late 1970s. Haynes et al (2002) examined the impact of divestment on firm performance; using an unbalanced panel of 132 UK quoted companies over the period 1985 to 1993. The result suggested that divestment had a positive, significant and substantial effect in raising the profitability of the vendor company. Kakani (2002) studied the performance of Indian business houses vis-à-vis their diversification strategy using aggregated financial statement data and capital market data of 240 large Indian business houses. The study found that product diversification strategy was negatively related to business groups shareholder value (Tobin's Q Ratio) for all the three periods of the study and shareholder value maximization was related to a group's growth, profitability, risk and the general capital market conditions. Amess and Drake (2003) examined the empirical relationship between the remuneration of: the highest paid director (HPD), mean Board remuneration (Director), and the Chairperson of the Board and firm-level performance on a panel of mutual building societies over the 1991 to 1996 period. Two measures of performance were employed: profitability and the change in total factor productivity (TFP). A strong positive relationship between profitability and pay was found for the HPD but not for the Director or Chair. Gartner (2003) investigated the relation between the wage structure with in firm and performance of the firm. The results suggested a positive, but nonlinear relation between wage dispersion and firm output. Andersson et al (2004) explored the link between ownership structure and firm performance among

Sweden's listed companies. The results indicated that companies with a dispersed ownership structure, meaning the largest owner holds less than 20 per cent of total votes, were associated with worse performance regarding stock return, ROA and ROE, but were highly valued relating to Tobin's Q. Gioia (2004) investigated the effects of ownership change on the performance of small and medium size, private and closely held companies. The study found empirical support for the hypothesis that changes in ownership via acquisition could be a mechanism to correct for lapses in efficiency. Favero et al (2006) studied the performance of Italian listed family firms in the period 1998-2003. They measured their performance by using both accounting and market data. The study found that the data and the methodology used to measure performance strongly affected the results. When performance was measured by accounting data (ROA), using a static model, evidences were in favor of a superior performance of family firms. Such evidences were not confirmed by the application of the same model to market measures of performance. On the whole these studies point size, ownership pattern, marketing expenditure, corporate governance and age as influential variables to firms' performance. Furthermore, some studies reported CEO remuneration, employee involvement, bank relationship and wage structure as significant factor behind performance.

RESEARCH METHODOLOGY

TIME SPAN OF STUDY

The present study used a longer time frame of study of 12 year period i.e. from 1996-2008. The significance of this study period for the Indian firms remains in the fact that the Indian economy experienced a phase of changes such as increasing competition, deregulation and corporate restructuring.

SAMPLE SIZE

The total number of sample firms used in the study satisfying the following criterion was 233.

- Firms should be listed on either BSE or NSE with the required data and a listing history of at least 12 years (1996-2008).
- Firms should have had an average market capitalization of more than Rs. 1 core during the period of study.

The secondary data regarding financial statements of above mentioned sample firms compiled from the CMIE-PROWESS database. The above sample had market capitalization of Rs. 10490485 core as July 1, 2008.

VARIABLE NOTATION AND MEASURES

MEASURES OF PERFORMANCE

The calculation of all firm performance measures and other financial figures are based on the formulae given below. The study used simple averages for whole study period. The measures used for three dimensions of financial performance are:

1. **SHAREHOLDERS VALUE**: Tobin's Q ratio is considered the most appropriate surrogate measure of value creation in literature. Theoretically, Tobin's Q is a much more appealing measure than accounting returns (Wernerfelt & Montgomery, (1988). This study used a surrogate measure of Tobin's Q Ratio (TOBIN) defined as follows:

   {Market Value of Equity + Book Value of Preferred Stock + Book Value of Debt}/ {Book Value of Assets}

   Where the market value of equity is calculated using the average market price of the scrip over the year.

2. **PRICE TO BOOK VALUE RATIO:** The study also used another surrogate measure of Tobin's Q ratio, Market-to-Book Value ratio (PBV) defined as follows:

   {Market Value of Equity / {Book Value of Equity}

   The usage of PBV has also been supported in literature as a measure of value creation.

3. **GROWTH**: A review of empirical literature (Dess & Robinson, (1984) shows that the most used measures for growth have been compounded annual growth rate of sales and total assets. Hence, the study used compounded annual growth rate of total assets (CAGRTA) and total sales (CAGRTS) as the growth measures, which are calculated by running the following regression on total assets and total sales with independent variable time.

   Total Assets = a + b (T)
   Total Sales = a + b (T)

4. **PROFITABILITY:** The study used Gross profit margin (GPM) and net profit margin (NPM) as two constituents of profitability.
   GPM is calculated as

   {Net income + Tax + Interest + Depreciation}/ {Total sales}
   NPM is calculated as
   {Net income}/ {Total sales}

MEASURES FOR INDEPENDENT VARIABLES

1. **AGE:** Year of incorporation of the firm was taken as year when it began operations. The incorporation year is deducted from the year 2008 to get its age.

   Age = {2008 – Incorporation year}

2. **BUSINESS GROUP AFFILIATION**: A dummy variable is used for a firm being a business group affiliate. Therefore, 1 was given to group affiliates and 0 otherwise. For the purpose of identifying business group affiliation, the study adopted the CMIE database's classification of firms into business groups and non-business groups.

   {Business group affiliate = 1, No Business group = 0}

3. **LEVERAGE (DERATIO):** The study considered long-term debt to net worth of the firm as a measure of its leverage.

   {Long-term debt}/ {Net worth}

4. **MINORITY INVESTORS STAKE (PUBLIC):** The stake held by public shareholders (also known as floating stock) in a firm from the CMIE database was used as an indicator for minority shareholders stake.

5. **WORKING CAPITAL RATIO (WCM):** One of the best measures for solvency position of an organization is its working capital ratio WCM measured as:

   {Current Assets - Current Liabilities}/ {Total sales}

6. **MARKETING EXPENDITURE (MARKTNG):** The following ratio is used as a measure of a firm's marketing expenditure.

   {Marketing Expenditure + Advertising Expenditure}/ {Total sales}

7. **SIZE:** The study used natural logarithm of total assets (LNTA) as a measure of size.

HYPOTHESES

The study under consideration essentially intends to evaluate the financial performance measured in terms of shareholders' value, growth and risk using a set of independent variables during the period ranging from 1996 to 2008. Keeping these objectives into consideration, the present study intends to test the following null hypotheses regarding financial performance:

$\mathbf{H_{01}}$ The size of the firm has positive relation with the financial performance.
$\mathbf{H_{02}}$ Age of the firm has negative relation with the financial performance.
$\mathbf{H_{03}}$ Leverage is a negative determinant of firm's financial performance.
$\mathbf{H_{04}}$ Marketing expenditure is a positive determinant of firm's financial performance.
$\mathbf{H_{05}}$ Public ownership of the firm has negative relation with the financial performance.
$\mathbf{H_{06}}$ Working capital measure of the firm has positive relation with the financial performance.
$\mathbf{H_{07}}$ Group affiliation characteristic of the firm has no effect on its financial performance.

ECONOMETRIC ANALYSIS

The study tested the hypotheses by using linear multiple regression technique that models firm performance as a function of its size, leverage, and marketing expenditure among others as shown below. The whole study period consists of twelve years. The regressions were computed for the whole study period using all the dependent variables (namely TOBIN, PBV, GPM, NPM, CAGRTA, and CAGRTS) and the available independent variables. SPSS version 13 software package was used for all the above purposes.

Performance = (size, age, leverage, working capital ratio, public ownership, marketing expenditure, business group effects)

RESULTS AND DISCUSSIONS

SHAREHOLDERS' VALUE

TOBIN'S Q RATIO

The present study considered the Tobin's Q ratio as the market based financial performance measure. Table 1 reports the results of regression with the Tobin's Q ratio as dependent variable. The leverage ratio, which is measured by debt-equity ratio in this study, comes out to have a significant negative effect on this surrogate measure of shareholders' value during the whole study period, which is in line with the hypothesized relationship. It is curious to note that the size variable, measured by total assets of the firms, also affected the shareholders' value during the last twelve years in the same way as leverage do. Working capital measure, age, business group affiliation and marketing expenditure do not exhibit any significant relationship with this shareholder value creation measure.

(INSERT TABLE: 1)

PRICE TO BOOK VALUE RATIO

In this study, besides the Tobin's Q ratio, the market price to book price ratio of share has been considered as the surrogate of shareholders' value, the market based aspect of financial performance. Table 2 reports the results of regression with the price to book value ratio as dependent variable. During the last twelve years, this market based financial performance measure of sampled firms has been significantly positively affected by the marketing expenditure. As in the case of Tobin's Q ratio, the leverage comes out to have a significant negative relation with this surrogate measure of shareholders' value during the whole study period, therefore the empirical results have corroborated the null hypothesis regarding leverage and marketing expenditure.

(INSERT TABLE: 2)

GROWTH

GROWTH IN ASSETS

Growth is another dimension of firm performance that affects its market valuation which is a proxy for the potential future earning streams of the firm. The present study used two measures for growth of sampled firms, which are cumulative annual growth rate of total assets and total sales. Table 3 presents the results regarding regression with growth in total assets as dependent variable. The results indicated that the age of and business group affiliations of sampled firms have significant negative relation with their growth in terms of total assets; perhaps the older firms are diversifying their resources to other business activities. The size of the firm has positive impact on the growth, a part of financial performance, during the whole study period. It is curious to note that public ownership has significant positive relationship with the growth of the sampled firm. The other factors such as working capital, marketing expenditure and leverage have not exhibited any relationship with the growth.

(INSERT TABLE: 3)

GROWTH IN SALES

To enrich the analysis of financial performance determinants the cumulative average growth in total sales is used as another proxy for the performance besides cumulative average growth in total assets. Table 4 presents the results regarding regression with growth in total sales as dependent variable. As noticed in case of growth in total assets, the age comes out to have a significant negative impact on this measure of financial performance also. It is interesting to note that the working capital, which was insignificant positive determinant in case of growth in assets, appears as negative factor of growth in total sales during the whole study period. The remaining variables have not portrayed any significant relationship with the dependent variable.

(INSERT TABLE: 4)

PROFITABILITY

GROSS PROFIT MARGIN

The study under consideration incorporated the profitability components, viz. gross profit margin, and net profit margin as measures of accounting based financial performance for a comprehensive analysis of financial performance determinants. Table 5 presents the results regarding regression with gross profit margin as dependent variable. It is apparent from the results that the age comes out as having significant negative relation with gross profit margin. It is interesting to note that the working capital emerges as positive determinant of this measure of accounting profitability during the whole study period. In addition to this, the leverage, size and

ownership factors also have significant positive effect on the gross profit margin during the whole study period.

(INSERT TABLE: 5)

NET PROFIT MARGIN

Besides gross profit margin, net profit margin is used as components of accounting profitability which affect the market valuation of firms in the capital markets. Table 6 presents the results regarding regression with net profit margin as dependent variable. It is curious to note that except the working capital measure of the sampled firms, all other variables which hypothesized to affect this dimension of financial performance, fail to leave any significant impact on it during the period ranging from 1996 to 2008. The working capital measure has significant positive relation with net profit margin, indicating the firms with sufficient working capital have performed better than the lower working capital firms.

(INSERT TABLE: 6)

CONCLUSIONS

The theory of corporate governance gives central place to the shareholder value maximization as an objective of a firm. Taking cue from this objective, the present study followed it as conceptual and operational framework for evaluating the firm's performance. The study under consideration documents the robust negative presence of leverage in the shareholders' value creation in Indian corporate sector during the last twelve years, which indicates the acceptance of null hypothesis regarding leverage. Regarding the size, the study reported results contradictory to hypothesized relationship. On the other hand, the leverage and marketing expenditure exhibit significant relationship with price to book ratio. The empirical results regarding growth in assets have provided credence to acceptance of null hypothesis regarding age of the sampled firms. There are also instances of significant positive impact on growth by public ownership which goes against the hypothesized relationship. On the other hand, the empirical results regarding growth in sales depict age as significant negative determinant leading to acceptance of null hypothesis regarding age. In addition to this, the working capital measure, which has significant positive relation with growth in total assets, turns out as significant negative determinant of growth in total sales, which is inconsistent with the null hypothesis regarding working capital measure. The empirical results depict age as significant negative determinant of gross profit margin while size, working capital and leverage as positive determinant. On the other hand, working capital measure exhibits the significant positive relation with net profit margin. On the whole, leverage and size exhibit negative relation with market based financial performance measure and have positive effect on accounting based financial performance measure.

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TABLE 1: LINEAR MULTIPLE REGRESSION COEFFICIENTS WITH DEPENDENT VARIABLE AS TOBIN'S Q (TOBIN) FOR WHOLE STUDY PERIOD (1996-2008)

variables	*coefficients*	*std. error*	*t value*	*p-value*
Intercept	1.5512	0.3043	5.0979	0.0000
AGE	0.0030	0.0028	1.0678	0.2867
BGROUP	-0.1115	0.1148	-0.9710	0.3326
WCM	0.0725	0.0639	1.1351	0.2576
DERATIO	-0.0409**	0.0165	-2.4837	0.0223
LNTA	-0.0933**	0.0418	-2.2326	0.0266
MARKTNG	2.7711	2.0857	1.3286	0.1853
PUBLIC	0.0388	0.3369	0.1153	0.9083

***significant at 1 percent level of significance, ** significant at 5 percent level of significance, * significant at 10 percent level of significance
Source: All the numerical figures of table are calculated from SPSS 13 versions.

TABLE 2: LINEAR MULTIPLE REGRESSION COEFFICIENTS WITH DEPENDENT VARIABLE AS PRICE TO BOOK RATIO (PBV) FOR WHOLE STUDY PERIOD (1996-2008)

variables	*coefficients*	*std. error*	*t value*	*p-value*
Intercept	1.2766	0.7014	1.8201	0.0701
AGE	0.0038	0.0065	0.5828	0.5606
BGROUP	-0.1104	0.2647	-0.4170	0.6771
WCM	-0.1777	0.1472	-1.2069	0.2287
DERATIO	-0.1444*	0.0841	-1.7175	0.0873
LNTA	0.0290	0.0963	0.3014	0.7634

MARKTNG	2.0224***	0.4624	4.3728	0.0000
PUBLIC	0.7620	0.7766	0.9812	0.3275

***significant at 1 percent level of significance, ** significant at 5 percent level of significance, * significant at 10 percent level of significance
Source: All the numerical figures of table are calculated from SPSS 13 versions

TABLE 3: LINEAR MULTIPLE REGRESSION COEFFICIENTS WITH DEPENDENT VARIABLE AS GROWTH IN ASSETS (CAGRTA) FOR WHOLE STUDY PERIOD (1996-2008).

variables	*coefficients*	*std. error*	*t value*	*p-value*
Intercept	0.1311	0.0359	3.6477	0.0003
AGE	-0.0018***	0.0003	-5.3176	0.0000
BGROUP	-0.0259**	0.0136	-1.9082	0.0576
WCM	0.0053	0.0075	0.6979	0.4860
DERATIO	-0.0029	0.0043	-0.6750	0.5003
LNTA	0.0087**	0.0049	1.7591	0.0799
MARKTNG	0.0994	0.2464	0.4036	0.6869
PUBLIC	0.0676*	0.0398	1.6993	0.0906

***significant at 1 percent level of significance, ** significant at 5 percent level of significance, * significant at 10 percent level of significance
Source: All the numerical figures of table are calculated from SPSS 13 versions.

TABLE 4: LINEAR MULTIPLE REGRESSION COEFFICIENTS WITH DEPENDENT VARIABLE AS GROWTH IN SALES (CAGRTS) FOR WHOLE STUDY PERIOD 1996-2008.

variables	*coefficients*	*std. error*	*t value*	*p-value*
Intercept	0.1718	0.0507	3.3846	0.0008
AGE	-0.0020***	0.0005	-4.1807	0.0000

BGROUP	-0.0238	0.0191	-1.2451	0.2144
WCM	-0.0849***	0.0107	-7.9670	0.0000
DERATIO	-0.0052	0.0061	-0.8535	0.3943
LNTA	0.0089	0.0070	1.2784	0.2024
MARKTNG	-0.2249	0.3478	-0.6467	0.5185
PUBLIC	0.0751	0.0562	1.3365	0.1827

***significant at 1 percent level of significance, ** significant at 5 percent level of significance, * significant at 10 percent level of significance

Source: All the numerical figures of table are calculated from SPSS 13 versions.

TABLE 5: LINEAR MULTIPLE REGRESSION COEFFICIENTS WITH DEPENDENT VARIABLE AS GROSS PROFIT MARGIN (GPM) FOR WHOLE STUDY PERIOD (1996-2008).

variables	*coefficients*	*std. error*	*t value*	*p-value*
Intercept	-0.0351	0.0650	-0.5398	0.5899
AGE	-0.0022***	0.0006	-3.6606	0.0003
BGROUP	-0.0230	0.0245	-0.9371	0.3497
WCM	0.1113***	0.0136	8.1601	0.0000
DERATIO	0.0263***	0.0078	3.3772	0.0009
LNTA	0.0362***	0.0089	4.0593	0.0001
MARKTNG	-0.5308	0.4453	-1.1919	0.2346
PUBLIC	0.1596**	0.0719	2.2185	0.0275

***significant at 1 percent level of significance, ** significant at 5 percent level of significance, * significant at 10 percent level of significance
Source: All the numerical figures of table are calculated from SPSS 13 version.

TABLE 6: LINEAR MULTIPLE REGRESSION COEFFICIENTS WITH DEPENDENT VARIABLE AS NET PROFIT MARGIN (NPM) FOR WHOLE STUDY PERIOD (1996-2008).

variables	*coefficients*	*std. error*	*t value*	*p-value*
Intercept	0.0061	0.0336	0.1813	0.8563
AGE	-0.0003	0.0003	-1.1043	0.2707
BGROUP	-0.0040	0.0127	-0.3146	0.7534
WCM	0.1317***	0.0071	18.6514	0.0000
DERATIO	-0.0029	0.0040	-0.7118	0.4773
LNTA	0.0056	0.0046	1.2165	0.2251
MARKTNG	0.1855	0.2305	0.8047	0.4219
PUBLIC	0.0316	0.0372	0.8495	0.3965

***significant at 1 percent level of significance, ** significant at 5 percent level of significance, * significant at 10 percent level of significance

Source: All the numerical figures of table are calculated from SPSS 13 version.