

FINANCIAL PERFORMANCE ANALYSIS OF INDIAN CONSTRUCTION INDUSTRY

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ABSTRACT

This study aims to understand the financial position of construction industry for the period of ten years from 2003 to 2012. The financial performance is measured by DuPont analysis that is by Return on Equity and Sustainable growth rate of the industry. The data is of listed firms of CMIE. The return on equity covers the three main levers of financial performance. They are Asset turnover, Leverage and Profit Margin. The multivariate regression, correlation and trend analysis have been applied to the financial ratios. The sales revenue has been very low for this industry. The retained earnings are quite high that means the industry is not expanding and more investments are not being made. The Return on equity (ROE) and Sustainable Growth Rate has fallen over the ten year period. The Indian economy has not been as severely hit as the developed economies but the financial performance of construction sector has plummeted as per the global trends. This study gives the insight to the investors about the reasons of abysmal ROE and Growth rate and what will be the projections in the coming years.

Keywords: ROE, Sustainable Growth rate, Capital Structure

1. INTRODUCTION

Construction industry in India is growing at 5.6% in financial year 2012 which means it contributes 8% to the GDP and provides employment to around 33 million people. The world's third largest construction market will be in India (www.thebig5constructindia.com) In fact it is good news for country like India which has a very large share of unskilled and poor workers. The growth in this sector can be attributed to factors like, urbanization and retail revolution, then increased impetus to the infrastructure projects like power, transport, roads, railways, water, irrigation and urban development by the government. Even increased participation from private and foreign players is solicited through Public, Private Partnership (PPP) model. Many of the international organizations have chipped in with their technology and expertise through joint venture to carry on the construction projects. Even the national organizations such as FICCI, CII have set up various regulatory procedures to monitor the development of this industry as well as garnered funds for various national and state level projects by coordinating the private and public sector work. So, there are projects galore to choose from for the construction company when just not the organized but the unorganized sector also does not find any dearth of activities.

The eleventh plan (2007-12) envisaged the proportion of investment that would go into different segments of infrastructure as – Electricity (32.42%), Roads and bridges (15.28%), Telecom (12.57%), Railways (12.73%), Irrigation (12.32%), Water Supply and Irrigation (6.99%), Ports (4.28%), Airports (1.51%), Storage (1.09%) and Gas (0.82%).

All in all the main drivers for the growth of the construction industry are the huge infrastructure deficit, the increasing manufacturing and urbanization of the country. It is most likely that the present cyclical conditions shall affect the commercial and the housing sector but the development for the infrastructure sector will remain robust. The Central government has taken certain initiatives to enhance the growth process such as reduction in excise duty by 4 % which affects the costs as 60% of construction depends upon the materials. The government has set up various institutions for different segments of the infrastructure sector to look after its

financing needs like Power Finance Corporation, Railway Finance Corporation, and India Infrastructure Finance Company Limited (IIFCL). (IIFCL) raises funds through tax free bonds which in turn strengthens the realty sector. Earlier the finance for infrastructure projects were not so welcoming as it was a long-term project with high gestation period and requiring large capital base even the assets created were risky as to whether it will stand the test of time or not. So, there was stereotype project financing having a debt equity ratio of 2:1 but when the India Incorporated story started looking real then this financing pattern changed to debt-equity ratio of 3:1 to 4:1. RBI also lowered the cash reserve ratio (CRR) to infuse more liquidity and the ceilings on the external commercial borrowings (ECBs) has been raised so that the developers and the construction giants can tap the foreign funds to get the projects started on the domestic fronts.

There is a lot that needs to be done on the infrastructure front like India needs to improve the infrastructure investment from 4% of GDP in 2009 to 11 % by 2012. The construction industry in India is coming up slowly and slowly with more and smaller developers taking up the work, the large groups diversifying into other business areas away from their core business and also lots of mergers and acquisitions in order to control the vertical and horizontal integration. However this has brought about many challenges too like requirement of lots of state-of-the-art equipments to work out the projects, availability of skilled manpower to operate these exotic equipments and also competing in time management to complete the projects as smartly as possible. Corporate will go for better quality buildings or defer the buying plans and go for leasing option. In the trying times the real estate will see more influx of FDI, high net worth individuals and cash rich corporate houses. A very scientific approach to carrying the construction task will be done like seeking expert advice for risk analysis, cost control, employing development advisory services like feasibility study, pre-investment due diligence, procurement strategy and value engineering.

2. LITERATURE REVIEW

The growth of Indian Construction industry has been mainly powered by housing, road, ports, water supply, and rail transport and airport development. The infrastructure development of India cannot solely depend upon the Government initiative but has to rope in private-public partnership if complete urban and rural frontiers of the country have to be covered. Even the real estate sector has evolved from family run business to corporate entities having a pan India presence with tailor made projects matching different requirements of people. The construction industry is the second largest employer in India after agriculture sector mainly due to its forward and backward linkages with the other sectors. About 250 ancillary industries such as cement, steel, brick, timber and building materials are dependent on the construction industry. A unit increase in expenditure in this sector has a multiplier effect and the capacity to generate income as high as five times.

The increase in the share of construction sector in GDP has primarily been on the account of increased government spending on physical infrastructure in the last few years, with programmes such as National Highway Development Programme (NHDP) and Bharat Nirman Programme receiving a major fillip of late.. Although various steps have been taken to strengthen the construction industry, it is crucial to take necessary measures in order to prepare the industry to meet the challenges of growth. This sector is largely unorganised. It constitutes of Real estate (residential and commercial) and infrastructure sector. Both of them have equal contribution in the growth of this sector.

The key drivers in the growth of the infrastructure sector will be done by the government through cash contracts, the remaining will be either pure private

investments or PPP projects; Whereas for the real estate growth the growth depends upon services sector, like requirements for more SEZ's, higher disposable incomes and boom in hotel and tourism sector.

This study has been done because one of the reasons of failure in construction management is the poor handling of financial management by chief executives, Gupta (1983). The study also aims to take only same size companies according to their revenues as the size of the companies also affects their comparison with various ratio, Miller(1970). The industry's financial performance is regarded optimum when a fine trade off has been achieved between liquidity, solvency & profitability as indicated by the components of ROE, Lazardius (2007).

The financial performance analysis of one of the most significant sectors of Indian economy has been done in this study. Accounting ratios indicating profitability and growth are used to determine the financial health of this sector, Kangari et. al.(1992). This is done with the help of DuPont model applied to the sample of BSE listed Indian construction firms. The Return on Equity (DuPont model) and sustainable growth which are the key drivers of that industry are disaggregated to learn about asset levels, efficiency and financing pattern.

A sample of top 200 listed firms on the basis of average sales over a period of 10 years from 1998-2007 have been analysed.

3. OBJECTIVES OF THE STUDY

The main objectives of study are:

- To find out the efficiency of financial operations, in relation to solvency, liquidity and profitability of the construction industry.
- To analyse the various factors that affect the return on equity and sustainable growth rate over a period of ten years and
- To evaluate the micro performance of construction in the macroeconomic scenario.

4. RESEARCH METHODOLOGY

After reviewing various journals and books it was decided what can best signify the shareholders wealth – it is Return on Equity. Return on equity measures the financial performance of the industries. It is the product of the three levers of performance. They are Profit Margin, Asset Turnover and Financial leverage. So, whatever management does to increase these ratios it in turn increases the return on equity. So, these three levers capture the major elements of firm's financial performance. The profit margin emphasizes on the income statement. The asset side of the Balance Sheet has Asset Turnover and financial leverage on the liabilities side of the Balance sheet.

Growth will be replaced by a more refined version called as Sustainable Growth. It is the maximum growth rate that can be achieved without depleting the financial resources of the company. Amongst these ratios Profit margin, Asset turnover, retention rate, financial leverage are the independent variables and Return on equity along with sustainable growth are the dependent variables. The statistical techniques used are Mean, Standard Deviation(S.D.), Coefficient of Variation(C.V.), Pearson's correlation, Linear Multiple regression and t- test to make the financial analysis more meaningful.

5. DATA SOURCE:

The research methodology is completely based on the secondary data. The data has been obtained from Prowess of C.M.I.E. database (Centre for Monitoring of Indian

Economy) which is the online corporate database .All the firms of the real estate and commercial sector of the construction industry has been selected. Data was collected of 167companies. The analysis is done on a 10 year period that is from 2003-2012.

6. SCOPE OF THE STUDY

- The companies for the ten year period should be having the complete data required for calculations. The firms with one year missing data have been removed from the list.
- The analysis of companies will be completely internal not taking cognizance of external environment, market conditions, etc which have an impact on the data collected.
- Shareholders wealth has many definitions by many authors but the one has been chosen is well referenced and has been taken throughout the study.

7. DATA ANALYSIS

To study the financial health of the whole construction industry various financial ratios have to be chosen for calculating the Return on Equity and Sustainable Growth rate. Type of Data collected for 10 year period on which the calculation is done are:

- Sales
- Profit after tax
- Retained earnings
- Liabilities
- Borrowings
- Assets
- Debt-equity ratio
- Capital Employed

Following are the ratios applied on them:

- Profit Margin (%)
- Asset Turnover (Times)
- Retention rate (%)
- Financial Leverage (Times)
- Return on Equity (%) (ROE)
- Sustainable Growth rate (%) (SGR)

7.1. Explanation to Some of the Ratios

The main aim of selecting the following ratios is to calculate return on equity and growth rate as mentioned in the topic. The main reference and source for these formulas is from the pioneering work of Robert C. Higgins in his book titled “Analysis of Financial Management” published in 2007. Return on Equity is taken as an indicator of shareholders wealth. ROE is the product of Profit margin, Asset turnover, Financial Leverage and SGR is the product of Profit margin, Asset turnover, Financial Leverage and Retention rate. We have to see which of the factors had the maximum impact and was instrumental in bringing this increase.

Following are the formulas of various ratios chosen to calculate the ROE and Sustainable Growth Rate (SGR):

➤ **Profit Margin (%)** = Profit after tax (PAT)/ Sales * 100

➤ **Asset Turnover (time)** = Sales/Assets

- **Retention rate (%)** = (Retained Earnings) / (Profit after tax) * 100
- **Financial Leverage (time)** = (Total Assets)/(Beginning of period Equity)
- **Eventually, ROE (%)** = Profit margin * Asset turnover * Financial leverage
- **So, ROE** = $\frac{PAT}{b.o.p.equity}$
- **Sustainable Growth Rate (%)** = Profit margin * Asset turnover * Financial Leverage * retention rate
- **So, sustainable growth rate (%)** = $\frac{Retained\ earnings}{b.o.p.equity} * 100$

The calculations have been performed on the excel sheet for the construction industry showing the ROE and SGR and the Capital structure composition.

7.2 The composition of funds of Indian construction industry

In the composition of funds of Indian construction sector the capital structure is calculated as average for the ten year period from 2003 through 2012 as depicted by figure 1 (Source: CMIE database).

Figure 1: Average Capital Structure Distribution of Sources of Fund

1) Over a period of 10 years Equity Capital has risen by 1703%, Preference capital has also fallen by 49%, Reserves have risen by 1849%, SL have risen by 1064% , UL have fallen by 262% and total borrowings have risen by 609%.

2) Overall Capital Structure for construction industry has (as shown in Graph 1) 41.53% of borrowings. Lowest is retained earnings at 5.52%, the highest is equity and preference share capital at 52.96%. The construction industry relies on secured loans (of banks & financial institutions).

Table 1: Profit Margin (PM), Asset Turnover (AT), Retention Rate (RT), Financial Leverage (FL), Return On Equity (ROE) and Sustainable Growth Rate (SGR) Ratios

3) As shown in Table 1, Correlation between ROE and Profit Margin is -0.24975, ROE and Asser Turnover is 0.6124, ROE and Financial Leverage is 0.9556. The Return on Equity is highly correlated to the Financial Leverage and least with the Profit Margin. The profitability of construction industry has decreased in the last ten year period of 2003 to 2012.

4) Correlation between SGR and Profit Margin is 0.6520, SGR and Asset Turnover is -0.6787, SGR and Financial Leverage is -0.0719, SGR and Retention Rate is 0.76649. The analysis is very consistent with the previous studies that SGR is very highly correlated with the retention rate as that is the main determinant for a sustainable and healthy growth rate. It is least correlated with the asset turnover rate.

8. ANALYSIS OF FINANCIAL PERFORMANCE WITH MULTIPLE REGRESSIONS:

There are many independent variables (PM, AT, FL, RR) which influence the dependent variables like ROE and SGR. The significance of these explanatory

variables having any relationship with the dependent variables is analyzed here. So for this the 't' test and 'F' test has also been done to find out if any outcome is by mere chance or not. The regression equation is $ROE = a + bPM + b1AT + b2FL$ and a, b, b1, b2 are the parameters of the ROE line. The same equation has been run for SGR as dependent variable and PM, AT, FL, and RR as independent variables. It is $SGR = a + bPM + b1AT + b2FL + b3RR$ and a, b, b1, b2, b3 are the parameters of the SGR line.

8.1. Impact of Financial Performance Determinants on the ROE:

This study shows the effect of multiple factors on the profitability of the construction industry. As shown in Table 2, for every one unit increase in profit margin the ROE increased by 64.063 units which was statistically significant at 5% level. The increase in AT by one unit leads to increase in ROE by 182.026 units and the influence is very much significant. Finally the increase in one unit of FL leads to increase in ROE by 52.367 units. So from this analysis the maximum impact was of AT and FL on the ROE. The Debt Equity ratio plays a significant role in determining the profitability of the industry.

Table 2: The Multiple Regression Coefficients with ROE as the Dependent Variable

The model summary gives the impact of all the explanatory variables on the dependent variable. The 'r' or multiple correlation coefficients is 0.630 implying that financial performance is greatly influenced by the independent variables. The r^2 indicates that about 40% variation in ROE is due to joint variation in the independent variables so there could be 60% chances of something else which could be determining the profitability. The adjusted r^2 or the coefficient of determination is positively 9.5% tells that the regression line almost fully fits the data. The Standard error of the estimate implies that the variation is significant because of other factors which are not included and they play a major role in the performance of dependent variable.

8.2. Impact of Financial Performance Determinants on the SGR:

As shown in Table 3, every one unit increase in profit margin the SGR increased by 55.838 units which was statistically significant at 5% level. The increase in AT by one unit leads to decrease in ROE by -31.407 units and the influence is very much significant. Finally the increase in one unit of FL leads to increase in ROE by 33.424 units. The increase in RR by one unit leads to increase in ROE by 0.157 units and the influence is very much significant. So from this analysis the maximum impact was of RR followed by AT and lastly FL on the ROE. The Debt Equity ratio is not a key player in determining the profitability of the industry.

Table 3: The Multiple Regression Coefficients with SGR as the Dependent Variable

The model summary gives the impact of all the explanatory variables on the dependent variable. The 'r' or multiple correlation coefficients is 0.941 implying that financial performance is greatly influenced by the independent variables. The r^2 indicates that about 88.6 % variation in ROE is due to joint variation in the independent variables which could be determining the profitability. The adjusted r^2 or the coefficient of determination is positively 79.5% tells that the regression line almost fully fits the data. The Standard error of the estimate is implies that the variation is significant and because of other factors which are not included play a major role in the performance of dependent variable.

9. CONCLUSION:

This industry in the last ten years relied highly on capital market funding followed by financial institutions. The double digit inflation rate and a volatile interest rate has been a major dampener for the institutional funding for this industry. The SGR has been steady and much stable than the ROE which has fallen heavily after 2004 due to lots of import restrictions and tax levies.

Industry classification plays an important role in firm's financial performance, Titman & Wessels (1988), Xu & Wong (1997). As construction industry is highly capital intensive so it has a better opportunity to increase its financial leverage. That is why it depends more on banking finance than the unsecured loans. The role of Asset turnover is very high in the construction sector as it has a strong bearing upon the ROE & SGR. It also projects that the investment in this sector is not very high in comparison to its sales.

The Indian construction sector is evolving as more and more urbanization, real estate development is taking place. There are some major problems faced by it when the assets are not being efficiently used due to inefficient operation, maintenance, and financial costs. It is then propelled by poor access to institutional finance, especially for small contractors who execute over 90% of the whole construction activity. The severe costs of financing gets converted to high costs of production, which again has a trickle down impact on the economy. The flow of funds can be maintained by adequate easing of government regulations. Even the taxation related problems have to be solved like double taxation when certain services are taxed doubly and also the means to distinguish between 'industry' and 'service' category of construction sector. Nevertheless as more and more investments in the infrastructure as per the twelfth plan will take place higher will be the scope of growth of construction industry.

10. LIMITATIONS

Only the published financial reports of listed firms have been taken in this study and not the non listed firms. The period is also of ten years from 2003 to 2012 so the current performance is yet to be analyzed. The data is of top 167 firms having the highest average turnover which is not the true representation of firms.

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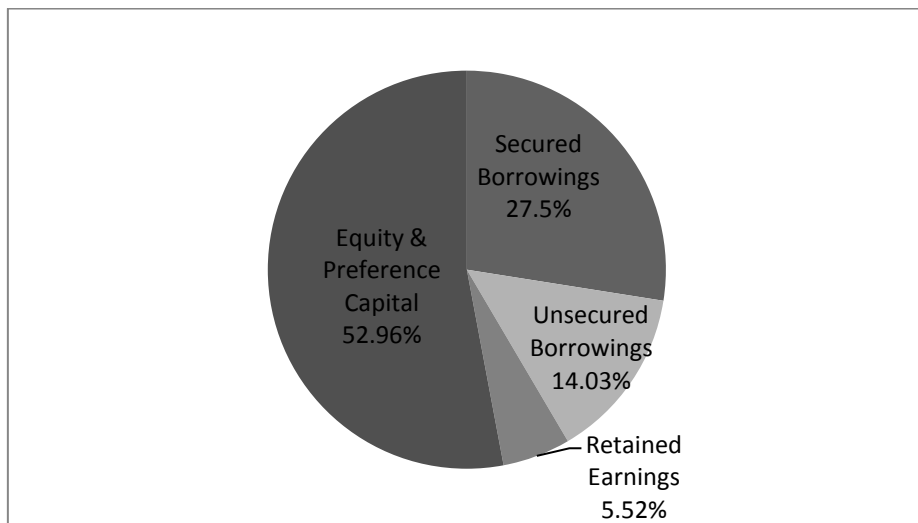


Figure 1: Average Capital Structure Distribution of Sources of Fund

Table 1: Profit Margin (PM), Asset Turnover (AT), Retention Rate (RT), Financial Leverage (FL), Return On Equity (ROE) and Sustainable Growth Rate (SGR) Ratios

YEAR	PM	AT	RR	FL	ROE	SGR
2003	0.04	0.66	0.62	8.69	24.94	2.58
2004	0.05	0.71	0.68	27.38	96.95	13.25
2005	0.06	0.69	0.7	7.48	32.21	5.54
2006	0.08	0.64	0.78	6.61	32.23	8
2007	0.11	0.55	0.78	5.72	33.04	10.97
2008	0.13	0.51	0.81	5.42	36.36	18.03
2009	0.09	0.52	0.83	5.31	25.83	16.44
2010	0.09	0.51	0.79	5.32	24.61	16.97
2011	0.08	0.44	0.81	5.41	19.35	14.36
2012	0.07	0.46	0.77	5.34	16.12	13.6
Mean	0.08	0.569	0.757	8.268	34.164	11.974
Standard deviation	0.02708	0.0978037	0.06767	6.811769	22.96515051	5.142304
C.V.(%)	33.85016	17.188692	8.9389	82.38714	67.22032112	42.94558
correlation with ROE	-0.24975	0.6124925		0.955621		
	ROE is the	dependent	and	others	independent	variables
Correlation with SGR	0.652045	-0.678783	0.76649	-0.07019		
	SGR is the	dependent	and	others	independent	variables

Table 2: The Multiple Regression Coefficients with ROE as the Dependent Variable

Coefficients

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	-114.176	205.055		-.557	.598
	PM	64.063	450.789	.076	.142	.892
	AT	182.026	117.520	.775	1.549	.172
	FL	52.367	231.030	.154	.227	.828

a Dependent Variable: ROE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.630	.397	.095	21.84387

a Predictors: (Constant), FL, AT, PM

b Dependent Variable: ROE

Table 3: The Multiple Regression Coefficients with SGR as the Dependent Variable

Coefficients

Model		Unstandardized	Std. Error	Standardized	t	Sig.
		Coefficients		Coefficients		
1	(Constant)	-4.203	21.937		-.192	.856
	PM	55.838	48.846	.294	1.143	.305
	AT	-31.407	13.712	-.597	-2.291	.071
	FL	33.424	24.634	.440	1.357	.233
	RR	.517	.149	.685	3.467	.018

a Dependent Variable: SGR

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.941	.886	.795	2.32734

a Predictors: (Constant), RR, PM, AT, FL