

Management efficiency and profitability in Indian automobile industry: from theory to practice

Amir Hossein Jamali^{*1} and AsgharAsadi²

¹Department of Accounting, Marvdasht Branch, Islamic Azad University, Fars, Iran

²Department of Accounting, Firouzkouh Branch, Islamic Azad University, Tehran, Iran
amirparse2004@yahoo.co.in, asghar20asadi@yahoo.com.au

Abstract

This paper investigates the relationship between the management efficiency and the firms profitability for a sample of 13 auto manufacturing companies listed on the Bombay Stock Exchange, located in Pune for the period of 5 yrs from 2006 to 2010. Management efficiency is an important component of corporate financial management because it directly affects the profitability of the firms. Considering the importance of profitability for the survival of a business and the role of efficient management to achieve this aim, this paper explores the relationship between management efficiency and profitability in Automobile Industry of India. For this purpose, 13 auto manufacturing companies are located in Pune were chosen as the sample. The analysis is carried out using Minitab 14 and conducting Pearson Coefficient correlation test on variables of the study including Gross Profit Ratio (GPR) and Assets Turnover Ratio (ATR). The central conclusion of the study is that profitability and management efficiency are highly correlated to each other and based on the results of the study recommendations for improving the management efficiency and profitability in this industry are suggested.

Keywords: Management efficiency, profitability, automobile Industry, asset turnover ratio, gross profit Ratio

Introduction

This paper investigates the relationship between the management efficiency and the firms profitability for a sample of 13 auto manufacturing companies listed on the Bombay Stock Exchange, located in Pune for the period of 5 years from 2006 to 2010. Management efficiency is an important component of corporate financial management because it directly affects the profitability of the firms.

Every business is most concerned with its profitability. Profitability is the ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It shows how efficiently the management can make profit by using all the resources available in the market. One of the most frequently used tools of financial ratio analysis is profitability ratios, which are used to determine the company's bottom line. Profitability ratios show a company's overall efficiency and performance. Profitability and management efficiency are usually taken to be positively associated: poor current profitability may threaten current management efficiency and vice versa; poor management efficiency may threaten profitability (Eskandari, 2007).

The automotive industry in India is now working in terms of the dynamics of an open market. Many joint ventures have been set up in India with foreign collaboration, both technical and financial with leading global manufacturers. Also a very large number of joint ventures have been set up in the auto-components sector and the pace is expected to pick up even further. The Government of India is keen to provide a suitable economic and business environment conducive to the success of the established and prospective foreign partnership ventures (www.osec.ch, 2008).

Profitability ratios show a company's overall efficiency and performance (Eskandari, 2007). We can divide profitability ratio in to two types: margins and returns ratio that show margins represent the firm's ability to translate sales dollars into profits at various stage of management ratios that show returns represent the firm's ability to measure the overall efficiency of the firm in generating returns for its shareholders. The ratios that are typically used to analyze how well a company uses its assets and liabilities internally. Efficiency Ratios can calculate the turnover of receivables, the repayment of liabilities, the quantity and usage of equity and the general use of inventory and machinery.

Empirically examined the relationship between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of 929 joint stock companies in Saudi Arabia. Using correlation and regression analysis, Eljelly (2004) found significant negative relationship between the firm's profitability and its liquidity level, as measured by current ratio. This relationship is more pronounced for firms with high current ratios and long cash conversion cycles. At the industry level, however, he found that the cash conversion cycle or the cash gap is of more importance as a measure of liquidity than current ratio that affects profitability. The firm size variable was also found to have significant effect on profitability at the industry level.

Lazaridis & Tryfonidis (2006) conducted a cross sectional study by using a sample of 131 firms listed on the Athens Stock Exchange for the period of 2001 - 2004 and found statistically significant relationship between profitability, measured through gross operating profit, and the cash conversion cycle and its components (accounts receivables, accounts payables, and inventory). Based on the results analysis of annual data by using correlation

and regression tests, they suggest that managers can create profits for their companies by correctly handling the cash conversion cycle and by keeping each component of the conversion cycle (accounts receivables, accounts payables, and inventory) at an optimal level.

Variables

Gross profit ratio (GP ratio)

It is the ratio of gross profit to net sales expressed as a percentage. It expresses the relationship between gross profit and sales. The basic components for the calculation of gross profit ratio are gross profit and net sales. A net sale means those sales minus sales returns. Gross profit would be the difference between net sales and cost of goods sold (Porter, 1980). Following formula is used to calculate gross profit ratios:

$$[\text{Gross Profit Ratio} = (\text{Gross profit} / \text{Net sales}) \times 100]$$

Asset turnover ratio

Asset turnover is a financial ratio that measures the efficiency of a company's use of its assets in generating sales revenue or sales income to the company (Bodie *et al.*, 2004). Companies with low profit margins tend to have high asset turnover, while those with high profit margins have low asset turnover. Companies in the retail industry tend to have a very high turnover ratio due mainly to cutthroat and competitive pricing.

$$[\text{Assets turnover ratio} = (\text{Net Sales Revenue} / \text{Total Assets}) \times 100]$$

It should be noted that the asset turnover ratio formula does not look at how well a company is earning profits relative to assets. The asset turnover ratio formula only looks at revenues and not profits. This is the distinct difference between return on assets (ROA) and the asset turnover ratio, as return on assets looks at net income, or profit, relative to assets.

Hypothesis

The management efficiency is an influencing factor on profitability in Indian automobile industry.

Research methodology

Research question: For testing the hypothesis, this question comes to the mind of researcher, whether the management efficiency is a key influencing factor on profitability in Indian auto mobile industry or not?

Variables of the study: For answering to this question, the data collected through financial statements and annual reports of the industry were analyzed and compared. In doing so and to find out the existence of the relation between two variables, the gross profit ratio (GPR) was computed for profitability ratio and assets turnover ratio (ATR) for efficiency ratio (Kothari, 2008).

Target population and sample: The target

Table 1. Gross profit ratios (GPR) in automobile industry-Pune (%)

	Name of the company	2006	2007	2008	2009	2010
1	Tata motors	13.8706	12.9249	11.8818	10.4377	16.9464
2	ASAL Ltd	6.828	9.5913	6.8106	5.3382	6.8055
3	Bajaj auto	21.1629	18.5967	13.0981	13.7869	22.3542
4	Lumax auto	4.4645	9.245	12.0218	11.3698	12.0221
5	Kinetic Engineering	-11.1027	-8.762	2.57225	13.0587	19.5504
6	Autoline Industries	11.9648	13.9261	14.5557	9.3263	13.5837
7	Maharashtra scooters	31.068	42.6217	45.0087	43.5567	30.7756
8	Kalyani Forge	15.4672	13.9977	13.9327	9.0664	11.6136
9	Bharat Forge	25.3143	25.019	25.0122	15.3783	19.0108
10	Simmonds-Marshall	16.9061	18.5822	21.8708	15.2081	20.9936
11	Gabriel India	3.151	19.012	2.6439	1.3897	5.0502
12	ZF Steering Gear (India)	22.776	23.4845	22.7851	18.259	22.8345
13	Force motors	-0.02141	2.5745	-0.7888	34.3297	8.8784

population of the study includes all automobile companies located in Pune; which consist of 13 Auto industries. The sample size is equal to the population.

Null & alternative hypothesis: Since the objective of this study is to examine the relation between profitability and management efficiency, a set of testable hypothesis (Adel Azar & Momeny, 2010) (the null hypothesis Versus alternative hypothesis) the null and alternative hypothesis considered as follow:

H_0 : there is no significant relation between GPR and ATR. ($H_0 = R(\text{GPR and ATR}) = 0$)

H_1 : there is a significant relation between GPR and ATR. ($H_1 = R(\text{GPR and ATR}) \neq 0$)

Statistical analysis tools: The hypotheses of the study were examined by using Minitab statistical software. To identify the relation between variables of the study, linear

Table 2. Assets turnover ratios (ATR) in automobile industry-Pune (%)

	Name of the company	2006	2007	2008	2009	2010
1	Tata motors	0.775858	0.690512	0.895035	1.451987	1.413504
2	ASAL Ltd	0.47972	0.444577	0.59011	0.535541	0.40668
3	Bajaj auto	1.321424	1.244769	0.555239	0.67538	0.742371
4	Lumax auto	0.474567	0.947885	0.61934	0.563533	0.522801
5	Kinetic Engineering	1.864917	1.940351	4.098956	5.249709	5.27458
6	Autoline Industries	0.808902	0.923063	1.113863	1.557873	1.47905
7	Maharashtra scooters	4.864519	8.423862	7.641043	8.193299	9.272916
8	Kalyani Forge	0.891169	0.907686	1.011094	1.101828	1.187534
9	Bharat Forge	2.041933	2.030719	1.851067	2.079034	2.451555
10	Simmonds-Marshall	0.81768	0.821309	1.069241	1.205324	0.912908
11	Gabriel India	0.639354	0.580134	0.816916	0.811187	0.636464
12	ZF Steering Gear (India)	0.599521	0.620898	0.708143	0.971585	0.907968
13	Force motors	0.873925	0.851713	0.968244	1.030807	0.823959

regression and coefficient correlation and coefficient of determination tests were used. For testing the significant of a dependent variable over the independent variable, t-test was utilized.

Table 3. Coefficient of correlation between GPR and ATR

Predictor	Coefficient	Standard Error Coefficient (SE Coef)	T-Value	P-Value
Constant	9.61	1.445	6.65	0.00
ATR	3.087	0.55	5.61	0.00

Results

For testing hypotheses GPR and ATR are calculated for 13 companies from 2006 to 2010 as follow:

Gross profit ratio may be indicated to what extent the selling prices of goods per unit may be reduced without incurring losses on operations. It reflects efficiency with which a firm produces its products. As the gross profit is found by deducting cost of goods sold from net sales, higher the gross profit better it is. There is no standard GP ratio for evaluation (www.bseindia.com, 2011). It may vary from business to business. However, the gross profit earned should be sufficient to recover all operating expenses and to build up reserves after paying all fixed interest charges and dividends. The GP ratio indicates that from every single Rs of sale how much percent of gross profit has been made? The calculated GP ratio for Indian companies shows that Auto line industries and ASAL Ltd have highest gross profit of Indian automobile industries in Pune city (Table 1).

Table 3a. Analysis of Variance

Analysis on Variance (ANOVA)	Degree of Freedom (df)	Sum of Square (SS)	Sum of Mean square (MS)	F	Significance F (P-Value)
Regression	1	2491	2491	31.5	0.00
Residual Error	63	4982	79.1		
Total	64	7473			

Table 2 shows the asset turnover ratio of selected companies for Maharashtra Scooters and kinetic engineering are very high which could be resulted the management team of these two companies are more effective to create more profit. High asset turnover ratio indicates more efficient of management to employ assets and low asset turnover ratio indicates high investment on assets.

Five years consolidated together (from 2005-06 to 2009-10)

In this case, the regression equation is $GPR = 9.61 + 3.087ATR$. Table 3 & 3a shows the Coefficient of correlation between GPR and ATR is $R = 58\%$ and shows average positive correlation. Coefficient of determination $R^2 = 33\%$ shows that 33% of change in GPR is due to change in ATR. The p-value is 0.00 which is less than 5%. Therefore, Null hypothesis is rejected and alternative hypothesis is accepted. As such five years together, there is a significant relationship between GPR and ATR. If the ATR change to one unit the GPR changes to 3.1 unit with $P\text{-value} = 0.00$.

Limitations

This study is limited to the sample of Indian Auto manufacturing industry firms. The findings of this study could only be generalized to automobile industry similar to those that were included in this research. In addition, the sample size is small.

Discussion and conclusion

As per the study GP ratio indicates that from every single rupee of sale, how much percent of gross profit has been made. The calculated GP ratio for Indian companies shows that autoline industries and ASAL Ltd have highest gross profit of Indian automobile industries in Pune city (Table 1) and the asset turnover ratio of selected companies for Maharashtra Scooters and kinetic engineering are highest in this matter which could be resulted the management team of these two companies are more effective to create more profit. High asset turnover ratio indicates more efficient of management to employ assets and low asset turnover ratio indicates high investment on assets. The analysis of data, reveals that the findings of five years together (from 2006 to 2010) coefficient of correlation between GPR and ATR is $R = 58\%$ with average positive correlation. Coefficient of determination $R^2 = 33\%$ shows that 33% of change in GPR is due to change in ATR. The p-value is 0.00 which is less than 5%. Therefore, Null hypothesis is rejected and alternative hypothesis is accepted. As such five years together, there is a significant relationship between GPR and ATR. If the ATR change to one unit the GPR changes to 3.1 unit with $P\text{-value} = 0.00$. So the hypothesis approved. The conclusion of the study is that profitability and management efficiency are highly correlated to each other and based on the results of the study; recommendations for improving the management efficiency and profitability in this industry are suggested.

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