

The Assets Utilisation and Firm's Profitability: Empirical Evidence From Indian Automobile Firms

A.Vijayakumar

Abstract

Appraising asset utilization is a multi-task exercise conceived and performed because it measures how efficiently an organization uses its resources. The success of any enterprise is tied to its ability to manage and leverage its assets. Assets utilization ratios (turnover ratios) provide measures of management effectiveness. Hence, in this study a detailed analysis of assets turnover has been made for better understanding the factors responsible for changes in profitability in the Indian Automobile industry. The analysis of all the assets utilization ratios registered a fluctuating trend during the study period, which may be due to the difference into growth rate of sales because of the factors such as market conditions, pricing policy, government policy and competition. Comparatively, the companies under two and three wheelers sector out performed the commercial vehicles and passenger cars and multi-utility vehicles sector with respect to their asset utilization.

Keywords: Assets utilisation, profitability, turnover ratios, factor analysis and automobile industry.

1. Introduction

The overall profitability of any business largely depends on two factors viz, profit margin and turnover. The turnover refers to the number of times an asset flows through a business firm's operations and into sales. The triangular relationship among the sales, profits and assets greatly affect the profitability of a business. The relationship between the sales and profits is known as asset turnover. Any change in assets turnover would affect the profitability of the business. Profitability is the end product of profit margin and asset turnover. Assets are the economic resources owned by the business which can be conveniently expressed in monetary terms. The assets communicate the financial fact about an enterprise or economic entity to those who have an interest in interpreting and using those facts. These serve as means for analyzing and controlling the operation of the enterprise and planning future action. Appraising asset utilization is a multi-task exercise conceived and performed in the spirit of "One manages what one measures". It measures how efficiently an organization uses its resources and, in turn, the effectiveness of the organization's managers. The success of any enterprise is tied to its ability to manage and leverage its assets.

2. Problem Statement

By examining several relationships between sales and assets, asset utilization delivers a reasonably detailed picture of how well a company is being managed and led; certainly enough to call attention both to sources of trouble and to role-model operations. Asset utilization ratios provide measures of management effectiveness.

* A.Vijayakumar, Associate Professor in Commerce, Erode Arts and Science College, Erode, Tamilnadu, India

These ratios serve as a guide to critical factors concerning the use of the firm's assets in day-to-day operations. The ratios that result can be used to compare a company's performance with individual competitors and with industries as a whole. Many companies use this measure not only to evaluate their aggregate success but also to determine compensation for managers. Asset utilization ratios are especially important for internal monitoring concerning performance over multiple periods, serving as warning signals or benchmarks from which meaningful conclusions may be reached on operational issues.

Thus, the operational efficiency of an enterprise, should be evaluated by inter company or inter-period comparison of "Assets Turnover". If there are variations in the "Assets Turnover" profitability will reflect such changes unless counter balancing variations take place in the profit-margin to offset such changes. Thus, the asset turnover helps us to know the efficiency of use of assets in generating the profits. Hence, a detailed analysis of assets turnover has been made for better study and tracing out the factors responsible for changes in the profitability.

3. Sampling Selection

Keeping in view the scope of the study, it was decided to include all the companies under automobile industry working before or from the year 1996-97 to 2008-09. There are 26 companies operating in the Indian automobile industry. But, owing to several constraints such as non-availability of financial statements or non-working of a company in a particular year etc., it was compelled to restrict the number of sample companies to 20. Out of 20 selected companies under Indian Automobile Industry, three Multinational Companies (MNCs) namely Hyundai Motors India Ltd, Honda Sael Cars India Ltd and Ford India Private Ltd were omitted because these companies established their operations in India in different accounting years. The companies under automobile industry are classified into three sectors namely Commercial vehicles, Passenger cars and Multi-utility vehicles and Two and three wheelers. For the purpose of the study all the three sectors have been selected. It accounts for 73.23 per cent of the total companies available in the Indian automobile industry. The selected 20 companies include 5 under commercial vehicles, 3 under passenger cars and multi-utility vehicles and 9 under two and three wheeler sectors. It is inferred that sample company represents 98.74 percentage of market share in commercial vehicles, 79.76 percentage of market share in passenger cars and

Multi-utility vehicles and 99.81 percentage of market share in two and three wheelers. Thus, the findings based on the occurrence of such representative sample may be presumed to be true representative of automobile industry in the country.

4. Methods of Data Collection

The study is mainly based on secondary data. The data analysed and interpreted in this study related to all those companies selected is collected from "PROWESS" database, which is the most reliable on the empowered corporate database of Centre for Monitoring Indian Economy (CMIE). Besides Prowess database, relevant secondary data have also been collected from BSE Stock Exchange Official Directory, CMIE Publications, Annual Survey of Industry, Business newspapers, Reports on Currency and Finance, Libraries of various Research Institutions, through Internet etc.

5. Data Analysis

The financial and statistical analysis approach plays a vital role in the financial environment. To enjoy the benefit of financial and statistical analysis researcher has collected, assembled and correlated the data, classified the data appropriately and condensed them in to a related data series; stated the resultant information in a comprehensive form, text, tables and analysed and interpreted the reported data. It is well known that management is concerned with assets utilization towards profitability performance. For this purpose it has to study certain specific ratios which are concerned with an organization's assets utilization efficiency. For the purpose of this study, ratios namely, total assets turnover, fixed assets turnover, working capital turnover, inventory turnover and debtor's turnover has been used. The role of statistical tools is important in analysing the data and drawing inferences therefrom. In order to derive the open handed results from the information collected through secondary data, various statistical tools like mean, standard deviation, variance, compound annual growth rate, t-test ANOVA, and factor analysis have been used to interpret the sense of mathematical relationship amongst values of different variables so computed in the study.

6. Total Assets Turnover

Funds are invested in business to make sales and earn profit. The efficiency with which assets are managed directly affects the volume of sales. The better the management of

assets, the larger is the amount of sales and profits. Thus, management of assets is an important task which reduces the burden of further addition of assets. Total assets turnover ratio offers managers a measure of how well the firm is utilizing its assets in order to generate sales revenue. An increasing total asset turnover would be an indication that the firm is using its assets more productively. Turnover of assets indicate the speed with which assets are converted or turned over into sales and ultimately reduces interest burden and increases profitability.

The total assets turnover ratio of the selected three sectors and the whole automobile industry during the study period has been presented in Table 1. On the basis of the Table 1, it can be said that the sector average ratio of assets turnover exceeded the industry average. The highest average total assets turnover ratio 1.88 times was recorded in two and three wheeler sector, followed by passenger cars and multiutility vehicles sector (1.35 times) and commercial vehicles (1.18 times) with 0.98 times as industry average and significantly differ from the industry mean. The CV value of these ratios showed the less fluctuation in total assets turnover ratio of two and three wheeler sector. Such less fluctuation could be attributed to the stable investment in fixed assets and current assets and steady sales revenue over the period of study. The whole industry witnessed a bottom side negative compound annual growth rate in this ratio whereas two and three wheeler sector registered a positive compound annual growth rate. It could be observed that two and three wheeler sector had utilised its assets more efficiently to generate sales than the commercial vehicles and passenger cars and multiutility vehicles sector. Analysis of variance has been applied among the sectors and between the years to test the hypothesis (Table 5). Since the calculated values of F are higher than the table value at 5 per cent of level of significance, it is concluded the null hypothesis is rejected. The rejection of the null hypothesis would indicate that there were significant differences in the mean percentage of assets turnover ratio between the sectors and years.

The company-wise total assets turnover ratios for the study period is presented in Table 2 to Table 4. The efficiency of all the selected companies in the commercial vehicles and passenger cars and multiutility vehicles sector and Bajaj Auto Ltd, LML Ltd, TVS Motor Company Ltd, Hero Honda Motors Ltd, Majestic Auto Ltd and Scooters India Ltd in two and three wheeler sector were satisfactory because its average total assets turnover ratios were higher

than the industry average. However, the assets utilisation efficiency of Maharashtra Scooter Ltd, Kinetic Motor Company Ltd and Kinetic Engineering Ltd under two and three wheeler sector was the worst amount the selected companies during the study period because their average ratios were the least among the companies and below the industry average. Table 2 to Table 4 also revealed the very high fluctuating trend of this ratio among the companies selected under three sectors of Indian Automobile Industry. Further, analysis of t-test revealed that majority of the companies (16 out 20) mean total assets turnover ratios were significantly different from the industry mean.

The results of analysis of variance presented in Table 5 show that differences in the mean total assets turnover ratio were significant in between the companies and the years in commercial vehicles and passenger cars and multiutility vehicles sector as the calculated value of F were more than the table value of F at 5 per cent level of significance. Hence, the null hypothesis was rejected. However, no such significant difference was observed between the year and the companies in the case of two and three wheeler sector. In brief, most of the selected Indian automobile companies had maintained stable total assets turnover ratio over the period of study. Among the selected sectors two and three wheelers were found more efficient than others in respect of asset utilisation.

7. Fixed Assets Turnover

It has already been stated that funds are invested in assets to expedite sales and earn profit. Fixed assets, an integral part of the total assets, play a predominant role in expediting sales as well as adding to profits. These fixed assets may either be financed by shareholders funds or by long-term interest bearing funds. In either way it may be financed, it certainly affects the financial structure of a concern. Moreover, the turnover of fixed asset is an important asset management ratio, because high turnover of fixed assets reduces unnecessary blocking of fixed assets and restrains the firm from borrowing funds for financing the fixed assets, reduces interest burden and increases leverage and profitability of the concern. Usually, higher the number of times, the better. However, if the ratio is too high, firms are operating over capacity, and on the other hand, a low ratio will indicate that excessive investment has been made in the fixed assets.

Table 1 depicts the fixed assets turnover ratio of selected sectors and the whole automobile industry during the study period. Table 1 shows that fixed assets turnover

ratio in three sectors and the whole automobile industry registered a fluctuating trend throughout the period under study. It was mainly on account of fluctuations in the amount of sales in the period under reference. On an average the Indian automobile industry had the overall fixed asset turnover ratio of 3.21 times. The average fixed assets turnover ratio varied from sector to sector, the highest average was 5.20 times in two and three wheeler sector followed by commercial vehicles (3.39 times) and passenger cars and multiutility vehicles sector (3.20 times). The average ratio of fixed asset turnover was higher than the industry average in two and three wheeler and commercial vehicles sector; however, it was significantly differently from industry mean only in case of two and three wheeler sector. The CV value of this ratio showed very high fluctuation in the fixed assets turnover ratio of selected sectors of Indian automobile industry. Such fluctuations could be attributed to the differences in the growth rates of sales and fixed assets because of the external factors such as government policy and market conditions. Only commercial vehicles sector and whole industry witnessed negative compound annual growth rate of this ratio during the study period. From the analysis of variance, it is concluded that null hypothesis is rejected since the calculated values of F (30.15 and 6.32) were greater than the table values of F (3.40 and 2.18) at 5 per cent level of significance. The rejection of null hypothesis indicated that there were significant differences in the fixed asset turnover ratio between the sectors and the years.

The fixed assets turnover ratio of the selected companies of Indian automobile industry has been cataloged in Table 2 to Table 4. The efficiency of utilizing fixed assets in Eicher Motors Ltd and Swaraj Mazda Ltd under commercial vehicles, Maruthi Udyog Ltd and Honda Sael Cars India Ltd under passenger cars and multiutility vehicles and Bajaj Auto Ltd, Maharashtra Scooters Ltd, TVS Motor Company Ltd, Kinetic Motor Company Ltd, Hero Honda Motors Ltd and Scooters India Ltd under two and three wheeler sector were satisfactory during the period of study because its average ratios of fixed assets turnover were higher than the industry average of 3.21 times. Among the sample companies, Swaraj Mazda Ltd was the most efficient in generating sales revenue from its investment in fixed assets because it generated the highest average sale of Rs.11.44 for one rupee investment in fixed asset during the study period. The tables also show that majority of the selected companies under commercial vehicles and two and three wheeler sector had negative compound annual

growth rate in fixed assets turnover ratio during the study period. The tables also revealed that a very high fluctuating trend of this ratio among the companies selected under different sectors of Indian automobile industry. Table 5 exhibits that differences in the fixed asset turnover ratio were significant in between the companies and the years in passenger cars and multiutility vehicles sectors as the calculated values of F were greater than the table values of F at 5 per cent level of significance. However, they were insignificant in between the years under commercial vehicles and two and three wheeler sector companies. On the whole, it may be concluded that fixed assets turnover ratio almost reflects a fluctuating trend during the study period.

8. Working Capital Turnover

This ratio is applied to measure the turnover and profitability of total current assets (working capital) applied to conduct the operations of firm. The idea behind the working capital turnover ratio is to give an overall impression of how rapidly the total investment in current assets is being turned and is thought of by some as an index of "efficiency" or "profitability". The higher the working capital turnover, the lower the investment in working capital funds and greater the profits. However, a very high working capital turnover may be due to insufficient working capital funds for a given volume of business.

Table 1 makes it evident that the mean ratio of working capital turnover of the passenger cars and multiutility vehicles sector has been 16.09 times as against -5.47 times for commercial vehicles sector and -37.36 times for the industry as a whole. None of the sector average of this ratio significantly differs from the industry average. The analysis of CV values revealed that there was an erratic fluctuation in this ratio in all the three sectors and whole industry. Further, the analysis of variance showed that there was no significant difference in the working capital turnover between the sectors and the years. The mean values of working capital turnover ratio of the commercial vehicles sector ranged between 4.85 times and 80.62 times during the study period. (Table 2). Further, table showed that none of the company's working capital turnover significantly differs from the industry average. The high CV value showed erratic fluctuations in the ratio during the study period. The mean values of working capital turnover of the passenger cars and multiutility vehicles sector ranged between 6.99 times and 47.26 times with the erratic fluctuations during the study period (Table 3).

The mean value of working capital turnover of the two and three wheelers sectors units ranged between -4.04 times and 88.99 times and none of the company's mean value of this ratio significantly differs from the industry

average (Table 4). Further, CV value registered very high fluctuations in this ratio among the companies under two and three wheeler sector.

Table 1 Statistical Values of Ratios Relating to the Assets Utilisation (For the Period 1996-97 to 2008-2009)

Particulars	Statistics	Commercial Vehicles	Passenger Cars and Multiutility Vehicles	Two and Three Wheelers	Industry Average
Total Assets Turn-over Ratio	Mean	1.18	1.35	1.88	0.98
	CV	0.27	0.23	0.09	0.13
	CAGR	-3.00	-0.07	0.90	-1.78
	t-Value	3.53*	5.90*	27.93*	
Fixed Assets Turnover Ratio	Mean	3.39	3.20	5.20	3.21
	CV	0.38	0.43	0.18	0.28
	CAGR	-5.16	4.34	3.40	-0.95
	t-Value	1.19	-0.08	9.63*	
Working Capital Turnover Ratio	Mean	-5.47	16.09	-102.69	-37.36
	CV	-6.24	0.66	-2.90	-6.90
	CAGR	-	13.60	-	23.04
	t-Value	0.45	0.74	0.58	
Inventory Turn-over Ratio	Mean	8.39	10.87	14.62	5.55
	CV	0.24	0.27	0.33	0.23
	CAGR	2.01	7.20	9.26	4.08
	t-Value	8.39*	9.24*	8.20*	
Receivables Turnover Ratio	Mean	13.07	17.62	24.88	12.03
	CV	0.62	0.28	0.35	0.36
	CAGR	10.64	0.48	4.74	7.11
	t-Value	0.91	6.42*	8.13*	

* - Significant at 5 per cent level

** - Significant at 10 per cent level

Source: Computed from the Annual Reports of the respective units.

In order to test the hypothesis, analysis of variance has been applied between the companies and between the years. It is concluded that null hypothesis is accepted in all the selected companies since the calculated value of F were lower than the table value of F at 5 per cent level of significance. The acceptance of null hypothesis indicated that there were no significant differences in the working capital turnover ratio between the companies and the year in all the sectors of Indian automobile industry.

It may therefore be concluded that different units in the automobile industry have utilised their working capital funds with the varying degrees of efficiency.

9. Inventory Turnover

Inventory is an important economic variable for management to monitor since rupees invested in inventory have not yet resulted in any return to the firm. It helps to

judge the efficiency of inventory management ordinarily higher the rate of inventory turnover, larger the amount of profit, smaller the amount of working capital tied up in inventory and more current the stock of merchandise. Generally it is believed that high inventory turnover implies more efficient management of inventory. This is however true up to a point beyond that a high inventory turnover may signal problems. It is because inventory turnover can be increased by carrying very small inventories also. But this policy may lead to a large number of stock-outs leading to loss of sales. For each industry, there is a range of inventory turnovers that may be considered good.

However, while interpreting this ratio, care must be exercised that a very high turnover ratio may be the result of an unduly small size of the inventory which adversely affects smooth operations. A low ratio suggests poor inventory management. Table 1 reveals that the overall inventory turnover is very high in all the three sectors when compared to industry average. Industry mean value of inventory turnover is 5.55 times as against the commercial vehicles sectors of 8.39 times, the passenger cars and multiutility vehicles sector is 10.87 times and two and three wheeler sector is 14.62 times. All the three sectors showed good performance in their inventory management. Further mean value of inventory turnover of all the three sectors significantly differ from the industry mean. The CV value further indicated that the three sectors had a better inventory control during the period under study.

Table 2 to Table 4 showed that inventory turnover varies widely from one company to another. The mean values of inventory turnover range 4.68 times to 16.02 times in the commercial vehicles sector companies and from 6.88 times to 17.43 times and 4.02 times and 29.01 times in the passenger cars and multiutility vehicles sectors companies and the two and three wheelers sectors companies respectively. Almost all the selected companies except Bajaj Tempo Ltd under commercial vehicles and LML Ltd and Scooters India Ltd under two and three wheelers sector showed better inventory management as their average inventory turnover ratios were higher than the industry average. Further, the high values of CV revealed quite high fluctuations in this ratio in all the selected companies during the period under study. All the selected companies except LML Ltd, Maharashtra Scooters Ltd, TVS Motor Company Ltd, Kinetic Motor Company Ltd and Kinetic Engineering Ltd under two and three wheeler sector registered positive compound annual growth rate of inventory turnover ratio during the study period. Table 5 depicts that differences in the inventory turnover ratio were significant in between the companies and the year under commercial vehicles and passenger cars and multiutility vehicles sector as calculated values of F are greater than the table values of F at 5 per cent level of significance. However, they were insignificant in between the years under two and three wheelers sector as calculated values F are lower than the table values of F at 5 per cent level of significance. Thus, different companies have employed investment in inventories with varying degrees of efficiency.

Table 2 Statistical values of ratios relating to the assets utilisation (Commercial vehicles) (For the period 1996-97 to 2008-2009)

Particulars	Statistics	ALL	TML	BTL	EML	SML	Sector Average	Industry Average
Total Assets Turnover Ratio	Mean	1.61	1.68	2.50	3.34	4.94	1.18	0.98
	CV	0.47	0.44	0.29	0.30	0.60	0.27	0.13
	CAGR	-1.00	-5.23	-6.31	-6.77	-8.82	-3.00	
	t-Value1	3.07*	4.12*	7.81*	8.69*	4.77*		
	t-Value2	3.37*	3.97*	8.25*	8.87*	4.87*		
Fixed Assets Turnover Ratio	Mean	2.24	2.43	1.56	4.77	11.44	3.39	3.21
	CV	0.31	0.35	0.25	0.52	0.37	0.38	0.28
	CAGR	-3.49	-4.57	2.47	5.62	-4.95	-5.16	-0.95
	t-Value1	-4.50*	-4.16*	-4.95*	1.54	9.15*		
	t-Value2	-6.72*	-5.87*	-6.43*	1.95**	8.43*		

Particulars	Statistics	ALL	TML	BTL	EML	SML	Sector Average	Industry Average
Working Capital Turnover Ratio	Mean	4.85	80.62	10.51	23.82	7.66	-5.47	-37.36
	CV	0.77	3.74	0.93	1.02	0.74	6.24	6.90
	CAGR	16.93	-	16.24	-8.19	-2.65	-	23.04
	t-Value ₁	1.04	1.04	1.50	3.59*	1.52		
	t-Value ₂	0.59	1.11	0.67	0.86	0.62		
Inventory Turn-over Ratio	Mean	6.31	10.71	4.68	16.02	6.47	8.39	5.55
	CV	0.32	0.27	0.28	0.51	0.32	0.24	0.23
	CAGR	0.84	2.76	0.61	13.85	1.20	2.01	4.08
	t-Value ₁	-12.16*	7.28*	-11.87*	3.44*	-4.92*		
	t-Value ₂	2.18*	9.20*	-3.13*	4.85*	2.56*		
Receivables Turnover Ratio	Mean	8.31	17.61	16.89	12.33	5.34	13.07	12.03
	CV	0.73	0.73	0.59	0.22	0.27	0.62	0.36
	CAGR	11.21	12.95	-13.67	2.31	-6.11	10.64	7.11
	t-Value ₁	-5.75*	3.11*	0.81	-0.42	-3.01*		
	t-Value ₂	-5.24*	2.27*	1.28	0.35	-4.27*		

* Significant at 5 per cent level

** Significant at 10 per cent level

t value¹ - With the sector average

t value² - With the Industry average

ALL- Ashok Leyland Ltd; TML- Tata Motors Ltd; BTL- Bajaj Tempo Ltd; EML- Eicher Motors Ltd;

SML- Swaraj Mazda Ltd

Source: Computed from the Annual Reports of the respective units.

Table 3 Statistical Values of Ratios Relating to the Assets Utilisation (Passenger Cars and Multiutility Vehicles) (For the Period 1996-97 to 2008-2009)

Particulars	Statistics	HML	MML	MUL	HYML	HSL	FIL	Sector Average	Industry Average
Total Assets Turnover Ratio	Mean	2.01	1.49	2.19	1.67	2.63	1.24	1.35	0.98
	CV	0.31	0.28	0.24	0.60	0.47	0.51	0.23	0.13
	CAGR	1.92	-2.74	-7.99	23.89	13.90	25.72	-0.07	-1.78
	t-Value ₁	4.65*	3.14*	4.90*	1.35	4.30*	-1.49		
	t-Value ₂	6.45*	5.63*	8.26*	2.45*	4.51*	0.97		
Fixed Assets Turnover Ratio	Mean	2.17	3.08	3.24	1.99	3.47	1.21	3.20	3.21
	CV	0.42	0.26	0.30	0.49	0.50	0.32	0.43	0.28
	CAGR	5.06	0.75	-0.04	20.69	11.51	19.33	4.34	-0.95
	t-Value ₁	-2.23*	-0.35	0.10	-3.72*	1.24	-5.52*		
	t-Value ₂	-2.48*	-0.44	0.07	-6.52*	0.48	-10.02*		
Working Capital Turnover Ratio	Mean	10.89	6.99	19.09	7.81	9.34	47.26	16.09	-37.36
	CV	2.64	1.88	0.94	0.61	0.55	2.94	0.66	-6.90
	CAGR	-	-	-6.32	16.30	15.01	28.75	13.60	23.04
	t-Value ₁	-0.61	-1.79**	0.64	-3.00*	-3.15*	0.68		
	t-Value ₂	0.68	0.61	0.79	0.69	0.71	1.05		

Particulars	Statistics	HML	MML	MUL	HYML	HSL	FIL	Sector Average	Industry Average
Inventory Turnover Ratio	Mean	6.88	10.37	17.43	11.83	14.84	8.76	10.87	5.55
	CV	0.29	0.22	0.34	0.38	0.29	0.26	0.27	0.23
	CAGR	5.02	4.34	6.93	17.58	4.96	5.43	7.20	4.08
	t-Value ₁	-7.12*	-1.51	6.84*	0.83	4.07*	-3.38*		
	t-Value ₂	3.08*	10.66*	8.38*	5.04*	7.77*	3.66*		
Receivables Turnover Ratio	Mean	12.05	12.18	23.70	104.25	377.64	24.75	17.62	12.03
	CV	0.48	0.36	0.34	1.32	1.27	0.36	0.28	0.36
	CAGR	8.28	-2.81	-2.40	10.76	-9.06	-9.43	0.48	7.11
	t-Value ₁	-5.81*	-9.08*	2.95*	2.07**	2.38*	1.89**		
	t-Value ₂	0.02	0.12	4.33*	2.19*	2.41*	3.36*		

* Significant at 5 per cent level

** Significant at 10 per cent level

t value¹ With the sector averaget value² With the Industry average

HML - Hindustan Motors Ltd; MML - Mahindra and Mahindra Ltd; MUL - Maruti Udyog Ltd;

HYML - Hyundai Motors India Ltd HSL- Honda Sael Cars India Ltd; FIL- Ford India Private Ltd

Source: Computed from the Annual Reports of the respective units.

Table 4 Statistical Values of Ratios Relating to the Assets Utilisation (Two and Three wheelers) (For the period 1996-97 to 2008-2009)

Particulars	Statistics	BAL	LML	MSC	TVS	KMC	HMM	KEL	MAL	SIL	Sector Average	Industry Average
Total Assets Turnover Ratio	Mean	1.48	1.43	0.54	2.08	0.32	2.48	0.86	1.27	1.36	1.88	0.98
	CV	0.65	0.84	0.96	0.13	-24.97	0.1	0.34	0.34	0.42	0.09	0.13
	CAGR	2.96	-9.34	-33.43	-3.96	-3.75	1.37	-11.97	0.51	1.68	0.90	-1.78
	t-Value ₁	-1.64	-1.38	-7.20*	1.98**	-0.99	9.79*	-8.41*	-4.70*	-3.06*		
	t-Value ₂	1.98**	1.36	-2.66*	13.77*	-0.59	22.10*	-1.39	2.26*	2.25*		
Fixed Assets Turnover Ratio	Mean	4.08	1.59	5.41	3.81	3.32	6.38	1.46	1.87	3.93	5.20	3.21
	CV	0.35	0.72	1.13	0.33	0.52	0.25	0.59	0.32	0.30	0.18	0.28
	CAGR	2.26	-11.19	-29.26	-4.16	-8.29	6.69	-12.56	-4.17	5.31	3.40	-0.95
	t-Value ₁	-3.17*	-6.91*	0.11	-2.52*	-2.69*	4.76*	-8.80*	-8.98*	-3.19*		
	t-Value ₂	3.08*	-3.40*	1.19	1.18	0.18	9.16*	-4.39*	-4.21*	1.62		
Working Capital Turn-over Ratio	Mean	-1.43	-2.47	3.89	88.99	6.84	-4.04	3.15	21.05	1.35	-102.69	-37.36
	CV	-12.43	-12.23	10.36	2.55	3.86	-15.58	0.47	1.34	3.2	-2.90	-6.90
	CAGR	-	-	-	1.10	-	-	-13.25	12.48		-	23.04
	t-Value ₁	1.22	1.19	1.46	1.93**	1.33	1.18	1.23	1.39	1.26		
	t-Value ₂	0.5	0.48	0.58	1.56	0.62	0.45	0.64	0.82	0.54		
Inventory Turnover Ratio	Mean	17.15	4.02	12.41	14.90	6.63	29.01	5.95	10.15	4.28	14.62	5.55
	CV	0.39	0.55	0.65	0.28	0.28	0.48	0.43	0.22	0.20	0.33	0.23
	CAGR	7.78	-13.56	-15.90	-0.48	-0.08	11.28	-6.64	3.35	4.22	9.26	4.08
	t-Value ₁	1.75	-5.60*	0.67	0.13	-5.00*	5.33*	-3.87*	-3.10*	-8.38*		
	t-Value ₂	6.68*	-1.70	2.84*	7.15*	1.48	6.58*	0.51	5.50*	-3.29*		

Particulars	Statistics	BAL	LML	MSC	TVS	KMC	HHM	KEL	MAL	SIL	Sector Average	Industry Average
Receivables Turnover Ratio	Mean	24.60	19.94	16.42	40.07	7.98	63.05	3.72	6.41	22.06	24.88	12.03
	CV	0.25	0.35	0.57	0.50	0.38	0.42	0.59	0.24	1.15	0.35	0.36
	CAGR	1.70	-3.20	-6.67	0.82	-7.36	5.18	-16.97	-0.47	-13.50	4.74	7.11
	t-Value ₁	-0.11	-2.08**	-1.86**	4.06*	-5.54*	5.91*	-6.99*	-7.13*	-0.34		
	t-Value ₂	6.59*	3.43*	1.29	5.72*	-2.15*	7.22*	-4.49*	-4.24*	1.30		

*- Significant at 5 per cent level ;

** - Significant at 10 per cent level ;

t value1 - With the sector average;

t value2- With the Industry average

BAL- Bajaj Auto Ltd LML- LML Ltd MSC- Maharashtra Scooters Ltd TVS- TVS Motor Company Ltd KMC- Kinetic Motor Company Ltd HHM- Hero Honda Motors Ltd KEL- Kinetic Engineering Ltd MAL- Majestic Auto Ltd SIL- Scooters India Ltd

Source: Computed from the Annual Reports of the respective units.

Table 5 ANOVA Results- Ratios relating to Assets Utilisation – Comparison

S. No.	Assets Utilisation Ratios	Between the Sectors		Between the Years	
		F ratio	H ₀	F ratio	H ₀
1.	Total Assets Turnover Ratio	88.76	Rejected	9.73	Rejected
2.	Fixed Assets Turnover Ratio	30.15	Rejected	6.32	Rejected
3.	Working Capital Turnover Ratio	1.72	Accepted	0.97	Accepted
4.	Inventory Turnover Ratio	33.76	Rejected	7.62	Rejected
5.	Debtors Turnover Ratio	31.83	Rejected	9.27	Rejected

Critical Value 'F' at 5 per cent level: 3.40 and 2.18

Commercial Vehicles Sectors

S. No.	Assets Utilisation Ratios	Between the Sectors		Between the Years	
		F ratio	H ₀	F ratio	H ₀
1.	Total Assets Turnover Ratio	16.57	Rejected	3.69	Rejected
2.	Fixed Assets Turnover Ratio	39.75	Rejected	0.74	Accepted
3.	Working Capital Turnover Ratio	0.71	Accepted	1.02	Accepted
4.	Inventory Turnover Ratio	19.49	Rejected	2.03	Rejected
5.	Debtors Turnover Ratio	5.37	Rejected	0.58	Rejected

Critical Value 'F' at 5 per cent level: 2.57 and 1.96

Passenger Cars and Multiutility Vehicles Sectors

S. No.	Assets Utilisation Ratios	Between the Sectors		Between the Years	
		F ratio	H ₀	F ratio	H ₀
1.	Total Assets Turnover Ratio	6.74	Rejected	4.96	Rejected
2.	Fixed Assets Turnover Ratio	8.51	Rejected	2.16	Rejected
3.	Working Capital Turnover Ratio	0.56	Accepted	0.98	Accepted
4.	Inventory Turnover Ratio	17.38	Rejected	5.73	Rejected
5.	Debtors Turnover Ratio	4.57	Rejected	0.91	Accepted

Critical Value of 'F' at 5 per cent level: 2.37 and 1.92

Two and Three Wheelers Sectors

S. No.	Assets Utilisation Ratios	Between the Sectors		Between the Years	
		F ratio	H ₀	F ratio	H ₀
1.	Total Assets Turnover Ratio	1.19	Accepted	1.05	Accepted
2.	Fixed Assets Turnover Ratio	7.15	Rejected	1.59	Accepted
3.	Working Capital Turnover Ratio	1.68	Accepted	0.96	Accepted
4.	Inventory Turnover Ratio	20.48	Rejected	0.22	Accepted
5.	Debtors Turnover Ratio	20.72	Rejected	0.72	Accepted

Critical Value 'F' at 5 per cent level: 2.04 and 1.85

Source : Computed.

Table 6 Assets Utilisation-Summary of Factor Analysis results-Rotated factor loadings (Whole Industry)

Variables	Factors		Communality
	1	2	
Total Assets Turnover	0.646	0.181	0.451
Fixed Assets Turnover	0.799	- 0.009	0.639
Working Capital Turnover	- 0.027	0.979	0.959
Inventory Turnover	0.706	- 0.061	0.502
Debtors Turnover	0.327	- 0.107	0.118
Eigen Value	1.663	1.006	2.669
% of Variance	33.252	20.120	53.372
Cum.% variance	33.252	53.372	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	-		0.659
Bartlett's Test of Sphericity	-		87.672 (sig.0.000)

(Commercial Vehicles)

Variables	Factors			Communality
	1	2	3	
Total Assets Turnover	0.828	0.071	- 0.047	0.693
Fixed Assets Turnover	0.910	- 0.078	- 0.034	0.835
Working Capital Turnover	- 0.068	- 0.003	0.984	0.974
Inventory Turnover	0.306	0.773	0.127	0.708
Debtors Turnover	- 0.335	0.775	- 0.142	0.733
Eigen Value	1.729	1.209	1.003	3.941
% of Variance	34.588	24.187	20.067	78.842
Cum.% variance	34.588	58.775	78.842	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	-			0.633
Bartlett's Test of Sphericity	-			43.540 (sig.0.000)

(Passenger Cars and Multiutility vehicles)

Variables	Factors		Communality
	1	2	
Total Assets Turnover	0.868	0.090	0.762
Fixed Assets Turnover	0.895	- 0.058	0.804
Working Capital Turnover	- 0.005	0.984	0.969
Inventory Turnover	0.809	0.107	0.666
Debtors Turnover	0.540	- 0.160	0.317
Eigen Value	2.500	1.017	3.517
% of Variance	50.008	20.339	70.347
Cum.% variance	50.008	70.347	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	-		0.736
Bartlett's Test of Sphericity	-		112.406 (sig.0.000)

(Two and Three Wheelers Sector)

Variables	Factors		Communality
	1	2	
Total Assets Turnover	0.402	0.189	0.198
Fixed Assets Turnover	0.794	-0.085	0.638
Working Capital Turnover	0.027	0.973	0.948
Inventory Turnover	0.866	- 0.090	0.758
Debtors Turnover	0.787	0.181	0.653
Eigen Value	2.172	1.022	3.192
% of Variance	43.444	20.441	63.885
Cum.% variance	43.444	63.885	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	-		0.670
Bartlett's Test of Sphericity	-		107.412 (sig.0.000)

Source: Computed from the Annual Reports

10. Debtors Turnover

The receivables turnover (Debtor) gives a general measure of the productivity of the receivables management. It is also a measure of a firm's liquidity or activity. The higher the enterprise's accounts receivable turnover, the more favourable it is. It indicates the speed with which receivables are converted into cash. To maximise profitability, a higher turnover of inventory should be accompanied by prompt collection of receivables. The lower receivables turnover would indicate inefficiency of the management and directly or indirectly affect profitability, return on investment and overall capital structure of a concern.

Table 1 indicated that the mean value of receivables turnover for the industry as a whole comes to 12.03 times. As against this, commercial vehicles sector had receivables turnover values of 13.07 times, passenger cars and multiutility vehicles sector and the two and three wheelers

sector have 17.62 times and 24.88 times respectively. It is inferred from the table that two and three wheelers sector have better performance in receivables management than the commercial vehicles sector and the passenger cars and multiutility vehicles sector. From the ANOVA results, it is concluded that null hypothesis is rejected since the calculated values of F (31.83 and 9.27) were exceeded the table values of F (3.40 and 2.18) at 5 per cent level of significance. The rejection of null hypothesis indicated that there were significant differences in the receivables turnover ratio between the sectors and the years.

Table 2 to Table 4 indicated that receivables turnover varies widely from one company to another. It ranged between 5.34 times and 16.89 times for the commercial vehicles sector companies. The mean values of receivables turnover for the passenger cars and multiutility vehicles sector companies ranged between 12.05 times and 104.25 times and vary significantly from industry mean except Hindustan Motors Ltd and Mahindra and Mahindra Ltd.

The mean values of receivables turnover of the two and three wheelers sector units ranged between 3.72 times and 63.05 times and vary significantly from sector mean and industry mean except Scooters India Ltd. Moreover, the high CV values of all the companies showed relatively high fluctuations in the ratio during the period under study. Further, majority of the companies (12 out of 20) registered negative compound annual growth rate of this ratio during the study period. Table 5 helps conclude that the difference in the receivables turnover were significant in between the companies and the years in commercial vehicles sector as per the calculated value of F. However, in case of passenger cars and multiutility vehicles and two and three wheelers sector, these ratios were insignificant between the years as the calculated value of f lower than the table value of F at 5 per cent level of significance.

To conclude, all the turnover ratios represent a fluctuating trend during the study period. Such fluctuations could be attributed to the difference in the growth rate of sales because of the factors such as market conditions, pricing policy, government policy and competition. Comparatively, the companies under two and three wheelers sector out performed than commercial vehicles and passenger cars and multiutility vehicles sector with respect to their asset utilisation.

11. Assets Utilization – Factor Analysis

The five turnover ratios which depict the assets utilization have been considered for the study viz., Total Assets turnover, Fixed Assets turnover, Working capital turnover, Inventory turnover and Debtors turnover. In order to disclose which among these factors contribute much towards assets utilization, factor analysis has been done and the results presented in Table 6. In whole automobile industry, two factors are identified by the rotation method and explained 53.372 percent of total variations. The four variables such as total assets turnover, fixed assets turnover, inventory turnover and debtor turnover were grouped together as Factor I and accounts for 33.252 per cent of the total variations. Factor II and explains 20.120 percent of total variations with only variable such as working capital turnover. Working capital turnover and fixed assets turnover are found to have a stronger relationship.

However, in case of commercial vehicles sector, three factors were extracted by the principal component analysis and explained 78.842 per cent of total variations.

The two variables such as total assets turnover and fixed assets turnover were grouped as Factor I, Inventory turnover and Debtors turnover as Factor II and working capital turnover as Factor III, which account for 34.588 per cent, 24.187 per cent and 20.067 per cent of total variations respectively. Further, working capital turnover and inventory turnover are found to have a stronger relationship. In the case of passenger cars and multiutility vehicles sector, two factors were identified by the rotation method and explained 70.347 per cent of total variations. Factor I accounts four variables such as total assets turnover, fixed assets turnover, Inventory turnover and Debtors turnover, which explains 50.008 per cent of total variations and factor II consists only one variable which is working capital turnover and explains 20.339 per cent of total variations. Further, working capital turnover and fixed turnover are found to have a stronger relationship.

In two and three wheelers sectors two factors were identified. The four variables such as total assets turnover, fixed assets turnover, inventory turnover and debtor's turnover were grouped together as factor I and accounted for 43.444 per cent of the total variations. Factor II explains 20.441 per cent of the total variations with only one variable working capital turnover. Both the factors explained 63.885 per cent of total variations. Working capital turnover and inventory turnover are found to have stronger relationship in case of two and three wheelers sector. Further, the results of KMO test and Bartlett's Test of sphericity (Sig 0.000) confirms that factors analysis can be carried out appropriately for the variables selected for the study.

12. Conclusion

The operational efficiency of the selected companies of Indian automobile industry should be evaluated by comparing the assets turnover such as total assets, fixed assets, working capital, inventory and receivables. The analysis showed that all the turnover ratios represent a fluctuating trend during the study period. Such fluctuations could be attributed to the difference in the growth rate of sales because of the factors such as market conditions, pricing policy, government policy and competition. Comparatively, the companies under two and three wheeler sector outperformed than the commercial vehicles and passenger cars and multiutility vehicles sector with respect to their assets utilization. Further, there were significant differences observed in

the entire turnover ratio except working capital turnover ratio between the companies during the study period. Factor analysis revealed that fixed assets turnover and working capital turnover contribute much towards asset utilization in case of whole industry and passenger cars and multiutility vehicles sector, where as working capital turnover and inventory turnover contribute much towards assets utilization in case of commercial vehicles and two and three wheelers sector.

References

- Gupta, M.C., (1989). "Profitability Analysis", Jaipur: Pointer publishers, p. 36.
- Basant C. Raj, (1978). "Corporate Financial Management", New Delhi: Tata McGraw-Hill, p.583.
- Roy A. Foulke, (1978). "Practical Financial Statement Analysis", New Delhi: Tata McGraw-Hill.
- Kreps Cliften, H. and Richard. F. Wacht (1975). "Financial Administration", Illinois: Housdale, p.45.
- Gitman, L.J., (1976). "Principles of Management Finances", New York: Harper and Row, p.52.
- Chapman Findlay, M. and Edwards F. Williams (1970). "An Integrated Analysis for Managerial Finances", New Delhi: Prentice Hall, p.70.
- Van Horne, J.C (1983). "Financial Management and Policy", New Delhi. Prentice Hall of India, pp.324-325.
- Burton A.Kolb (1983), "Principles of Financials Management", Texas: Business Publications, p.153.
- Walker, E.W., and Boughn, W.H. (1974). "Financial Planning and Policy", Harper International, p.151.
- Vishnukanta Purohit (1998). "Profitability in Indian Industries", New Delhi: Gayathri Publications.
- Michaelas, N., Chittenden, F., and Poutziouris, P. (1999). "Financial Policy and Capital Structure Choice in U.K. SMEs: Empirical Evidence from Company Panel Data", *Small Business Economics Journal*, 12(2): 113-130.
- Hall, G., Hutchinson, P., and Michael, M. (2000). "Industry Effects on the Determinants of Unquoted SME Capital Structure", *International Journal of the Economics of Business*, 7(3):297-312.
- Rajan, R., and Zingales, L. (2000). "The Firm as a Dedicated Hierarchy, a Theory of the Origins and Growth of Firms", NBER working paper no. W7546.
- Dhawan, R. (2001). "Firm Size and Productivity Differential: Theory and Evidence from a Panel of U.S. Firms", *Journal of Economic Behaviour and Organization*, 44: 269-293.
- Darko Tipuric (2002). "Is there Relationship between Firm Size and Profitability?", *Journal Zagreb International Review of Economics and Business*, Conference issue, 5: 139-154.
- Cassar, G., and Holmes (2003). "Capital Structure and Financing of SMEs: Australian Evidence", *Accounting and Finance Journal*, 43(2):123-147.
- Vijayakumar, A. and Kadirvel, S. (2003). "Profitability and Size of the Firm in Indian Minerals and Metals Industry", *The Management Accountant*, pp. 816-821.
- Abduraham, A., Hanna, A.S., Nordheim, E.V. and Russell, J.S., (2003). "Indicator Variable Model of Firms Size-Profitability Relationship of Electrical Contractors using Financial and Economic Data", *Journal of Construction Engineering and Management*, 129:192-197.
- Leledakis, G., Davidson, I., and Smith, J. (2004). "Does Firm Size Predict Stock Returns?: Evidence from the London Stock Exchange", EFMA, 2004 Basel Meetings Paper.
- Renu Luthra, Vaishampayan and Dheeraj Misra (2004). "Profitability and Size: A Study of Small Scale Industries in Uttar Pradesh", *The Icfai Journal of Management Research*, pp. 28-37.
- Bala Ramasamy, Darrylong and Matthew C.H. Yeung. (2005). "Firm size, Ownership and Performance in the Malaysian Palm Oil Industry", *Accounting and Finance*, 1: 81-104.
- Goddard Tavakoli and Wilson (2005). "Determinants of Profitability in European Manufacturing and Service Sectors Evidence from Dynamic Panel Model", *Applied Financial Economics*, 15:1269-1282.
- Abdussalam Mahmound Abu-Tapanjeh (2006). "An Empirical Study of Firm Structure and Profitability Relationship: The Case of Jordan", *Journal of Economic and Administrative Sciences*, Vol.22(1), pp.41-59.
- Raja and Suresh Kumar, A. (2006). "Is Age or Size Influences Corporate Performance?", *PSG Journal of Management*, 1(4): 51-62.
- Bhattacharyya, Surajit, Saxena and Arunima (2009). "Does the firm size the matter?: An Empirical Enquiry into the Performance of Indian Manufacturing Firms", <http://mpra.ub.uni-muenchen.de/13029>, MPRA paper no.: 13029.