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PERFORMANCE ASSESSMENT OF AUTOMOBILE INDUSTRY IN JAPAN USING RATIO ANALYSIS

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ABSTRACT

This study is on performance assessment of firms in the automobile industry using ratios as the tool of analysis. Three companies in the automobile industry of Japan are selected for the study for six years from 2010 to 2015. The companies are Honda Motor Corporation, Mazda Motor Corporation, and Toyota Motor Corporation. Data collection is from published annual reports from the companies' websites. The study shows that TMC is the most efficient in assets utilization due to the high inventory velocities recorded by the company. Mazda is the most liquid, closely followed by HMC and TMC. Further, it is concluded by the study that TMC is the riskiest because of the high proportion of debt to finance capital and assets. It is concluded that to employ high debt in the automobile industry helps to boost production of modern automobiles that will increase both production and sales volume. Profitability status of HMC is noted to be the highest in terms of GPR but became very low in terms of NPR because of the presence of high cost especially interest. The GPR of Mazda appears as the second, but its NPR becomes the highest because of interest cost that is very low since it uses little of debts. TMC records the lowest on both GPR and NPR. Present profitability status of Mazda may not be sustained because of inadequate investment in innovation and Research and Development (R/D). TMC and HMC are better options for investment at the moment.

KEYWORDS: Performance Assessment, Ratio Analysis, Published Annual Reports, Liquidity Status, Leverage Ratio, Efficiency Ratio, and Profitability Ratio

1. INTRODUCTION

Firms are expected to notify regulatory agencies of their activities and performance by means of the financial statements. This is made mandatory, especially, for firms listed in the stock markets to ensure credibility and properly guide users, including investors, creditors, researchers, labour, etc. who may require the information for different purposes; most importantly to ascertain liquidity, earnings capacity, long term soundness, and efficient management of resources.

Financial statements are the means by which the activities of a firm are communicated to the outsiders. The statement is balance sheet, profit and loss account commonly known as the income statement, and cash flow statement, which are prepared by management and examined by public accountants. Financial statements should possess the following characteristics: Understand ability, Relevance, Reliability, Completeness, and Comparability (IASB: 2001).

To do this performance assessment, ratio is a veritable tool as it will reveal liquidity position, assets efficiency utilization, profitability, market value, and debt burden of a firm. And this will help us to predict future performance, growth, and price of its stock based on the past and present information.

We have chosen firms in the automobile sector of Japan for the study and for a period of six years from 2010 to2015. The companies are Honda Motor Corporation, Mazda Motor Corporation, and Toyota Motor Corporation; and are among the leading ones in Japan in terms of production and sales volume. And they are involved in design, manufacture, and marketing of automobiles of different models and designs, i.e., among the Original Equipment Manufacturers (OEM) in Japan.

The purpose of this study is a performance assessment of the three automobile companies in Japan by means of ratios.

The remaining part of the study is arranged in the following order: section 2 Review of literature; section 3 Methodology, section 4 Data presentation, section 5 Discussion; section 6 Conclusion and suggestions.

2. REVIEW OF LITERATURE

Shumi (2016) study scrutinized financial proficiency and profitability of Beximco Pharmaceutical Ltd in Bangladesh and states that financial proficiency usually related to how a company utilises its assets, shareholders' funds, revenue and expenses. And according to him, this will enable the establishment of trends in performance that will guide future actions. The aim of the study is to analyse performance of the company. Data are from financial statements of the company from 2009-2013. Different financial ratios are computed and analysed such as liquidity ratios, leverage ratios, profitability ratios, market value ratios, and the BPL performance is evaluated. The study concludes that the financial performance of the company was satisfactory from point of view of the ratios analysed, this agrees with earlier study of the same company by Hossan & Habib (2010).

Thachappilly (2009) study is on performance evaluation using ratios as tool of analysis. In the author's view, ratio analysis helps to evaluate performance easier and quicker for investors' and suppliers of funds, concluding by advising users of financial statements generally to make use of ratio analysis to be well informed about the firms they wish to invest in.

Maria Zain (2008) discusses return on assets as an important ratio that indicates a company's ability to utilize its assets to generate income. He posits that a high ratio is an indication that a company is utilizing assets maximally to generate income. From his study, he states that low ratio here may mean a company experiencing difficulty in settling its debt obligations. He also explained briefly the profit margin as a ratio that will guide in establishing a relationship between sales and profit, which is a good indication of operating efficiency.

Nelgadde (2009) concerns his article on value of performing inventory analysis, specifically, inventory turnover ratio to showcase efficient inventory management; especially now that it has become common to defraud by inventory manipulations. He identifies three types of inventories, thus; Raw Materials (RM), Work-in-Progress (WIP), and Finished Goods (FG). He used two formulas for its computation: inventory Turnover = Cost of goods sold / Average Inventory; Average age of inventory = 360days / inventory turnover.

Jami and Bahar (2016) analyse performance in the Indian automobile industry by means of ratio. The study shows the importance of profitability in evaluating performance of a firm by highlighting specific profit potentials as indicated by ROE, ROA ROS, and operating ratios in the automobile industry. The study is for the period from 2007/2008-2013/2014. The sample selected is ten automobile companies from CNX auto INDEX of Bombay Stock Exchange. Analysis of Regression coefficient, ANOVA and Standard deviation are adopted for analysis and interpretation of results. The study found out that there is no significant relationship between the independent variables of ROA ROE, ROS, and operating ratios and the dependent variable of share price.

Barker and Powell (2005) posit that efficiency of management in effectively utilizing assets to generate income is revealed by computing the total assets turnover ratio. A higher ratio is the rule that investors should look out for when investing.

Tulsian M. (2014) carried a study on profitability analysis to throw light on the operating performance of steel companies in India. It is a comparative study spanning for the period from 2007/8-2012/12, using ratios for analysis and adopting Mean, Standard deviation and coefficient of correlation to interpret the results. The author used secondary data of the financial statements of the companies for his study. It was concluded that the gross profit ratio of the two companies was decreasing over the years, but the rate of decrease of Tata steel was less than the one of SAIL. Suggesting that Tata steel performed better. Operating ratio of SAIL is also noted to be lower than Tata steel, while Tata steel is advised to maintained its position or improve on it, SAIL is advised to improve. However, the ROE and ROA of SAIL is higher than Tata Steel, notwithstanding this, they both had a decreasing ROE and ROA over the years showing less efficiency in management of resources.

3. METHODOLOGY

In this section we describe the step by step approach towards the accomplishment of this study. This shall include: data collection method or source(s), data analysis, etc. three automobile companies are selected from the original equipment manufacturers from Japan. They are Honda Motor Corporation, Mazda Motor Corporation, and Toyota Motor Corporation. And the study covers a period of five (5) years from 2010 - 2015

3.1 Data Collection

Data for this study is from secondary source, which are mainly the published annual reports of the selected companies. In the annual reports, we made use of two statements, i.e., balance sheet and income statement to compute the various ratios.

3.2 Data Analysis

The major tool to actualize the purpose of this study is ratio. It involves expressing one set of figure in relation to another set of figure. Such a relationships is necessary in determining how a set of data affects another positively or negatively. The ratios are grouped into four areas: liquidity, efficiency or activity, leverage, and profitability. After the ratios are computed, we shall use the following statistical tools to analyse the results: Mean, Standard deviation, and coefficient of variance.

3.3 Selected Ratios and their Formulas

Liquidity Ratio

Current Ratio = Current assets / current Liability

This ratio will guide the investor on the ability of a firm to settle short terms obligations when they become due without undue stress on the part of management. Current assets include inventories, Accounts receivables, short term loans and advances, cash and cash Equivalents; while current liabilities are short term borrowings, creditors and other payable dividends payables, income tax payable.

Quick Ratio = Current assets – inventories / Current Liabilities

Quick Ratio = Cash / Current Liabilities

The difference in the three types of liquidity ratios is the definition of current assets components. Under the current ratio, all the current assets are taken into consideration, and in the case of Quick ratio current assets are redefined to be current assets less inventory. While under cash ratio, the only component considered is Cash and marketable securities.

Efficiency or Activity Ratios

The following shall be considered:

Inventory turnover ratio = Sales / Average inventory

Or

Cost of goods sold / Average Inventory

This provides a formidable test of soundness of inventory policies by management. It reveals how often inventory is sold and replenished in a year. A high ratio is always desirable because it indicates that more sales are made for more income.

Debtors' (Receivables) turnover ratio. To show how fast debtors are converted into cash, we need to calculate the Debtors' turnover ratio. It tells us the liquidity status of the firm as it relates to credit transactions.

Creditors' Turnover ratio. This ratio enables us to know how regular creditors are settled. If the time lag is short, then it calls for high liquidity state so we do not fail to honour our obligations. This implies that it is also a way of knowing liquidity status of a firm. Its formula is: Net Credit Sales / Average Accounts Payables.

Total Assets Turnover ratio. This ratio measures the contribution of assets to sales. It could then be ascertained whether the investments in assets are justifiable or not. It can be calculated by:

Total Assets ratio = Sales / Total Assets.

Leverage Ratios

Leverage in Finance and Accounting connotes the use of debt to finance assets. In other words, it is the presence of debt in the capital structure of a firm. In most cases, it shows the level of financial risk a firm is exposed to. A high ratio is generally associated with high risk and vice versa. Some of the ratios under it are:

Debt-Equity Ratio

It compares the proportion of debt in the capital of a firm. The formula is:

Debt-equity ratio = Total Liabilities / Equity capital

It shows relative contribution of debt and owners' equity to total capital of the firm. Both sources have their respective good and bad sides. High debts exposes to high risk while high equity leads to dilution of ownership and high costs too.

Total Debt-Total Assets Ratio

It is a leverage ratio that shows the amount of total assets financed by outsiders' funds. Computation is by dividing a firm's total liabilities by total assets, thus,

Total debt-total assets = Total Debt / Total assets.

Coverage Ratio

The percentage of interest paid on debt is the cost of debt, which is a prior charge on the profit and thus affects profitability. This ratio reveals the level at which earnings will decline without affecting the firm's ability to pay fixed interest charges.

Interest coverage ratio = Earnings before interests and taxes / Interest.

Profitability Ratios

Profitability is a true measure of performance, for profit is essence of business. We shall calculate some of the most important profitability ratios. They are:

Gross Profit Ratio

This ratio shows efficiency of management in respect to the amount the firm earns before deduction of all expenses. The formula for its computation is:

Gross profit ratio = Gross profit / Sales x 100.

Net Profit Ratio

From the figure of gross profit shall be deducted the expenses incurred in making the sales, and then we shall arrive at the net profit. It is calculated by:

Net profit ratio = Net profit after taxes / Sales x 100.

Return on Total Assets

This ratio shows how efficiently assets are utilized to generate profit. Formula is:

Return on Total Assets = Net profit after taxes / Sales x 100.

Return on Equity

The contribution of owners' capital to profit is measured by ROE. The formula is:

Return on equity = Net Income / Total equity capital x 100

Operating Profit Margin

It demonstrates how much of revenue is left after charging operating expenses that should be used to pay for interest and taxes. The formula is:

Operating profit margin = Operating profit / Net Sales x 100.

Market Value Ratios

Earnings per share= Net Income / Number of equity shares outstanding.

Market/Book ratio. It relates the market price of a firm's share to the firm's book value per share. Formula is:

Market /Book ratio = Market price per share / Book value per share.

4. DATA PRESENTATION

In this section, we shall present the necessary data of this study and discuss the result of our finding. The four major segments of our performance assessment through ratios are: liquidity, efficiency, leverage, and profitability; and will be discussed in relation to the selected companies.

4.1. Liquidity Ratios

Liquidity ratios relate current assets of a firm to its current liabilities as to determine the ability of a firm to settle its short term debts with minimum of stress. A high ratio implies that current assets can take care of current liabilities. It indicates the (short) liquidity status of a firm. The ratios under liquidity are mainly three;

- Current ratio,
- Quick ratio, and
- Cash ratio.

4.1.1. Current Ratio

Current ratio considers all the current assets and current liabilities. It is determined by dividing current assets by current liabilities the formula of current ratio is:

Current ratio = current assets / current liabilities.

Table 4.1 is used to display all the liquidity ratios, i.e., current ratio, quick ratio, and cash ratio. They will, however, be treated differently for better understanding, starting with current ratio.

The current ratio of HMC as shown on table 4.1 reveals that the CR has been on the decline since 2011 up to the end of the study period in 2015, though with insignificant increase in 2012 of less than 1% (0.76%). This is an indication that the liquidity status of the company is steadily declining, which calls for caution. The minimum and maximum values of Mean for CR are 1.19 and 1.35 far below the acceptable value of 2.0. This confirms the fact that the liquidity position of HMC was not adequate.

The CR of Mazda Motor Corp has a decline and increase movement all through the period. It was 1.33 times in 2010 and declined to 1.28 in 2011, and rising to 1.59 in 2012. It was down again in 2013 but increased in 2014 and 2015. None of the period was up-to 2.0 which the general accepted standard by practitioners.

On the other hand, TMC's CR shows the following situation: A continuous decrease, a small increase between the figures of 2014 and 2015 (1.07 and 1.09). And the CR is also less than the acceptable standard.

Comparative Analysis

On general observation, the CR of HMC is the best in the first two years (2010 and 2011), but Mazda had the best CR thereafter (from 2012-2015), while TMC recorded the lowest CR throughout the period. HMC has minimum of 1.19, maximum of 1.35, Mean of 1.2817 and SD of 0.06242. On the part of Mazda, the same variables stood at 1.28, 1.59, 1.3983, and 0.10998, respectively. While TMC records the following for the same variable: 1.05, 0.1.22, 1.1000, and 0.06132. An indication that the CR of Mazda is overall best while TMC records the least.

Table 4.1: Current Ratio, Quick Ratio, and Cash Ratio of Honda Motor Corp, Mazda Motor Corp, and Toyota Motor Corp

Year	Honda Motor Corp			Mazda Motor Corp			Toyota Motor Corp		
	CR	QR	Cash R	CR	QR	Cash R	CR	QR	Cash R
2010	1.35	1.07	0.327	1.33	0.80	0.512	1.22	1.09	0.389
2011	1.31	1.06	0.358	1.28	0.74	0.503	1.10	0.98	0.325
2012	1.32	1.03	0.348	1.59	1.03	0.766	1.05	0.91	0.250
2013	1.30	1.00	0.303	1.35	0.81	0.586	1.07	0.93	0.253
2014	1.22	0.95	0.251	1.39	0.81	0.591	1.07	0.94	0.291
2015	1.19	0.91	0.278	1.45	0.82	0.585	1.09	0.96	0.317

4.1.2. Quick Ratio

Quick ratio has a significant variation from current ratio in that an important component of current assets is deducted (i.e. inventory). Inventory is the slowest to be converted into cash among the items of current assets, as to determine the remaining current assets that can easily be converted to cash with minimum loss. The formula for Quick ratio is:

Quick ratio = Current assets – inventory / current liabilities.

The QR of HMC as on table 4.1 reveals a continuous decline from the start of the study period to the end, however, it has the acceptable standard of 1:1 for four years and even the last two years were 0.9. This is good and it shows that the inventory component of CA was very high and by its elimination, we can see that HMC's liquidity status is not too low. In the case of Mazda QR shows low figures of 0.80, 0.74, 1.03, 0.81, 0.81, and 0.82 for 2010, 2011, 2012, 2013, 2014, and 2015 respectively. While TMC records 1.09, 0.98, 0.91, 0.93, 0.94, and 0.96 for the same period respectively. This test of liquidity appears superior to CR, but each serves its own purpose and has slightly different interpretations.

A Comparative Analysis

The general outlook of the QR for the companies show HMC having a better liquidity status followed by TMC and Mazda has the lowest. The trend of steady decline is noted to be common to the companies, except for a small increase in the case of Mazda in 2012.

The minimum, maximum mean figures, Mean, SD, Variance in respect to QR for HMC are: 0.91, 1.07, 1.0033, 0.06314, and 0.004; and the same variables for Mazda are: 0.74, 1.03, 0.8350, 0.09975, and 0.010; while the ones for TMC are: 0.91, 1.09, 0.9683, 0.06432, and 0.004. These details show that HMT has a better QR on the basis of the Mean and the SD is the least

4.1.3. Cash Ratio

In this ratio, we are concerned only with cash and cash equivalent items. These are the most liquid of all the current assets. The formula for Cash ratio is:

Cash ratio = Cash / Current liabilities

Cash ratio of HMC shows an initial increase in 2011, but declined thereafter to the end. The indication of this is that this level of cash can be readily available at short notice to settle short term obligations, and would probably not be hindered from being available. On the part of Mazda, Cash ratio witnessed a decline in 2011, increased in 2012, declined again in 2013, went up in 2014, and at the end of the period was down again. This situation indicates an unsteady cash ratio position that needs to be stabilized by the company. However, it remains the highest of the three companies throughout the study period. TMC case has a steady decrease for three years from 2011 to 2013 and then experienced increase in the last two years of 2014 and 2015.

Comparative Analysis

Mazda Motor has the highest Cash ratio, followed by TMC and HMC having the least. Mazda has the best Cash ratio as its minimum and maximum values are the highest at 0.50 and 0.77 respectively, while those of HMC and TMC are 0.25 and 0.36, and TMC has 0.25 and 0.39 for minimum and maximum values respectively. Mean value also show Mazda having the highest at 0.5905, followed by HMC at 0.3108 and TMC at 0.3042. The above analysis indicates that companies will be able to pay their current liabilities with available cash knowing that all the current liabilities will not fall due in one month, more so, some of the other assets will also be realised in cash within the year. Cash ratio, therefore, is a better test of liquidity.

4.2. Efficiency Ratios

Activity ratios ensure the extent to which firm's efficiency in the utilization of its assets is revealed. Efficiency in the utilization of a firm's resources will lead to maximization of EBIT. It also refers to the velocity at which assets metamorphose into sales. This ratio gives a clue of how efficiently the firm is deploying available resources in total assets (both fixed and working capital). The ratio is calculated in relation to sales or cost of goods sold. The ratios under this group are (1) Inventory Turnover Ratio, (2) Debtors Turnover Ratio, (3) Creditors Turnover Ratio, (4) Working Capital Turnover Ratio, (5) Fixed Assets Turnover Ratio, and, (6) Total Assets Ratio.

4.2.1. Inventory Turnover Ratio

The main means of testing inventory soundness is to compute its Inventory turnover ratio. This ratio establishes a link between sales or cost of goods sold (COGS) during a given period and average inventory held during a given year by a company. It measures the number of times on average; inventory is sold and replenished during the year. It is calculated by this formula:

Inventory Turnover Ratio = Sales / Average Inventory

Table 4.2: ITR, ATR, and FATR of HMC, Mazda, and TMC

Year	HONDA			MAZDA			TOYOTA		
	ITR	ATR	FATR	ITR	ATR	FATR	ITR	ATR	FATR
2010	5.89	0.73	2.528	8.05	1.15	2.549	11.58	0.64	2.823
2011	7.08	0.77	2.711	9.14	1.25	2.885	12.19	0.63	3.070
2012	6.12	0.68	2.306	8.05	1.10	2.525	11.20	0.61	2.980
2013	6.53	0.78	1.957	7.18	1.13	2.739	11.17	0.67	3.220
2014	6.96	0.81	2.113	6.77	1.27	3.026	11.52	0.67	3.362
2015	7.38	0.78	1.830	6.39	1.29	3.124	10.83	0.61	2.930

Inventory turnover ratio of the three companies is shown on table 4.2 above along with other activity ratios. It shows that ITR of HMC increased from 5.89 in 2010 to 7.08 in 2011, declined to 6.12 in 2012. It increased thereafter to the end of the study period. On the part of Mazda, after the increase in 2011, there was a continuous decline throughout the period; the scenario trails the ITR of TMC. There was an increase in 2011 and then a continuous decline to the end

Comparative Analysis

When the three companies are compared, it is noticed that TMC has the highest ITR, but on closer look, it is seen that there is a steady decline in its ITR for a longer time than the gain period, the same as the case of Mazda; therefore, the steady increase of HMC will seem more appealing to investors than the others. It indicates that while efficiency in inventory management of HMC was improving, the ones of Mazda and TMC were on the decline.

4.2.2 Assets Turnover Ratio

Total assets turnover ratio measures the contribution of total assets to sales and from this ratio, it could be ascertained whether the investment in assets is justified or not. The ratio measures a company's efficiency in utilizing assets of the company to generate sales or revenue income. A higher ratio is desirable as it indicates the use of fewer assets to generate more sales revenue while low ratio indicates the company is not utilizing its assets optimally. The ratio is better interpreted when comparison is made with industry average and with other firms. The details of ATR for the companies in the present study are displayed on table 4.2 above.

Honda Motor Corp has a low ATR throughout the period with 0.73, 0.77, 0.68, 0.78, 0.81, and 0.78 for 2010, 2011, 2012, 2013, 2014, and 2015respectively. The increase element was in 2011, 2014 and 2014. In the case of Mazda, ATR was shown as 1.15, 1.25, 1.10, 1.13, 1.27, and 1.29 for the same period respectively; and Toyota Motor Corp has 0.64, 0.63, 0.61, 0.67, 0.67, and 0.61, the lowest of the three companies. ATR of Mazda is the highest followed by HMC and then trailed behind by TMC. The high ratio of Mazda may be as a result of little investment in assets and not really as a result of more sales.

4.2.3 Fixed Assets Turnover Ratio

This is only variant of ATR in that the numerator remains the same, i.e., net sales, while denominator changes, here it becomes fixed assets. The reveals efficient utilization to generate sales income. It is computed by dividing net sales by fixed assets. A comparison between companies in the same industry will give better interpretation of this ratio. Table 4.2 shows that FATR of HMC increased in 2011, but declined in 2012 and 2013, rose again in 2014 and a decline in 2015; a clear case of instability in efficiency in the use of fixed assets to generate sales income. Mazda has a FATR that saw an

increase in 2011, fall in 2012, and then continued increase till the end of the period. However, in the case of TMC, there is an increase in 2011, decrease in 2012, increase again in 2013 and 2014, and then a decline in the last year, 2015. Comparatively, TMC has a better FATR in terms of the amount of increase, but in terms of steady increase, Mazda has a better position

4.2.4 Debtor Turnover Ratio (DTR)

Debtors or Receivables turnover ratio measures efficiency with which a company collects its credit sales and collection policy. A high ratio indicates that its credit extension and receivables collection of accounts receivable are efficient, or could be that the company does more of cash sales.

On table 4.3, HMC's DTR are: 4.327, 4.658, 4.197, 4.185, 4.681, and 4.565, thereby showing a trend of increase in 2011 and a decline in 2012 and 2013. Increase again in 2014 and decline in 2015. Mazda's DTR depicts increase in 2011, decline in 2012, and increase in 2013 and 2014, then another decline in 2015. This indicates that the efficiency in credit sales collection is not stable and sustained, hence there is up and down movements. In the case of TMC, DTR shows an increase in 2011, decline in 2012, and then increase from 2013 to 2015, a more stable trend than the earlier two companies.

The general outlook of DTR of the companies show that Mazda has a higher ratio indicating a more efficient credit management, followed by HMC and then TMC trails behind them all.

4.2.5. Creditors' or Payables Turnover Ratio (CTR)

This ratio shows a company's ability to pay off its accounts payable. It depicts the pattern and speed at which payments are made to creditors. It sets a relationship between net annual credit purchases and average accounts payable. Creditors' turnover ratio = Net annual credit purchases / Average Accounts payable. A higher ratio indicates a shorter credit period enjoyed the company from its creditors and vice versa. This ratio is important because it shows how many times a company can pay its accounts payable during the year. To the creditors, higher ratio is an indication that the company is financially sound.

From table 4.3, Mazda has a higher CTR for almost the entire period, except in 2015 when TMC records the highest. When gauged from this perspective, the company has a better liquidity and suppliers' confidence. However, the trend of changes in the CTR of TMC appears more reliable than Mazda because of stability of its rising profile.

4.2.6. Working Capital Turnover Ratio

Working capital ratio of a company indicates how well it is using working capital to support a given level of sales. A high ratio is an indication that management is efficient in utilizing working capital to support sales, and on the other hand, low ratio indicates heavy investment in inventory and accounts receivable which lead to high amount of bad debts and obsolete inventory.

HMC proves to be more efficient in utilizing current assets and current liabilities to support sales which is followed by Mazda and then by TMC

Table 4.3: DTR, CTR, and WCTR of HMC, Mazda, and TMC

YEAR	HONDA			MAZDA			TOYOTA		
	DTR	CTR	WCTR	DTR	CTR	WCTR	DTR	CTR	WCTR
2010	4.327	6.266	7.185	12.544	7.983	9.806	3.109	7.494	4.366
2011	4.658	7.194	7.966	15.061	11.180	13.061	3.223	9.121	5.102
2012	4.197	5.451	6.856	12.246	8.318	5.541	2.849	6.472	4.113
2013	4.185	7.261	10.400	12.841	7.886	8.206	2.933	7.783	5.534
2014	4.681	8.713	15.687	14.893	8.110	8.394	3.203	8.400	6.147
2015	4.565	6.682	13.393	14.124	8.008	7.405	3.214	11.321	7.949

4.3. Leverage Ratios

Leverage ratio or sometimes called solvency ratio is calculated to determine the long term financial soundness or solidity of a company. It indicates the proportion of outsiders fund in the capital or funding the company. Some companies are high levered; some are low levered, while others are moderately levered. Either way, advantages and disadvantages abound, firms are usually advised to strike a balance between them. We shall discuss some ratios under it: debt-equity ratio, debt-total assets ratio, and coverage ratio. Table 4.4 shall present the needed information about the leverage ratios.

Table 4.4: Debt-Equity Ratio (D/E) and Debt-Total Assets Ratio (D/TA) of HMC, Mazda, and TMC

YEAR	HONDA		MAZDA		TOYOTA	
	D/E	D/TA	D/E	D/TA	D/E	D/TA
2010	2.69	0.62	0.01	0.74	2.93	0.64
2011	2.60	0.60	0.01	0.76	2.89	0.64
2012	2.68	0.62	0.02	0.75	2.91	0.64
2013	2.71	0.60	0.03	0.74	2.92	0.65
2014	2.64	0.59	0.05	0.70	2.86	0.63
2015	2.59	0.60	0.03	0.64	2.84	0.65

4.3.1 Debt-Equity Ratio (D/E)

Debt-equity ratio is a solvency ratio that measures the amount of debt used in financing the total assets and equity in financing the assets of a firm. It shows the relationship between outsiders fund and owners fund in the financing of the assets of a firm. Solvency is better when this ratio is less and the firm becomes riskier to invest in with a higher ratio. While a low ratio is good for creditors because of safety of their money, a high ratio is better for the equity holders because of the benefit they stand to gain from the fund provided by the creditors. A comparison with industry average and other firms in the same industry is always better.

TMC has a higher D/E at 2.897, followed by HMC with 2.6517, and finally followed by Mazda with 0.0250. while we would consider Mazda as the least risky to invest in and TMC the riskiest, it should interest to know that certain industries require more debt investment than the other, and one of such industries requiring high investment and high debt is the automobile industry. Therefore, Mazda needs more investment and by extension more debt financing. The reason being that it is highly dependent on high technology, innovations and Research and Development to survive, which requires enormous capital investment.

4.3.2 Debt to Total Assets Ratio

Debt-to-assets ratio is a leverage ratio that measures the percentage of a company's total assets financed by outsiders (debt) and what percentage by investors (owners). It calculates total debts as a percentage of total assets.

On table 4.4, debt-total assets ratios of the three companies under study are depicted. Mazda has the highest D/A ratio for the entire period recording 0.744, 0.76, 0.75, 0.74, 0.70, and 0.64 for 2010, 2011, 2012, 2013, 2014, and 2015 respectively; while TMC has 0.64, 0.64, 0.64, 0.65, 0.63, and 0.65 respectively for the same period; and finally followed by HMC with 0.62, 0.60, 0.62, 0.60, 0.59, and 0.60 respectively. In the case of Mazda, it shows an increase only in 2011 and thereafter, there is a continued decline till the end of the period. TMC's D/A was stable for three years before an increase in 2013, decline in 2014 and finally an increase in 2015. The situation is however, different for HMC who experienced decline in 2011, increase in 2012, another decline in 2013, and 2014 and an increase in 2015. On the whole, Mazda is the most levered of them all from the point of view of financing total assets, followed by TMC, and HMC. The higher the leverage, the higher also is the financial risk, which is the position Mazda creditors are exposed to at this time.

4.4. Profitability Ratios

Profitability is the driving force for any economic activity. Business activity exists to satisfy the interest and welfare of the owners. And based on this premise, a business has to make enough profit that will add value to the welfare of its owners; this will ensure survival and growth. These ratios are expressed in terms of percentage. The ratios relate to sale, bulk of the revenue of business is as a result of its sales efforts; hence huge resource in marketing activities to ensure increase and steady revenue through sales.

4.4.1 Gross Profit Ratio

Financial operations efficiency is the strength of the profitability of the business. And this is what gross profit ratio measures. It establishes a relationship between the prices, sales volume, and cost. Gross profit is found out by deducting cost of goods sold from net sales. It measures efficiency in production and pricing policy. A high gross profit ratio signifies the ability of a firm to produce at a low cost. The ratio is computed by the following formula:

Gross Profit ratio = Gross profit / Sales x 100.

The gross profit ratios of the companies under study in respect of gross profit, net profit, return on equity, and return on assets are displayed on table 4.5 below.

Table 4.5: Gross Profit Ratios, Net Profit Ratio, Return on Equity, and Return on Assets of Honda, Mazda and Toyota

Year	Honda				Mazda				Toyota			
	GPR	NPR	ROE	ROA	GPR	NPR	ROE	ROA	GPR	NPR	ROE	ROA
2010	25.2	4.2	6.44	2.3	20.1	12.0	22.6	13.3	12.0	1.1	2.1	0.71
2011	27.3	6.4	12.17	4.6	22.4	15.0	32.7	24.9	12.5	2.2	3.95	1.36
2012	25.5	2.9	4.78	1.8	16.1	9.7	15.2	11.1	11.8	1.5	3.72	0.94
2013	25.6	5.5	7.78	2.9	17.2	10.2	16.3	13.0	15.5	4.4	8.48	2.94
2014	26.0	6.3	10.48	3.39	16.6	10.0	12.3	8.8	19.0	7.1	13.70	4.74
2015	22.5	5.0	7.82	3.0	15.9	9.5	12.4	9.1	19.8	8.0	13.91	4.87

Under GPR, table 4.5 shows that HMC did better than Mazda and TMC; it reveals for HMC thus, 25.2%, 27.3%, 25.5%, 25.6%, 26.0%, and 22.5% for 2010, 2011, 2012, 2013, 2014, and 2015 respectively; for Mazda are 20.1%, 22.4%, 16.1%, 17.2%, 16.6%, and 15.9% respectively during the same period; and TMC has the following 12.0%, 12.5%, 11.8%, 15.5%, 19.0%, and 19.8%also during the same period. The data of HMC may be the highest, but has been experiencing increasing and decreasing trend over the period, but TMC that has the second highest data is noticed to have a rising trend

after the decline in 2012 which we consider a better result, meanwhile, Mazda has the lowest GPR and it also on a declining trend which cannot be said to be comfortable.

4.4.2. Net Profit Ratio

We can, on the basis of Net Profit ratio, determine the profitability of a business.

The position of NPR is also shown on table 4.5 where it reveals that Mazda has the highest best record of NPR for the period under investigation; this is followed by HMC and then TMC.

4.4.3 Return on Equity

Equity holders are the real owners of a company, and whatever is done by the directors should be a reflection of the desires and interests of the equity shareholders. Therefore, gross profit, net profit, return on assets, return on capital employed, may not mean much if nothing is left as a return on equity... ROE measures how efficiently a company has or can use the money provided by equity shareholders to generate profit that will bring the company on the path of growth. Higher ratio is always better in case of ROE because it shows that investors' money is efficiently used, which will be of high interest to potential investors.

Return on Equity =Equity Earnings / Total Equity Capital X100.

Table 4.5 also depicts the ROE and ROA of the companies. It reveals that in terms of ROE Mazda has the best result showing 22.6, 32.7, 15.2, 16.3, 12.3, and 12.4 for 2010, 2011, 2012, 2013, 2014, and 2015 respectively; while HMC has 6.44, 12.17, 4.78, 7.78, 10.48, and 7.82 for the same period; and TMC has 2.1, 3.95, 3.72, 8.48, 13.70, and 4.87 also for the same period. The high ROE of Mazda indicates that the company is making good use of earnings retained (Buffett & Cark: 2011). It is observed that the ROE of Mazda has been unsteady with an increase in 2011, decrease in 2012, increase in 2013, a decrease in 2014 and another increase in 2015; this not too good, but better than the others in absolute terms. HMC witnessed increase in 2011, decrease in 2012, and then increase in 2013 and 2014, before sliding again in 2015. However, TMC experienced increase in 2011; it also has a decline in 2012, which was the only year of decrease for the period, before witnessing increase from 2013 to 2015. It is also noticed that the later years of HMC and TMC are better than the case of Mazda which show improvement in the two earlier ones.

4.4.4. Return on Assets (ROA)

Return on Assets (ROA) makes us to know how efficient a company is putting its assets to use (Buffet & Clark: 2011). It measures a company's efficiency. The focus here is to know what the company investment in assets has yielded in terms of returns. The main purpose of investment in assets is to generate income and profits, and this is what this ratio helps to determine. Generally, ROA is a return on investment of the company, as it is known; assets produce income which eventually produces profits. The formula is:

ROA= Net Income/Average Total Assets X 100.

A high ratio shows a favourable condition to investors since it is an indication of more effective management of company assets to generate greater amounts of net income. Mazda has the highest ROA throughout the period, except in 2014when HMC's ROA was a little bit higher, this followed by the performance of HMC, and finally followed by TMC trailing behind. In this case of ROA, Mazda has a trend of rising and declining scenario in addition to high absolute figures.

As revealed by table 4.5, the figures are 13.3, 24.9, 11.1, 13.0, 8.8, and 9.1 respectively for 2010, 2011, 2012, 2013, 2014, and 2015; as against 2.3, 4.6, 1.8, 2.9, 3.9, and 3.0 of HMC for the same period respectively; while TMC records 0.71, 1.36, 0.94, 2.94, 4.74, and 4.87 for the same period respectively also.

4.4.5. Earnings per Share and Dividend per Share

EPS Ratio measures how much in dollar value of net income have been earned by each common share. Net income here is net income less preference dividend. It is usually expressed in monetary value. The formula is:

Earnings per share (EPS) Ratio = Net Income (after preference dividend) / No of Equity Shares Outstanding.

Basically, we invest in shares to earn dividend or to sell later at a higher price. This ratio is very important to potential and existing shareholders because the payment of dividend depend largely on income. Hence it is required by public companies to show their EPS in their reported Income statement, below the Income Statement. A higher EPS is an indication of higher earnings which is good for the investor.

Dividend per share is a means to determine the dividend payout on common stock. From this ratio, an investor will estimate the dividend that should accrue to him/her if investment is made in a particular company. The formula for the calculation of Dividend per share is:

$$\frac{\text{Dividends}}{\text{No. of Outstanding Equity shares}}$$

Investor who will want to know companies who pay dividends, before making investment decision should the Dividend per share ratio of the company. However, it should not be concluded that companies not paying dividend regularly are not doing well, some companies may decide to reinvest their earnings if they have better investment opportunities, instead of paying dividend in a particular year.

Table 4.6: Earnings per Share (EPS) and Dividend per Share (DPS) of HMC, Mazda, and TMC

Year	HONDA		MAZDA		TOYOTA	
	EPS	DPS	EPS	DPS	EPS	DPS
2010	1.59	0.39	0.27	0.03	1.44	1.25
2011	3.02	0.60	0.19	0.07	3.13	0.60
2012	1.43	0.85	0.28	0.05	2.19	1.15
2013	2.17	0.78	0.36	0.06	6.46	1.82
2014	3.37	0.80	0.33	0.08	11.17	3.08
2015	2.35	0.71	0.37	0.09	11.44	3.16

From table 4.6, it is noted that the EPS of TMC is the highest of all the three companies having 1.44, 3.13, 2.19, 6.46, 11.17, and 11.44 for 2010, 2011, 2012, 2013, 2014, and 2015 respectively; as against the performance of HMC for the same period at 1.59, 3.02, 1.43, 2.17, 3.37, and 2.35; and for Mazda showing at the same period at 0.27, 0.19, 0.28, 0.36, 0.33, and 0.37.

Their DPS also show the same pattern where TMC has 1.25, 0.60, 1.15, 1.82, 3.08, and 3.16; HMC has 0.39, 0.60, 0.85, 0.78, 0.80, and 0.71; and finally, Mazda has 0.03, 0.07, 0.05, 0.06, 0.08, and 0.09 for the period 2010, 2011, 2012, 2013, 2014, and 2015 respectively in each case.

Invariably, in respect to EPS and DPS, TMC has the best performance, and this is followed by HMC and trailed

far behind by Mazda. Investors and creditors can, on the basis of this indicator decide to invest or grant credit as the case may be.

5. DISCUSSIONS

This study is mainly about assessment of the performance of companies, by adopting ratios as a suitable tool.

In terms of efficiency in assets utilization, TMC is more efficient because its ITR is the highest. A high ITR is indicative of more sales and more replenishment, leading to more income. The danger of low ITR is that it could be interpreted to be as a result of low sales and obsolete inventory that may lead to change of loyalty be existing customers, which will affect profit through low sales. A higher activity ratio is always desirable and favourable.

On the basis of liquidity, all the three companies did not perform satisfactorily because their CR is below the acceptable upper limit of 2:1; and QR also not up to 1:1. However, on comparative basis HMC records the highest liquidity position and the other companies should improve on their liquidity status.

Solvency is determined by percentage of debt financing. The study reveals that TMC employs more debt financing than equity and it's followed by HMC, but Mazda is trailing far behind them. The trend in this ratio is that of decline, increase and decline, etc. for all the companies. However, the proportion of debt financing in the case of Mazda is too low to sustain automobile company that requires high expenditure on innovation and Research and Development (R/D). A high debt/equity spurs productivity, sales and by extension, profitability in the industry.

Profitability ratio is the next category that also interests users of financial statements for various reasons. The ability of a company to make sustained profits indicates that it is on the part of sustained growth. It is a major performance assessment criterion of all times that has undoubtedly stood the test of time. Table 4.5 shows that HMC has the highest GPR throughout the period, this followed by TMC and then by Mazda. This pattern, however changed in terms of NPR where Mazda has the highest ratio, followed by HMC, and the least become TMC. Ordinarily, we may say that it is because of prudent management of costs on the part of Mazda, but further investigation in the financial statements reveals that it may be due to low sales and business contraction, though prudent management of cost cannot be totally ruled out as a contributing factor. This situation has also affected the ROE and ROA of the companies. The ROE and ROA of Mazda remained the highest but followed a pattern of declining in most part of the period; whereas TMC though has a lower ROE and ROA but with potential of growth. A steady growth over time may be better than a high figure at one time and a steep decline thereafter.

6. CONCLUSION AND SUGGESTIONS

6.1 Conclusion

This section concludes the study in a summarised form and also proffers suggestions for improvement. The present study is aimed at assessing the performance of automobile industry using ratio analysis tool of measurement

Toyota Motor Corp was most efficient in terms of sales and replenishments made in the year and efficiency in assets and inventory management. This trend leads to more sales revenue and by extension profitability. Mazda has the best indication of utilization of assets to generate revenue by having the highest ATR. Users look for companies that have prudent management of resources

This study shows that HMC is the most liquid on the basis of the QR being the highest. The high CR of Mazda was the high presence of unsold sold in the current assets, hence we consider QR a better measure of liquidity. Moreover, the low cash flow of Mazda cannot support the low QR which is applicable with HMC and TMC, though HMC remains most liquid.

Risk level on the basis of which most investors decide which company to invest in and creditors decide companies to grant credit is determined by looking at the leverage opposition of companies. Companies more levered are of higher risk than the low levered ones. TMC employed the highest proportion of debt in the study period to finance its capital and finance its assets, hence it is the company exposed to the highest risk in this study

Profitability is a true test of performance or success in business. A business that has sustainable growth should be on the part of making profit. High cost of running business affected NPRs of HMC and TMC, especially in relation to interest on debts; hence Mazda's NPR is highest. EPS and DPS of TMC is the best, thus will lead to higher volume traded stock in the market. On this basis, investment in TMC will be more rewarding and followed by HMC. However it is expedient that HMC and TMC be more prudent in managing costs to boost net profits.

The study therefore concludes that ratio is a vital tool in assessing performance of a firm by revealing its liquidity, efficient management of resources, exposure to risk and profitability potential. These variables will reveal strengths, weaknesses, opportunities, and threats associated with a firm.

6.2 Suggestions

The authors suggest the followings:

Ratios should be applied with ultimate caution, because of inherent limitations

A few ratios may not be adequate to enable us take far reaching investing and credit decision. Many ratios need to be computed and analysed before a decision is made.

Sources of data on the internet should be authenticated directly from the company concerned where possible.

Watch out for 'noise' in the capital market that almost all the times influence trading.

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