Du Pont Analysis Of Mahindra And Mahindra From Year Ending 2013 to 2017

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ABSTRACT
This study attempts to conduct a Du Pont analysis of the company Mahindra and Mahindra. This method decomposes profitability ratio into its components in order to understand what derives the profits of the company and what component is a drag on it.It evaluates the contribution of assets to profitability and also evaluates how the leverage is working for the company. The analysis helps the company to identify its areas of strengths and weaknesses. The data for the purpose of this study has been derived from the annual report of Mahindra and Mahindra. For the financial year 2013 to 2017.

Keywords: DuPont Analysis, Profitability, leverage, turnover

INTRODUCTION

DuPont analysis is a method of performance measurement that was started by the DuPont Corporation in the 1920s. With this method, assets are measured at their gross book value rather than at net book value to produce a higher return on equity (ROE). It is also known as DuPont identity.

According to DuPont analysis, ROE is affected by three things: operating efficiency, which is measured by profit margin; asset use efficiency, which is measured by total asset turnover; and financial leverage, which is measured by the equity multiplier.

Therefore, DuPont analysis is represented in mathematical form by the following calculation:

ROE = Profit Margin x Asset Turnover Ratio x Equity Multiplier.

COMPONENTS OF DU PONT ANALYSIS

DuPont analysis breaks ROE into its constituent components to determine which of these components is most responsible for changes in ROE.

Net margin: Expressed as a percentage, net margin is the revenue that remains after subtracting all operating expenses, taxes, interest and preferred stock dividends from a company's total revenue.Profit margin shows the operating efficiency of the business.

Asset turnover ratio: This ratio is an efficiency measurement used to determine how effectively a company uses its assets to generate revenue. The formula for calculating asset turnover ratio is total revenue divided by total assets. As a general rule, the higher the resulting number, the better the company is performing.

Equity multiplier: This ratio measures financial leverage. By comparing total assets to total stockholders' equity, the equity multiplier indicates whether a company finances the purchase of assets primarily through debt or equity. The higher the equity multiplier, the more leveraged the company, or the more debt it has in relation to its total assets. The leverage analysis shows how well a company uses debt to produce incremental returns.

DuPont analysis involves examining changes in these figures over time and matching them to corresponding changes in ROE. By doing so, analysts can determine whether operating efficiency, asset use efficiency or leverage is most responsible for ROE variations.

Using these three factors, a DuPont analysis allows analysts to dissect a company, efficiently determine where the company is weak and strong and quickly know what areas of the business to look at (i.e., inventory management, debt structure, margins) for more answers. The measure is still broad, however, and is not a substitute for detailed analysis.The DuPont analysis looks uses both the income statement as well as the balance sheet to perform the examination. As a result, major asset purchases,

acquisitions, or other significant changes can distort the ROE calculation. Many analysts use average assets and shareholders' equity to mitigate this distortion, although that approach assumes the balance sheet changes occurred steadily over the course of the year, which may not be accurate either. Figure 1 depicts the flow chart of Du Pont Model

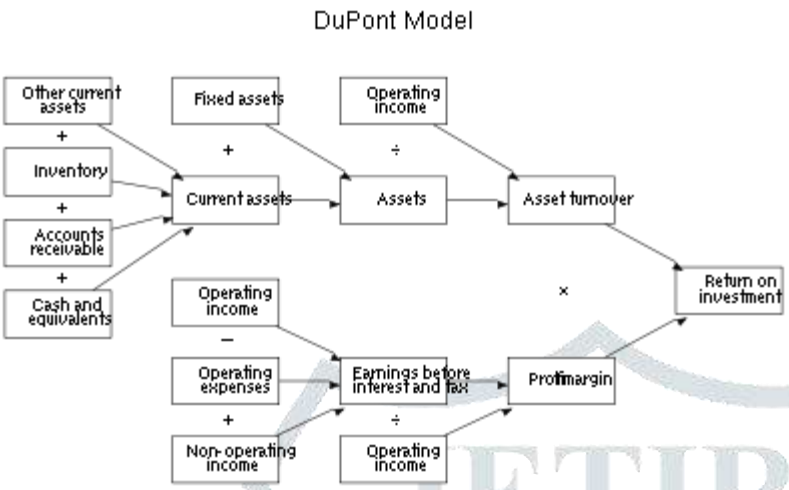


Fig 1: **Du Pont Model**

MAHINDRA AND MAHINDRA LIMITED

Mahindra and Mahindra is an Indian multinational car manufacturing corporation headquartered in Mumbai, Maharashtra, India. It is one of the largest vehicle manufacturers by production India and the largest manufacturer of tractors in the world. It is a part of Mahindra Group, an Indian conglomerate, a US $19 billion global federation of companies.Mahendra group operates in 20 key industries and have an operational presence in over 100 countries and employ more than 200,000 people. The operations of the group covers a vast range of activity viz., Mobility to Rural Prosperity and IT, from Financial Services to Clean Energy and Business Productivity. Mahendra&Mahendra Ltd, a flagship company of the group, is known for rugged and reliable automobiles,.It was ranked 21st on a list of top companies in India by Fortune India 500 in 2011. Its major competitors in the Indian market include Maruti Suzuki, Tata Motors, Ashok Leyland and others.

BUSINESS HIGHLIGHTS

- In Financial Year 2016-17, the business sustained its leadership position in the domestic Utility Vehicle (UV) segment with 29.2% market share .
- The company has continued to maintain leadership position in the LCV < 3.5T segment with a market share of 50%+ for thesecond consecutive year.
- The Farm Equipment Sector of the company registered a growth of 23%, outpacing the industry growth rate of 18% and also achieved the highest ever market share of 42.7%, strengthening their leadership position in the domestic market for 34 years.
- The company has also gained market share in the Medium & Heavy Commercial Vehicles (MHCV) segment with their flagship brand, the Blazo continues to contribute major volumes to its portfolio.
- crossed the 50,000 mark in exports, consistently maintaining a 15% CAGR growth rate for seven consecutive years, both the Auto and Tractor businesses achieving highest ever export volumes.

The principal business activities of the company which contribute 10% or more to the turnover of the company are shown in table 1

Table 1: Principal Business Activities of Mahendra&Mahendra Ltd.

	Name and Description of main Products/Services	% to total turnover of the Company
1	Passenger Cars	40.15%
2	Tractors used in agriculture and forestry	27.25%
3	Commercial vehicles such as vans, lorries, over the road tractors for semi-trailers, etc.	22.81%
	TOTAL	90.21%

Source: Annual Report of Mahendra&Mahendra Ltd for the year ending 2017

LITERATURE REVIEW

Prior research documents that the DuPont components of return on net operating assets (profit margin and asset turnover) represent an incremental source of information about the operating characteristics of a firm and are useful tools for market participants (Soliman, 2008).
Kathryn Chang **et all,**investigates the usefulness of the information contained in the DuPont Financial Analysis Model (DuPont analysis, hereafter) for the health care industry equity analysts and stock marketinvestors. Their study shows that profit margin is more persistent than asset turnoverfor US for-profit health care providers, which contradicts theresults documented in prior literature that considered all industries.

Liesz (2002) in the conference titled'Really Modified Du Pont Analysis: Five ways to Improve Return on Equity', explained the elegance of ROA being affected by a profitability measure and an efficiency measure led to the DuPont method becoming a widely-used tool of financial analysisIn the 501970's, emphasis in financial analysis shifted from ROA to return on equity (ROE), and the DuPont model was modified to include the ratio of total assets to equity.
Blumenthal (1998) in the magazine article titled, 'It is The Gift to be Simple: Why the 80-year-old Du Pont odel Still has Fans', explains howROA at this point is a common corporate goal and the realization that ROA was impacted by both profitability and efficiency led to the development of a system of planning and control for all operating decisions within a firm. This became the dominant form of financial analysis until the 1970s.
Gitman (1998) has defined how in the 1970s the generally accepted goal of financial management became'maximizing the wealth of the firm's owners' and focus shifted from ROA to ROE. This led to the first major
modification of the original Du Pont model. In addition to profitability and efficiency, the way in which a firm financed its activities, i.e. its use of debt or"leverage" became a third area of attention for financial managers. The new ratio of interest was called the equity multiplier, which is determined by the equation (total assets / equity
The Du Pont identity provides an excellent way to get a quick snapshot view of the overall performance of a firm in three critical areas of ratio analysis. Isberg (1998) in his article titled, 'Financial Analysis with The Du
Pont Ratio: A Useful Compass', argued that even the modified Du Pont model did not have its critics. At least one author Boyd, 1989 argued that the Du Pont model did not adequately distinguish between "favourable" leverage and "unfavourable" leverage, based upon the impact of preferred stock in a firm's capital structure.
More recently, Hawawini&Viallet (1999) offered yet another modification to the Du Pont model. This modification resulted in five differentratios that combine to form ROE. In their modification, they acknowledged that the financial statements the firms prepare for their annual reports (which are of most importance to creditors and tax collectors) are not always useful to managers making operating and financial decisions.

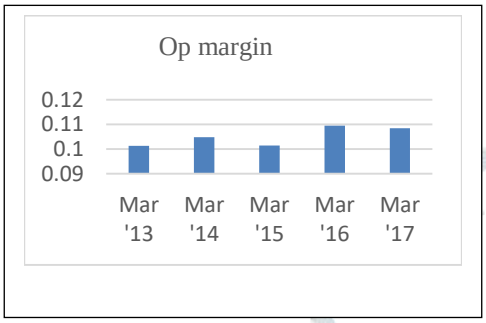
DATA ANALYSIS AND INTERPRETATION:

Table 1 shows the DuPont Analysis of Mahendra&Mahendra ltd. For the financial years ending 2103 to 2017.Return on equity is calculated on the basis of three factors, namely, Gross profit margin, Total assets turnover and equity multiplier. The analysis is done for a five year period starting from the financial year ending March 2013 to the financial year ending in March 2017.
Table 1 : DuPont Analysis of Mahendra&Mahendra ltd. For the financial years ending 2103 to 2017.

Particulars/Financial Year	2013	2014	2015	2016	2017
Operating margin (Operating Profit/Gross revenue)	0.10	0.10	0.10	0.11	0.11
Asset Turnover Ratio (Gross Revenue/Total Assets)	2.43	1.98	1.88	2.10	2.43

Return on Assets (ROA) Op. Profit Margin*Turnover Ratio	0.25	0.21	0.19	0.23	0.26
Debt/Equity	1.11	1.08	1.14	1.22	1.22
Avg.Int. rate(AIR)=intt/TL	0.01	0.01	0.01	0.01	0.01
ROE=ROA+((ROA-AIR)+D/E	0.51	0.43	0.40	0.50	0.57

Figures 2 (a) to 2 (d) show the components of the Du Pont Analysis, viz., the operating margin, asset turnover ratio, equity multiplier and return on equity for the five year study



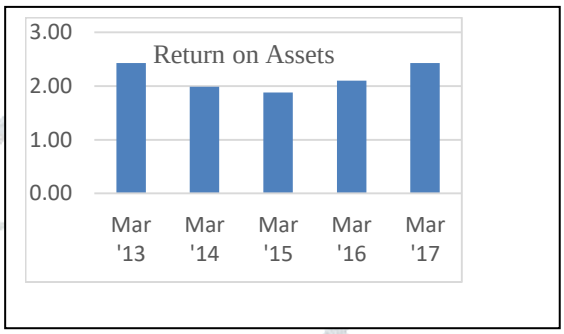
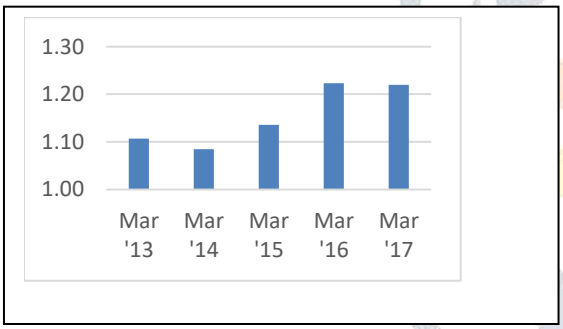


Fig 2(a): Operating MarginFig 2(b): Asset Turnover Ratio



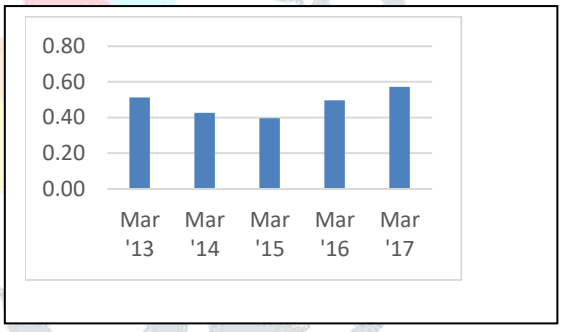


Fig 2(c): Equity Multiplier Fig 2(d): Return on Equity

The company is showing a consistent operating margin ratio of 10% for the years 2013 to 2015 which has marginally increased to 11% in the years 2016 and 2017.The asset turnover ratio shows a decline in the first three years but has recovered in the year 2016 and 2017 where it is back at the level of year 2013. This has resulted in a decline of return on assets in the first three years. Hence the decrease return on asset is clearly the result of decrease in the asset turnover ratio indicating that the assets were under utilized in the year 2014 and 2015.The ROA increased to 23% in year 2016 and further to 26% in the year 2017 . This increase due to two reasons: increase in the operating profit margin as well as asset turnover ratio.

The return on equity is 51% in year 2013 which has reduced to 43% in the year 2014.This is due to decrease in asset turnover ratio and also decrease in the equity multiplier, I.e., the debt/ to equity ratio which has declined from 1.1 to 1.08. The average interest rate is constant and hence it has not affected the ROE..The decline in the ROE in year 2015 is only due to reduction in assets turnover ratio as the equity multiplier is higher than the level it was in the year 2013. The increase in ROE in year 2016 and 2017 is on account of increase in all the three components , i.e., gross profit margin, asset turnover ratio and the equity multiplier indicating that the company is aggressively working towards providing a higher return to its shareholders.

CONCLUSION

The Du Pont analysis of the company has helped in identifying asset turnover ratio as the main reason behind the decline in the return on Assets and Return on Equity of the company. With the improvement in the ratio, coupled with increase in debt financing and operating margin has helped the company in increasing the Return on equity in the last two years

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