"Status of Supply Chain Finance in FMCG companies- a Benchmarking Approach"

More, Dileep Satappa and Maddali, Ravi Kiran

Indian Institute of Management, Calcutta, Indian Institute of Technology, Kharagpur

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"Status of Supply Chain Finance in FMCG companies-

a Benchmarking Approach"

Prof. Dileep Satappa More
Indian Institute of Management, Calcutta
Email- dileep_more@iimcal.ac.in

Ravi Kiran Maddali
Indian Institute of Technology, Kharagpur
Email- ravi.maddali03@gmail.com

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Abstract

A company's performance significantly depends on how well a company manages its finances keeping in view the short term hurdles and long term goals. One objective of financial statement analysis is to determine firm value. Research suggests that a firm's value is a function of the expected future growth and profitability of the firm (e.g., Ohlson, 1995). The purpose of this study is to assess the performance of the top players in the Indian FMCG industry and benchmark the best player's actions in different scenarios to be the best practice in the industry. The author mainly concentrates on which company stood in what place in tacking different finance constraints of supply chain. Inputs and outputs are strategically selected to show cases ranging from short term transfers to company capital structure. The results show that each company is good at different cases and they did earn them with good management. Also it is evident that company that has been managing its finances well was rewarded with a good market share.

Key Words: Supply Chain, FMCG, DEA Analysis, Ratio Analysis

Introduction

A well designed and implemented financial management is expected to contribute positively to the creation of a firm's value (Padachi 2006). In this article we have categorized the cases into 3 parameters that define the wellness of company finance. They are *Liquidity, Profitability and Asset Turnover* efficiencies. *Liquidity* refers to quickly convert investments into cash or assets with minimal cost and in less time. *Profitability* refers to the efficiency of a company in making profits from existing business. *Asset Turnover* refers to converting its available assets into the sales through efficiently managing them. An important role of these efficiencies is that they impact the attractiveness of a business for investors, suppliers and marketers. It is obvious that, the importance of efficient working capital management is unquestionable to all business activities. Because, business capability relies on its ability to effectively use (manage) receivables, inventories and payables, Filbeck and Kruger (2005). Inefficient working capital management not only reduces the profitability of business but also ultimately lead to financial crises, Chowdhury and Amin (2007).

Objective of the study:

- To find the efficiency of a set of companies in different scenarios that speak about different aspects of a company
- To identify the strategy and the actions of the efficient companies that have kept them ahead
- To benchmark these strategies for that industry

Research Methodology of the study:

DEA:

Data envelopment analysis (DEA) is receiving increasing importance as a tool for evaluating and improving the performance of manufacturing and service operations. It has been extensively applied in performance evaluation and benchmarking of schools, hospitals, bank branches, production plants, etc. (Charnes et al., 1994)

DEA is a multi-factor productivity analysis model for measuring the relative efficiencies of a homogenous set of decision making units (DMUs). The efficiency score in the presence of multiple input and output factors is defined as:

$$Efficiency = \frac{weighted\ sum\ of\ outputs}{weighted\ sum\ of\ inputs}$$

Assuming that there are n DMUs, each with m inputs and outputs, the relative efficiency score of a test DMU p is obtained by solving the following model proposed by (Charnes et al. 1978):

$$\max \quad \frac{\sum_{k=1}^{s} v_k y_{kp}}{\sum_{j=1}^{m} u_j x_{jp}}$$

$$s.t \quad \frac{\sum_{k=1}^{s} v_k y_{ki}}{\sum_{j=1}^{m} u_j x_{ji}} \leq 1 \quad \forall i$$

$$v_k, u_j \geq 0 \quad \forall k, j$$

Where

k = 1 to s,

j = 1 to m,

i = 1 to n,

y_{ki} = amount of output k produced by DMU i,

x_{ji} = amount of input j utilized by DMU i,

v_k = weight given to output k,

u_j = weight given to input j.

The fractional program shown as (2) can be converted to a linear program as shown in (3). For more details on model development see Charnes et al. (1978).

$$
\begin{aligned}
\max \quad & \sum_{k=1}^{s} v_k y_{kp} \\
s.t \quad & \sum_{j=1}^{m} u_j x_{jp} = 1 \\
& \sum_{k=1}^{s} v_k y_{ki} - \sum_{j=1}^{m} u_j x_{ji} \leq 0 \quad \forall i \\
& v_k, u_j \geq 0 \quad \forall k, j
\end{aligned}
$$

$$
\begin{aligned}
\min \quad & \theta \\
s.t \quad & \sum_{i=1}^{n} \lambda_i x_{ji} - \theta x_{jp} \leq 0 \quad \forall j \\
& \sum_{i=1}^{n} \lambda_i y_{ki} - y_{kp} \geq 0 \quad \forall k \\
& \lambda_i \geq 0 \quad \forall i
\end{aligned}
$$

The above problem is run n times in identifying the relative efficiency scores of all the DMUs. Each DMU selects input and output weights that maximize its efficiency score. In general, a DMU is considered to be efficient if it obtains a score of 1 and a score of less than 1 implies that it is inefficient.

Benchmarking in DEA

For every inefficient DMU, DEA identifies a set of corresponding efficient units that can be utilized as benchmarks for improvement. The benchmarks can be obtained from the dual problem shown as (4).

Where

θ= efficiency score, and

s = dual variables.

Although benchmarking in DEA al- lows for the identification of targets for improvements, it has certain limitations. A difficulty addressed in the literature regard- ing this process is that an inefficient DMU and its benchmarks may not be inherently similar in their operating practices. This is primarily due to the fact that the compos- ite DMU that dominates the inefficient DMU does not exist in reality. To overcome these problems researchers have utilized performance-based clustering methods for identifying more appropriate benchmarks (Doyle & Green, 1994; Talluri & Sarkis, 1997). These methods cluster inherently similar DMUs into groups, and the best performer in a particular cluster is utilized as a benchmark by other DMUs in the same cluster.

Performance Ranking in DEA

Traditional DEA models do not allow for ranking DMUs, specifically the efficient ones. Also, it is possible in DEA that some of the inefficient DMUs are in fact better overall performers than certain efficient ones. This is because of the unrestricted weight flexibility problem in DEA. In the determination of relative efficiency, problem (3) allows for unrestricted factor weights (v_k and u_j). Thus, a DMU can achieve a high relative efficiency score by being involved in an unreasonable weight scheme (Dyson & Thannassoulis, 1988; Wong & Beasley, 1990).

DMU Selection:

The 7 leading companies in the Indian FMCG industry have been chosen as the sample for the analysis

Table 1. Sample Companies

S No	Company Name
1	HUL
2	ITC
3	P&G
4	Dabur
5	Nestle
6	Colgate
7	Marico

Hindustan Unilever Limited:

Hindustan Unilever Limited (HUL) is the only company in Indian consumer goods market that has products in more segments than any other company of the same sector. HUL is India's one of the largest fast moving consumer goods company, with leadership in Home, Personal Products and others.

ITC Limited:

ITC is an Indian conglomerate established in 1910 and specializes in Fast Moving Consumer Goods (FMCG), Hotels, Paperboards, Paper & Packaging and Agri Business, ITC prime business being the cigarette sales it is rapidly gaining market share even in its nascent businesses of Packaged Foods & Confectionery, Branded Apparel, Personal Care and Stationery.

P&G:

Proctor and Gamble is an American multinational company. Its products include pet foods, cleaning agents, and personal care products. P&G though a global leader in personal care has been struggling in India with sluggish profits and falling revenue. P&G is investing huge amounts money to tap the huge Indian consumer market.

Dabur India:

Dabur India Ltd. is currently the fourth largest company in India in terms of market capitalization in the FMCG and Personal care sector with revenues of over Rs. 4000 Cr. The company is 125 years old and specializes in Ayurvedic medicines.

Nestle:

Nestle is a Swiss multinational food company. Nestlé's products include baby food, bottled water, breakfast cereals, coffee, confectionery, dairy products, ice cream, pet foods, and snacks. Nestle is the market leader in the Indian food processing Industry and has been restoring its leadership for some time.

Colgate Palmolive:

Incorporated in September1937, Colgate-Palmolive (India) Limited (CPIL) is India's leading provider of scientifically proven oral care products. The range of products includes toothpastes, toothpowder and toothbrushes as well as a specialized range of dental therapies.

Marico:

Over the past few years, Marico has evolved into one of the leading Indian FMCG companies from a coconut oil manufacturer. It has positioned itself on the beauty and wellness platform and caters to hair care, health care, and skin care.

Inputs and Outputs:

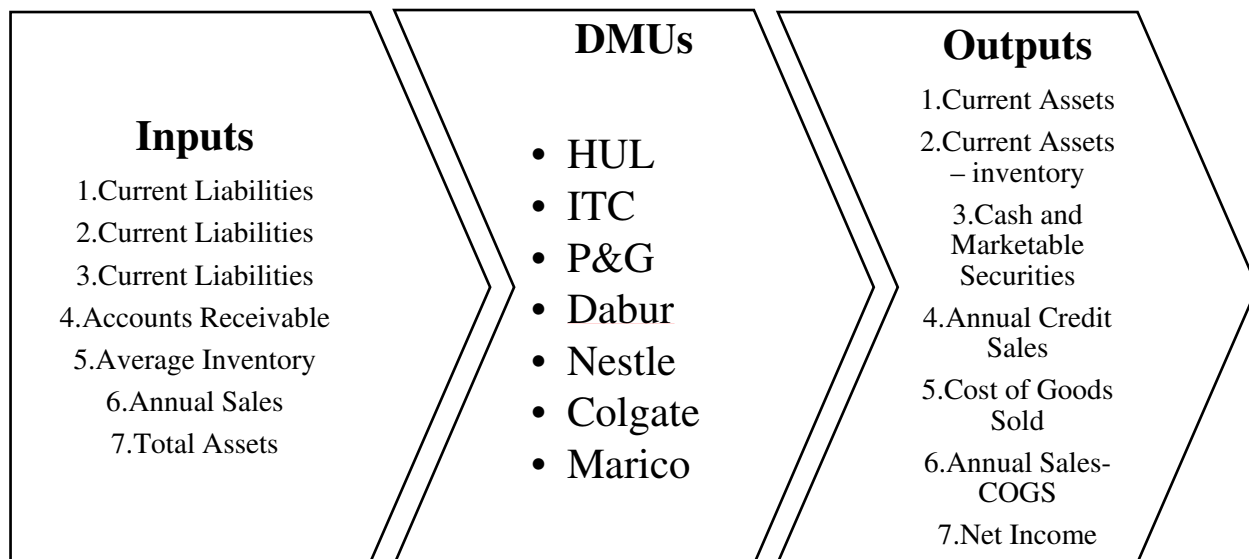A total of 7 inputs and 7 outputs have been chosen for the analysis

Each scenario provides a ratio with these inputs and outputs and maximization of these ratios is the target.

Scenario 1, 2, 3 signify liquidity efficiency of a company.

Scenario 4, 5 signify Asset Turnover efficiency of the company.

Scenario 6, 7 signify Profitability of the company.

This flowchart shows how the whole thing works; first the selected inputs for several scenarios go through the DMUs and the produced outputs from these available inputs gives the efficiency of the particular DMU.

Inputs

1. Current Liabilities
2. Current Liabilities
3. Current Liabilities
4. Accounts Receivable
5. Average Inventory
6. Annual Sales
7. Total Assets

DMUs

- HUL
- ITC
- P&G
- Dabur
- Nestle
- Colgate
- Marico

Outputs

1. Current Assets
2. Current Assets – inventory
3. Cash and Marketable Securities
4. Annual Credit Sales
5. Cost of Goods Sold
6. Annual Sales-COGS
7. Net Income

Significance of these Scenarios:

Scenario 1: The significance of this scenario is it shows how a company is managing its liquidity. A good company current ratio should be close to the operating industry average. Always current ratio greater than 1 is considered to be good and moreover higher the ratio signifies the company is in good shape. If it is less than 1 it means the company is facing troubles in managing liquidity and may not be able to pay its short term payables with the available assets with reasonable liquidity.

With respect to SCF current ratio is a very important parameter since companies need good liquidity to pay for the raw materials and for the maintenance of supply chain. For the FMCG industry it is suggested to maintain high current ratios to meet the short term expenses.

Scenario 2: The significance of this scenario is this is the next level of current ratio and is more helpful and logical in gauging the liquidity of the company. This is also called as Quick Ratio or Acid Test and this ratio is also recommended to be maintained close to the industry average. The modification is that since current assets like inventory are not readily convertible to cash in tough situations. This ratio signifies how a company can settle its short term liabilities on a very short notice. Higher the current ratio good for the company and if it is less than 1 the company may be facing serious troubles to meet its short term payables.

With respect to SCF Quick ratio is an parameter investors and suppliers look into to invest or to provide goods as this explains how the company can pay back in time. Since a lot of working capital is tied in inventories in FMCG industry current ratio may mislead the efficiency of a company to pay back and so quick ratio is to be considered.

Scenario 3: The significance of this scenario is that it is the most advanced level to gauge the liquidity. Cash and marketable securities are the most liquid assets any company can posses and can be used to pay in the shortest of notices (Within a day or even less). Also in this case higher the ratio good for the company and must to close to the industry average. If its too high than average it means that company is not able to efficiently allocate its liquid assets rather than just keeping them in the form of cash or securities.

If a company is maintaining too much cash, it is not advisable since this cash can be used somewhere else and can be put to good use.

Scenario 4: The significance of this scenario is that it gives an insight about the company sales in credit and how the company is able to collect its receivables from its credit sales. Any company has both normal sales and credit sales and its significant in the FMCG sector since the

products are often bough on credit and paid later. A company should be good enough to collect its receivables and maintain very less bad debts.

It is advised for the companies to maintain it close to the industry average. Lower the ratio means the company is too lenient in collecting the receivable where as if it is too high it signifies a company is being very aggressive with respect to its credit sales and it may hamper the sales of the company in the long run. A good metric to understand this is to calculate the days of receivables (365/receivables turnover) which gives the days it took for the company to collect the amount from the day the goods are sold and it makes sense if turnover is high the days are less and if turnover is low number of days are high.

Scenario 5: Primarily the reason for using average inventory instead of inventory for the current year is while calculating ratios involving values from Balance sheet and Profit and Loss statement it is vague to take both for a single year since balance sheet signifies at a point of time where as P&L is for a period so to make sense average inventory for the current and previous year is taken.

Inventory turnover ratio is used to understand the management efficiency of a company. It is suggested for a company to maintain this ratio close to the industry average. Higher the inventory turnover ratio it signifies the company is efficiently managing its inventory levels. But too high may show that company is not maintaining inventory levels to manage its sales and this may damage the sales due to inventory shortage. Low ratio means a lot of inventory overstocking and if the expiry period of these goods is less then there may be risk of obsolescence and also it needs high inventory holding costs.

Also in this case a good method to easily understand this by calculating Average Inventory holding period which gives the amount of time a company takes to convert its raw materials into final goods and are finally sold.

Scenario 6: This ratio signifies the efficiency of the company in maintain good margin of profits in the sales of its products. The high the ratio the company is gaining good profits and the company that can get good margins can become the leader of the market. A company can achieve good margins either by cutting its costs or by rising prices. But no company want to rise prices until it's a worst case, because rising prices means less demand and losing market share which can devastating for any company. So to attain good margins, only option for any company is to cut on its costs with efficient utilization of resources and best manufacturing techniques. Also it takes a lot management skill to do this.

Scenario 7: This scenario speaks about how good a company is converting its available assets in the income it will earn. A company acquires a lot of assets in the form of machinery, ware house for storage and infrastructure and all these need to get into attaining income for the company and if these assets doesn't they are of no use to the company.

So higher the ratio good for a company since high value means the company managed to get good income with significantly less assets for that income level. And if the ratio is low the case is reverse and it takes a lot of assets to attain reasonable income and it shows bad management of the company.
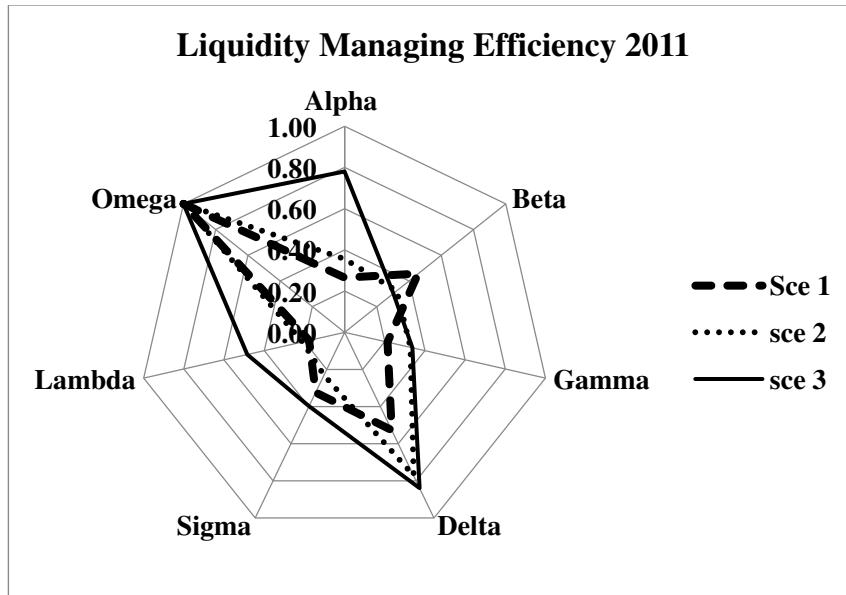
Analysis and Results:

The inputs and outputs are processed using DEA which has given efficiency scores for all the companies and scenarios for 3 years 2013, 2012, 2011. Spider graphs have been made with these efficiency scores for all three years.
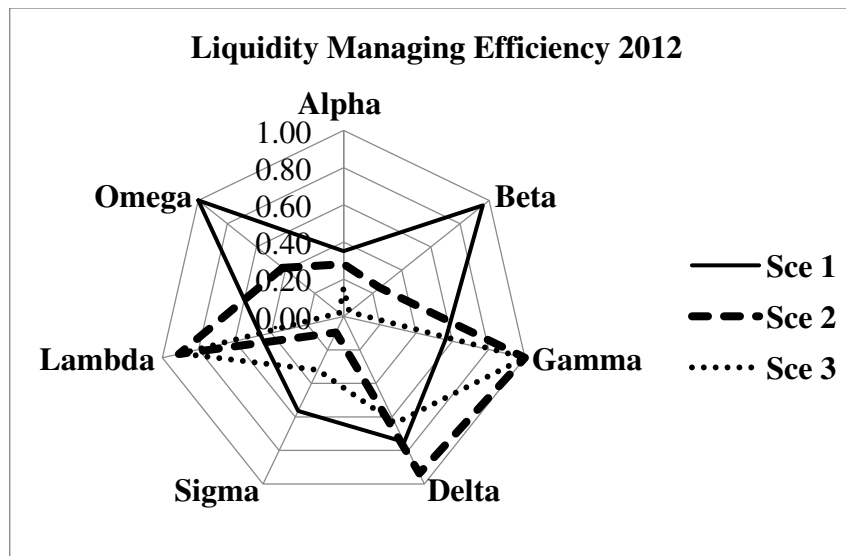
First we present the graphs of liquidity efficiency for all 3 years and then analyze them to infer the results from these graphs.

Graph 1

Liquidity Managing Efficiency 2011

Graph 2
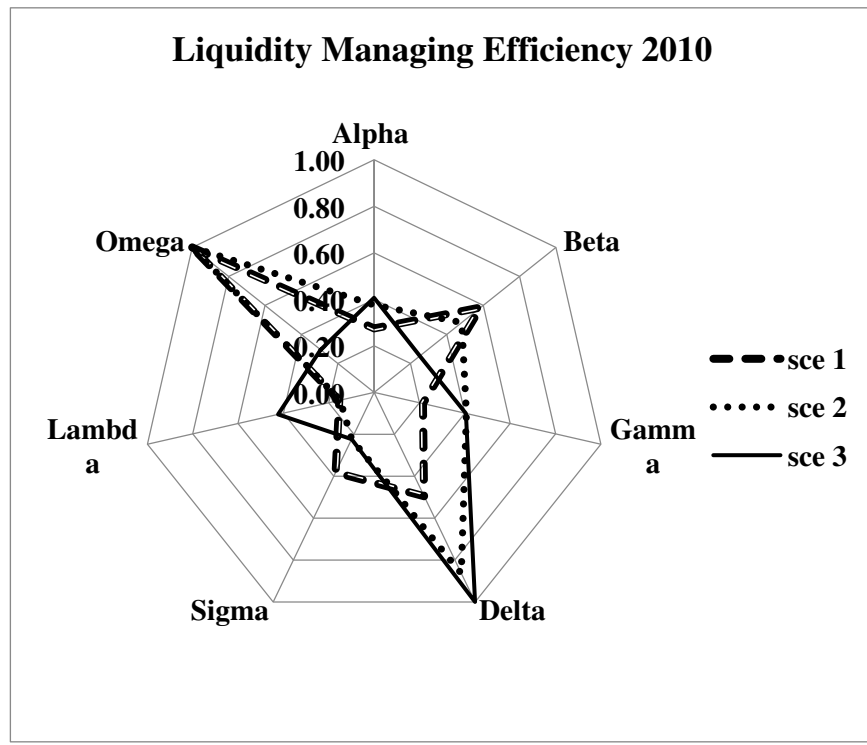
Liquidity Managing Efficiency 2012

Graph 3

Analysis and results

Scenario 1: From the above graphs it is evident that Marico has managed to maintain a high current ratio compared to its peers in all the 3 years and is the most efficient company. Though current assets of Marico were close to companies of its size Marico managed to maintain less current liabilities than others and this made them ahead than others.

Scenario 2: Again Marico was the most efficient to maintain its Quick ratio better than its peers for 2010 and 2011. But for 2012 P&G excelled to beat Marico to become most efficient in having a good Quick ratio.

Particularly for 2012 P&G maintained a less inventory than others and the Current Assets less inventory turned out to be a good trade off to put them ahead.

Scenario 3: In this case three different players turned out to be most efficient for the 3 years. In 2012 it was P&G who excelled and for 2011 Marico and in 2010 it was Dabur who beat the others. In this case all the players were close to the each other and there was no prominent dominance of a single player.

So over all in managing the liquidity Marico turned out to be the most efficient and has been putting significant efforts to stay ahead of other.
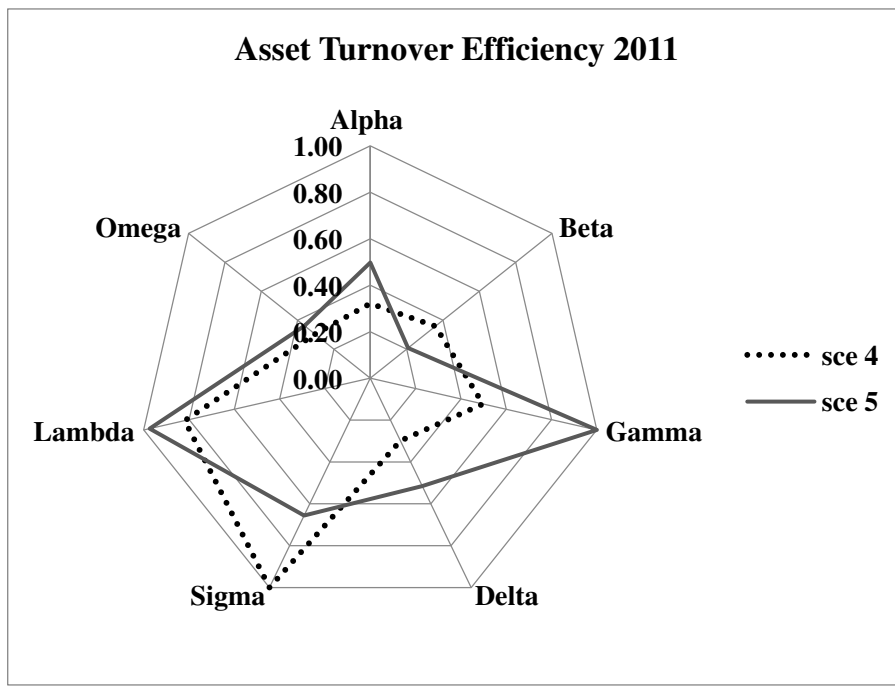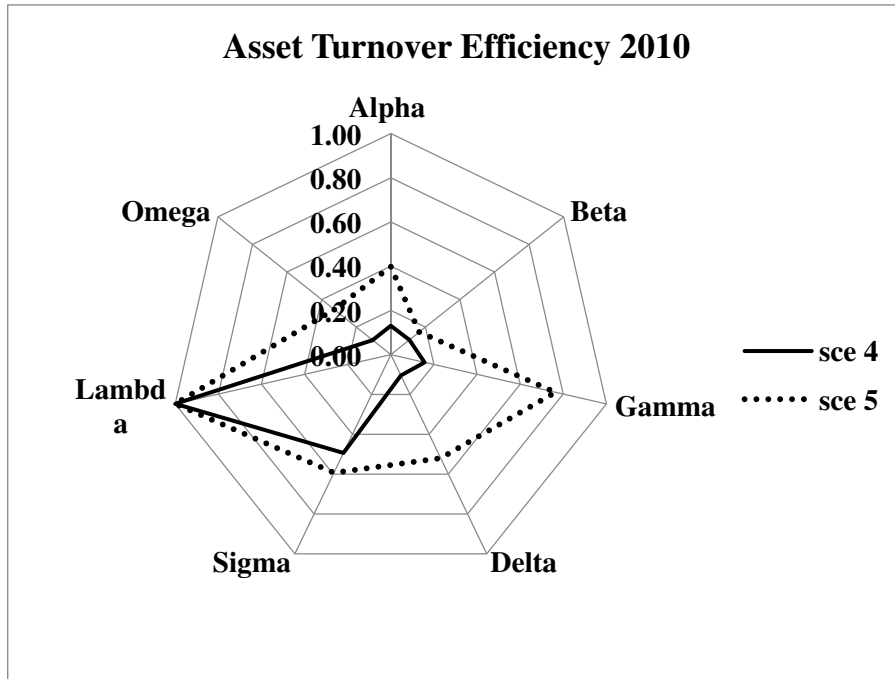
Amit, Mallik, Debashish and Debdas (2005) in their study regarding the relationship between working capital and profitability of Indian pharmaceutical industry found and concluded that no definite relationship could be established between liquidity and profitability. Vishanani and Shah (2007) studied the impact of working capital management policies on corporate performance of Indian consumer electronic industry by implemented simple correlation and regression models. They found that no established relationship between liquidity and profitability exist for the industry as a whole; but various companies of the industry depicted different types of relationship between liquidity and profitability, although majority of the companies revealed positive association between liquidity and profitability. Reheman and Naser (2007) found in their study negative relationship between profitability and liquidity of firms and also Ganesan(2007) studied working capital management efficiency in Telecommunication equipment industry and
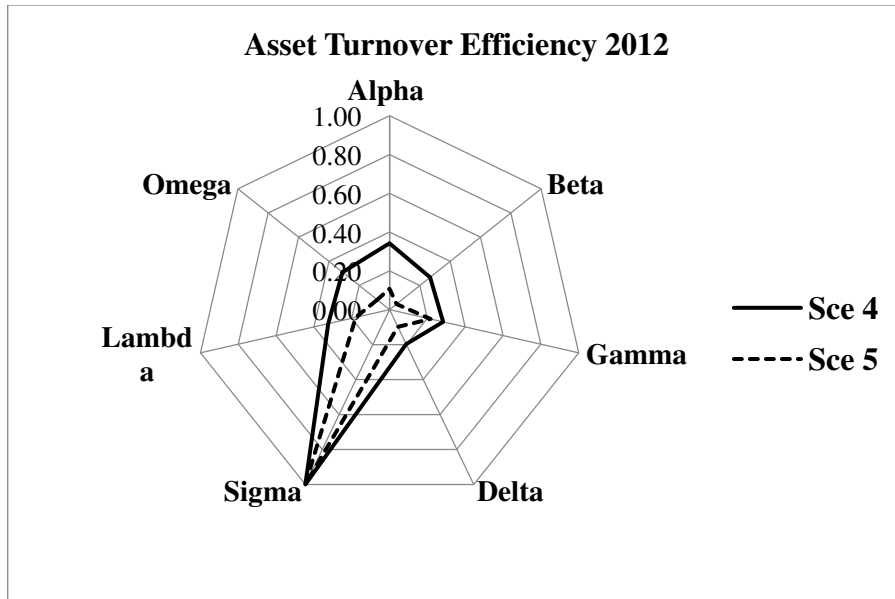
the study revealed significant statistical evidence and negative relationship between profitability and liquidity.

The relationship of these traditional and modern liquidity measurement techniques are studied by Lyroudi and McCarty (1993) for small US companies for the period of 1984-1988 and they found that cash conversion cycle was negatively related with current ratio but positively related with quick ratio.

Oliveira and Fortunato (2006) and Hoshi, Kashyap and Scharfstein (1991) indicate that investment in firms with information problems in capital markets is much more sensitive to liquidity levels than for firms which provide relatively more information to capital markets. Evans and Jovanovic (1989) describe the extreme case of this when concluding that liquidity constraints bind decisions of entrepreneurs attempting to enter a given product market, forcing the entrant to bear the risks associated with their new venture.

Asset Turnover Graphs

Asset Turnover Efficiency 2010

Graph 4

Asset Turnover Efficiency 2011

Graph 5

Ravi Kiran Maddali, 4th Year Undergraduate, Radha Krishnan Hall, IIT Kharagpur
E-mail- ravi.maddali03@gmail.com

Asset Turnover Efficiency 2012

Graph 6

Scenario 4: In our case Colgate was good in 2010 though it lost its place in the coming years it is Nestle who mastered in good collection of its credit sales and became the most efficient of all the players in 2011 and 2012.

Scenario 5: In 2010 Colgate has the best inventory turnover ratio where as it was P&G in 2011 and Nestle in 2012 and the key to master this is to first identify the potential sales data and accordingly manage their inventory to meet its sales and reduce manufacture when sales are reduced in order to not stock up inventories.

Speaking about profitability documented in Freeman, Ohlson and Penman (1982), and for the negative impact of growth in net operating assets on operating profitability. This suggests that, while the mix of asset turnover and profit margin may be informative about the firm's strategy, the mix does not provide information about the change in the firm's profitability one year ahead.
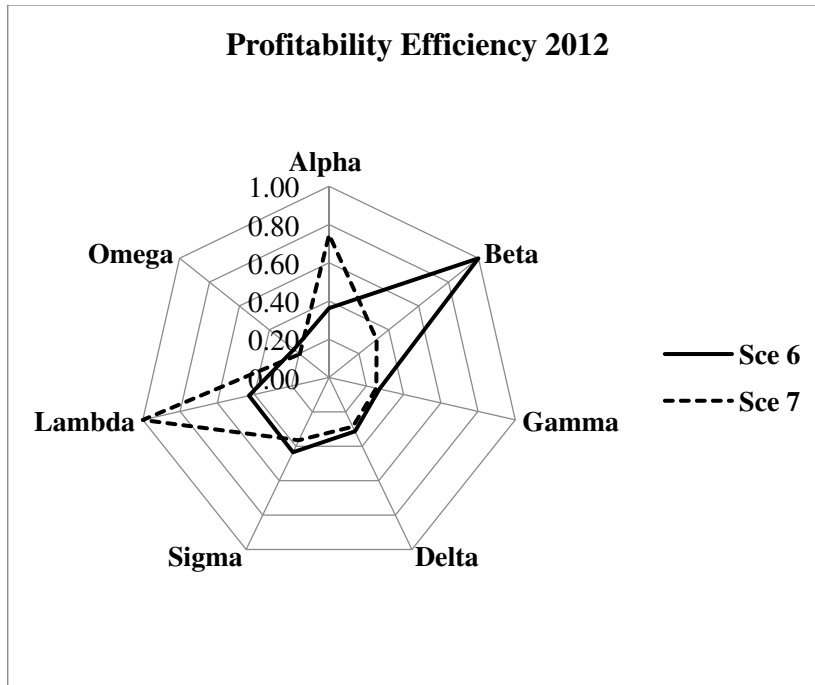
Profitability Graphs:

Profitability Efficiency 2010

Graph 7

Profitability Efficiency 2011

Graph 8

Profitability Efficiency 2012
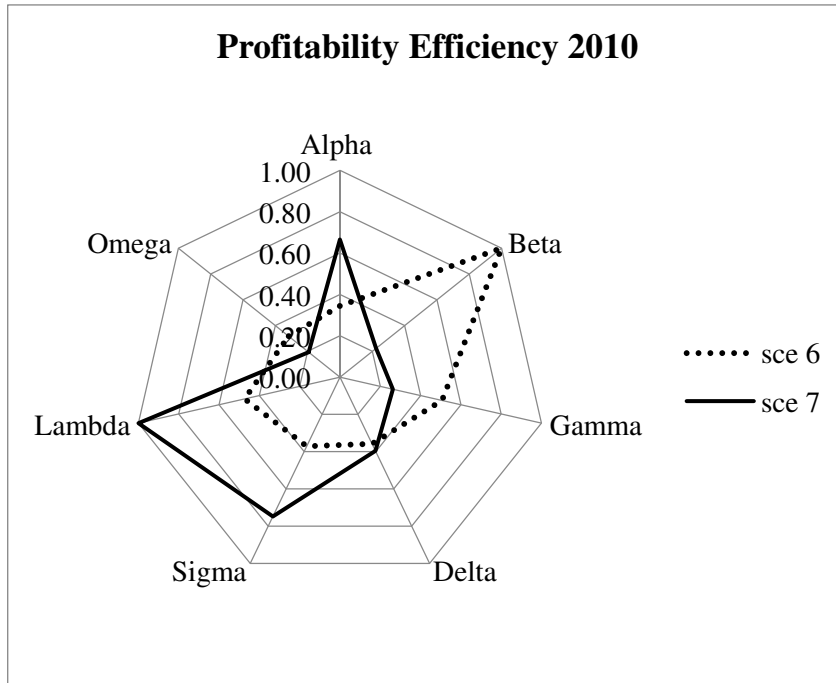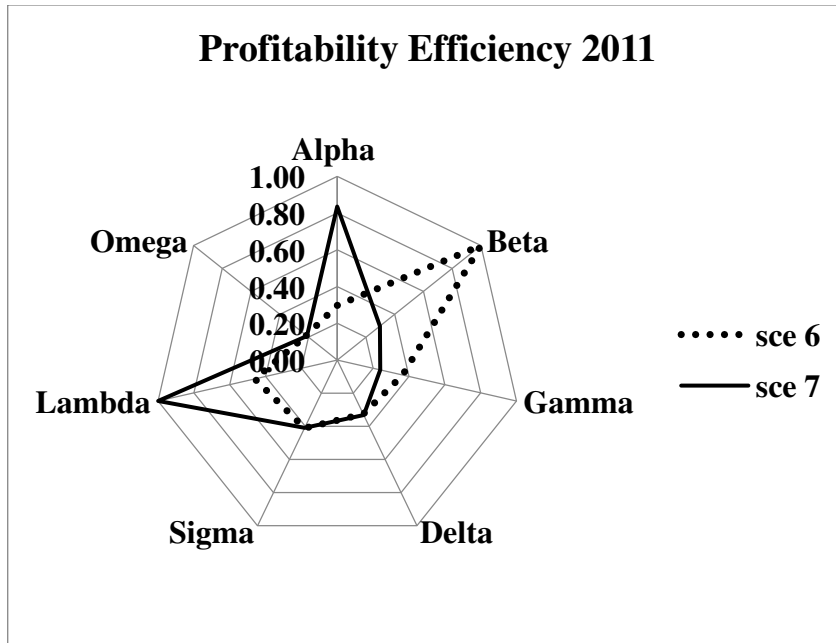
Graph 9

Scenario 6:

In our case definitely ITC is the master of management. ITC being the most efficient company to manage good margins in the industry far ahead of its peers shows its efficiency in cutting its costs and even with reasonable prices it maintained good margins. Normally FMCG is an industry with high margins, since cost of production is less and price of end product is significantly higher due to value addition at several stages of supply chain from manufacturer to supplier to retail store and then to the end customer.

Scenario 7:

In our case Colgate is the best manager in converting its assets. Definitely Colgate needs to applauded for its excellent strategy of maintain less assets and even then attain good income. Colgate is the only company with this ratio greater than 1 and it does mean that it takes less

assets then the income it attains every year and this is just not possible for any other company as the industry average floats around 0.4-0.6 for different years.

Research (Ohlson, 1995) shows that the value of a firm can be expressed as a function of the firm's book value and future abnormal earnings, or future return on equity in excess of the cost of capital. Other research (Feltham and Ohlson, 1995) shows that it is the operating activities that yield abnormal earnings. These studies suggest that understanding firm value requires forecasts of future return on operating assets.

Conclusion:

Profit maximization is the ultimate objective of firms as well as protecting liquidity is an important objective too. The difficulty of working capital management is to achieve the two objectives optimally within an operating period if profit increases at the cost of liquidity and this may create serious problem to firms. Therefore, to solve such problem, there must be some compromise between these two objectives of firms. One objective will not achieve at the cost of other as both objectives have their own importance to firms. If firms do not care about profitability, they may not survive for a longer period. On the other hand, if firms do not care about liquidity, they may face problem of insolvency or bankruptcy.

As visible from the analysis done above it is clear that companies need to put good emphasis in maintaining their financials that can make them better than everyone else in the market. As a popularly belief in India where debtors have tough time collecting their credit back, these analysis give good insight into a company and see that if it is in a good shape to pay back its debts.

Conclusion from the scenarios of liquidity managing predominantly say that Marico has been in good position for all the years and companies like P&G and Dabur tried to get closer to them.

Conclusion from Asset Turnover scenarios is that Colgate is just ahead than others and there was no predominant domination shown by any other company.

Conclusion from Profitability scenarios is that ITC and Colgate are leading winners and others are not even close to them.

Overall each company has its grace in at least one or other scenarios and has been benchmarking their approach and taunting others to learn from them and reach them.

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