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Impact of Supply Chain Operations on Financial Performance (An evidence from 5 big Cement companies in Pakistan)

Saba Arshad
Manager Supply Chain, K. Electric Limited (Formerly Karachi Electric Supply Company)
email: sabakhalil@hotmail.com

Waqar Akbar (Corresponding Author)
Faculty of Business Administration Mohammad Ali Jinnah University Karachi
email: waqar.qadri@jinnah.edu

ABSTRACT

Today's supply chains have placed greater demand on companies to manage both risk and costs. As supply chain focuses on sourcing of supply, managing supplier relationships and the costs incurred from manufacturing to customer delivery, finance plays a value added role in providing a comprehensive view and support for risks and costs. CFOs are now turning their attention to supply chains, working closer than ever with their supply chain teams to fashion holistic end-to-end processes that aligns goals and benefit the whole business.

Intensive competition in the market place has forced companies to respond more quickly to customer needs through faster product development and shorter delivery time. Increasing customer awareness and preferences have led to an extraordinary increase in product variety. The wrong supply chain operation strategy or agenda could make return on investment thresholds more difficult to achieve by not investing in the right projects at the right time.

Traditionally, both of the functions have an arm's length relationship, this relationship is more difficult as operationally the two functions should be better aligned but have different outlooks that are not fully understood by the other.

Keywords: Supply chain, Profit & loss, Balance sheet, CFO and CSCO

1. Introduction

Finance has always been heavily involved in supply chain functions from sourcing of supplies till the final delivery and return to and from the customer but it has become a hot topic because of scarce resources and the pressure on finance teams to explain where the cash is going. Even though supply chain will commit the company to capital expenditure it's always the finance guy that has to explain it. Sourcing, purchasing and transportation has been eroding margins so to avoid that it's about working together supply chain needs to ensure the right product at the right price and finance is there to allow them to achieve its goal. However, achieving greater alignment implies a number of changes these include data capture governance rules and process change.
The purpose of this paper is to identify the link between supply chain activities and financial performance of the company. The constraint among these two function however gradually changing as economic events and the growing globalization of business have put the finance teams under pressure to gain control of third party spend and not just manage it. From the finance perspective it's about reducing the amount of money that goes out the door and enhancing value for money.
The driver for bringing two functions together is managing costs and supply chain risks so if a Chief Supply Chain Office (CSCO) and Chief Finance Officer (CFO) are put together, they are likely to manage better on behalf of the organization by offsetting some of the pricing fluctuations and avoiding commodity rises by putting in hedges. Supply Chain Operations also needs to ensure the integrity, consistency and timeliness of externally reported information (financial performance) in relation to the organization's supply chain performance.

2. Literature Review

We have undergone several reviews which indicates that the supply chain strategy have a direct link with the finance. In a paper, the purpose is to develop a performance measurement method which links supply chain process performance to a company's financial strategy with the relationship between SC processes' performance and a company's financial performance. This paper supports in making supply chain financial link to test that

how it achieve the strategic objectives. Also that, supply chain management for giving feedback on performance and identify proper action, enabling to track all processes being carried out on daily basis in our operation. The method gives chance to evaluate company process well on time and improve quality of work in business. It gives competitive advantages to the company to improved supply chain operation. This paper shows the relation of performance on finance by supply chain with help of numerical. (**Elgazzar et al., 2012).**

Literature review further discussed another paper, which shows that a supply chain focus lead to improved logistics performance, which, in turn, results in improved organizational performance. This paper helps in identifying logistics as the unifying link intra-organizationally between the production and marketing functions and inter-organizationally between suppliers and customers. Logistics is a very important part of supply chain management; it is linked with company's supply chain management strategy and ultimately organizational performance. In this paper various factors such as environmental uncertainty, strategic purchasing, information technology, supply network structure, and logistics integration as impacting buyer-seller relationships and subsequently resulting in improved buyer and seller performance have been taken into considerations as framework. Traditionally, Managers have focused on improving the performance of the organization for which they are directly responsible. But nowadays Supply chain management requires an external focus in which managers must consider the impact of organizational strategies on supply chain partners and hence performance (**Green et al. 2008)**.

Companies have profit motives and in this paper it has been discussed that the supply chain perspectives helps the lead team in improving business performance through supply chain innovations. Many leading companies such as Wall Mart and Nordstrom is using their supply chains operations to enhance differentiation, increase sales and penetrate the new markets and channels. This paper shows that how it is being done.

The role supply chain management plays in building and supporting a high-performance business. The paper has documented a direct connection between companies' supply chain performance and the company's performance. Additionally, best practices and best practice carried out by market leaders has been discussed that have positioned the supply chain as a vital contributor to their business success. In modern arena, supply chain management is now being acknowledged as an essential contributor to operational excellence.

Companies with superior supply/demand-matching capabilities generally are more responsive to changing market conditions. They also may require less operating capital than their competitors. Companies for their effectiveness must ensure that the initiatives taken in supply chains must gel in well with the company's business strategies and operating models and have clear potential to generate remarkable returns and strive to yield new sources of competitive advantage. (**Anderson et al., 2003)**

The bottom line financial impact of supply chain operations is of continuing interest for companies. In this paper the relationship between the financial performance and supply chains fit (consistency between uncertainty of supply/demand of products/services and the fundamental supply chain design/strategy).
The findings in the paper indicate the positive relationship between the return on assets (ROA) and supply chain fit. The higher the higher the supply chain fit the higher the ROA of the company and also that the company with negative misfit shows lower profits than firms with the positive misfit.

Company's competitive priorities such as cost, quality, delivery, innovation and flexibility play a very vital role in operation's strategy, while allocating the limited resources companies have to make trade-offs between priorities specially for improvement of different priorities.
In this paper arguments has been done in three (03) ways; firstly, the company's supply chains priorities are in line with its products and business strategies secondly, identification of association between product characteristics and supply chain design and distinguishing between positive and negative misfit; third, assessment of supply chain management's bottom-line financial impact and the magnitude of this impact in corporate horizon. (**Wagner, Ruyken & Erhun 2012)**

In this study analysis have been done between the perspectives of finance leaders with supply chain leaders. The perspectives refers to respondents from companies where a business partnering relationship is in place between the CFO and the supply chain, with those where the CFO fulfills a traditional finance role, traditional finance relationship means emphasizes on core finance responsibilities, such as accounting, reporting and controls. Business partnering refers to a highly collaborative, enabling and supportive relationship between the CFO and other functional areas of the business.

It has been discussed in this study that when cost reduction becomes the top of the corporate agenda at the height of the financial crisis, supply chains that typically hold a large proportion of many companies' costs are one of the first places that CFOs turned to for savings. It is always the finance guy who has to explain where the money is going.

Cost efficiency has since remained high on the corporate agenda but, as companies get used to navigating ongoing economic uncertainty, financial market volatility, the impacts of globalization and an unrelenting pace of change, the supply chain has taken on a new strategic significance. A supply chain strategy that is aligned with the broader corporate and financial goals of the business is essential for profitability. As such, the role of the supply chain leader has become more prominent, and they now often sit on executive boards as peers to the CFO. (**EYGM, 2010)**

3. Theoretical Framework

The supply chain is a critical driver of both top-line and bottom-line performance. Through a complex web of processes and relationships, effective supply chains allow companies to meet the demand for their product, keep costs to a minimum and maintain a balance between agility and resilience. In recent years, however, it has become increasingly challenging to juggle these priorities. Pressure on margins has become more intense, complexity has grown and the pace of change has continued to increase. This means that the relationship between the supply chain and senior finance leaders has become more important than ever. Today, many supply chain leaders have been elevated to the top echelons of the corporate hierarchy, with a seat on the executive board and significant influence on strategic decision-making.

(Partnering the performance; Part 01 the CFO and the supply chain)

A firm has to make trade off while allocating its limited resources. These tradeoffs are being done between quality, cost, delivery and responsiveness. Another tradeoff is between cost and responsive supply chain strategies.

Table 1: Generic supply chain priorities (adapted from Fisher, 1997)

Factors	Efficient supply chain	Responsive supply chain
Primary purpose	Supply predictable demand efficiently at the lowest possible cost	Respond quickly to unpredictable demand to minimize stock outs, obsolete inventory, and forced markdowns
Inventory strategy	Generate high turns and minimize inventory throughout the supply chain	Deploy significant stocks of parts or finished goods
Lead-time focus	Shorten lead-time for cost and quality	Invest aggressively to reduce lead-time
Approach to choosing suppliers	Select primarily for cost and quality	Select primarily for speed, flexibility and quality
Product-design strategy	Maximize performance and minimize cost	Use modular design to postpone product differentiation for as long as possible

Many top managers are not yet aware that purchasing can be a profit and value generator. The name of the magic formula is: Procurement optimization. An immediate and sustained increase in profit and value is achieved by Modern procurement management and not by price hammering (GerdKerkhoff)

3.1 *Assumptions*

- We assume that the data is audited and authentic.
- Finance has an inherent role and can exert control across an organization and can be a real supporter in opening doors within an organization

3.2 *Variables*

- Cost of Procurement is an independent variable.
- Inventory Turnover is an independent variable.
- Cost or Money is a dependent variable.
- Transportation cost is independent variable.

3.3 *Methodology*

To test the hypothesis we have used ratios to analyze the impact of supply chain activities on financial performance.

3.4 *Sampling*

We have selected 5 companies from cement industry and the years of analysis are **2010-2011, 2011-2012** and **2012-2013**. The numbers of observations are 25 in total.

1. Lucky Cement Limited (LCL)
2. Cherat Cement Company Limited (CCCL)
3. Fauji Cement Company Limited (FCCL)
4. D. G. Khan Cement Company Limited (DGCCL)
5. Attock Cement Pakistan Limited (ACPL)

4 Results

We have evaluated five (05) companies over the period of three (03) years from cement industry and below are the financial results of the activities involving supply chain, discussion of which is being carried out at later part of this paper:

Table 2: Lucky Cement Limited (LCL)

Ratio	Formulas	Unit	2012-2013	2012-2011	2011-2010
Current Ratio	Current Assets/Current Liabilities	Times	3.14	2.45	0.83
Quick Ratio	(Current assets-Inventory)/ Current liabilities	Times	2.33	0.61	0.12
Inventory Turnover	Cost of Sales/Inventory	Times	2.57	1.15	0.90
Payable Turnover	Cost of Sales/Accounts Payable	Times	2.23	2.30	1.69
Trade Receivables Turnover	Net Sales/Trade Receivables	Times	16.02	28.82	30.98
Asset Turnover	Net Sales/Total Assets	Times	0.77	0.83	0.64
Gross Profit Margin	Gross Profit/Net Sales	%	44%	38%	33%
Net Profit Margin	Net Profit/Net Sales	%	26%	20%	15%
Return on Asset	Net Profit/Total Assets	Times	0.20	0.17	0.098

Table 3: Cherat Cement Company Limited (CCCL)

Ratio	Formulas	Unit	2012-2013	2012-2011	2011-2010
Current Ratio	Current Assets/Current Liabilities	Times	1.88	1.23	0.94
Quick Ratio	(Current assets-Inventory)/ Current liabilities	Times	0.09	0.08	0.08
Inventory Turnover	Cost of Sales/Inventory	Times	2.93	3.62	2.36
Payable Turnover	Cost of Sales/Accounts Payable	Times	8.15	12.66	8.86
Trade Receivables Turnover	Net Sales/Trade Receivables	Times	187.14	146.37	92.00
Asset Turnover	Net Sales/Total Assets	Times	1.26	1.16	0.80
Gross Profit Margin	Gross Profit/Net Sales	%	35%	21%	13%
Net Profit Margin	Net Profit/Net Sales	%	19%	8%	2%
Return on Asset	Net Profit/Total Assets	Times	0.24	0.09	0.01

Table 4: Fauji Cement Company Limited (FCCL)

Ratio	Formulas	Unit	2012-2013	2012-2011	2011-2010
Current Ratio	Current Assets/Current Liabilities	Times	1.14	0.76	0.89
Quick Ratio	(Current assets-Inventory)/ Current liabilities	Times	0.50	0.12	0.34
Inventory Turnover	Cost of Sales/Inventory	Times	3.82	2.41	1.33
Payable Turnover	Cost of Sales/Accounts payable	Times	7.34	4.75	3.04
Trade Receivables Turnover	Net Sales/Trade Receivables	Times	70.03	50.21	73.93
Asset Turnover	Net Sales/Total Assets	Times	0.53	0.38	0.15
Gross Profit Margin	Gross Profit/Net Sales	%	32%	27%	17%
Net Profit Margin	Net Profit/Net Sales	%	13%	5%	9%
Return on Asset	Net Profit/Total Assets	Times	0.07	0.02	0.01

Table 5: D. G. Khan Cement Company Limited (DGCCL)

Ratio	Formulas	Unit	2012-2013	2012-2011	2011-2010
Current Ratio	Current Assets/Current Liabilities	Times	2.68	1.57	1.45
Quick Ratio	(Current assets-Inventory)/ Current liabilities	Times	2.06	1.11	1.10
Inventory Turnover	Cost of Sales/Inventory	Times	2.70	3.03	3.22
Payable Turnover	Cost of Sales/Accounts payable	Times	6.82	7.32	8.63
Trade Receivables Turnover	Net Sales/Trade Receivables	Times	91.09	72.18	40.45
Asset Turnover	Net Sales/Total Assets	Times	0.40	0.46	0.37
Gross Profit Margin	Gross Profit/Net Sales	%	37%	33%	24%
Net Profit Margin	Net Profit/Net Sales	%	22%	18%	1%
Return on Asset	Net Profit/Total Assets	Times	0.09	0.08	0.00

Table 6: Attock Cement Pakistan Limited (ACPL)

Ratio	Formulas	Unit	2012-2013	2012-2011	2011-2010
Current Ratio	Current Assets/Current Liabilities	Times	2.77	2.52	1.70
Quick Ratio	(Current assets-Inventory)/ Current liabilities	Times	1.86	1.05	0.34
Inventory Turnover	Cost of Sales/Inventory	Times	5.24	3.93	3.62
Payable Turnover	Cost of Sales/Accounts payable	Times	4.94	6.38	5.20
Trade Receivables Turnover	Net Sales/Trade Receivables	Times	30.39	42.29	87.12
Asset Turnover	Net Sales/Total Assets	Times	1.07	1.18	1.10
Gross Profit Margin	Gross Profit/Net Sales	%	31%	27%	20%
Net Profit Margin	Net Profit/Net Sales	%	19%	14%	8%
Return on Asset	Net Profit/Total Assets	Times	0.20	0.16	0.09

5 Discussion

In the tables given above certain ratios with direct or indirect link with supply chain activities have been discussed, which shows the impact and link between financial performances of the company. The discussion below is based on analysis of the published financial statements as the companies under discussion are public listed in Stock Exchanges of Pakistan.

5.1 Current Ratio

Current ratio is a financial ratio that measures whether or not a company has enough resources to pay its debt over the next business cycle (usually 12 months) by comparing firm's current assets to its current liabilities. Current ratio gives an idea of company's operating efficiency.

Generally, a current ratio of 2:1 is considered to be acceptable. The higher the current ratio is, the more capable the company is to pay its obligations. However, if it is less than 01 then, though this does not indicate the critical problem but should concern the management.

In all the five (05) companies above the current ratio has gradually strengthen. The main reason identified after evaluating financial statement are the sales on credit which have increased.

5.2 Quick Ratio

Quick ratio is considered a more reliable test of short-term solvency than current ratio because it shows the ability of the business to pay short term debts immediately. Inventories are excluded because inventories may take long period of time to be converted into cash and prepaid expenses cannot be used to pay current liabilities.
Generally, a quick ratio of 1:1 is considered satisfactory. Like current ratio, this ratio should also be interpreted carefully. Having a quick ratio of 1:1 or higher does not mean that the company has a strong liquidity position because a company may have high quick ratio but slow paying debtors. On the other hand, a company with low quick ratio may have fast moving inventories. In all the five (05) companies the quick ratio has gradually strengthen over the period under analysis.

5.3 Inventory Turnover

Inventory turnover ratio is used to measure the inventory management efficiency of a business. In all the companies except Cherat Cement the overall Inventory Turnover ratio has increased which seems to indicate better performance and lower value means inefficiency in controlling inventory levels. The production has placed burden over the company cash flows. As far as Cherat Cement is concerned whose current year's inventory turnover has reduced this may be an indication of over-stocking which may pose risk of obsolescence and increased inventory holding costs. However, a very high value of this ratio may be accompanied by loss of sales due to inventory shortage.

5.4 Payable Turnover

Accounts payable turnover ratio indicates the creditworthiness of the company. A high ratio means prompt payment to suppliers for the goods purchased on credit (cost of procurement) and a low ratio may be a sign of delayed payment. This ratio also depends on the credit terms allowed by suppliers. Companies who enjoy longer credit periods allowed by creditors usually have low ratio as compared to others. A high ratio (prompt payment) is desirable but company should always avail the credit facility allowed by the suppliers.
Lucky Cement's, Attock Cement and DG Khan Cement's ratio has increased but dropped a little in 2012-2013, same is with Cherat Cement but the dropping difference is significant. However, Fauji Cement's ratio represents a higher ratio reflecting that their position to pay off their suppliers has strengthened.

5.5 Trade Receivables Turnover

Accounts receivable turnover ratio measures the liquidity of accounts receivables. There is no rule of thumb to interpret this ratio. Generally, a high ratio indicates that the receivables are more liquid and are being collected promptly. A low ratio is a sign of less liquid receivables and may reduce the true liquidity of the business even if the current and quick ratios are satisfactory.
Lucky Cement and Attock Cement's ratios have decreased gradually over the period of last three (03) years. However, Cherat Cement, Fauji Cement and DG Khan Cement's ratios have increased over the period under review. But this shall not be considered as the only indicator for liquidity.

5.6 Asset Turnover

This ratio measures how efficiently a firm uses its assets to generate sales, so a higher ratio is always more favorable. Higher turnover ratios mean the company is using its assets more efficiently. Lower ratios mean that the company isn't using its assets efficiently and most likely have management or production problems.
On average this ratio of all the companies under analysis have increased although there is a slight fall but this may be due to seasonal effect.

5.7 Gross Profit Margin

Gross profit margin depicts that the level of a company's sales revenue would remain after deducting the cost of goods sold. This helps to determine whether the company would still have enough funds to cover operating

expenses such as employee benefits, lease payments, advertising and other overheads. A company's gross profit margin may also be viewed as a measurement of production efficiency. A company with a gross profit margin higher is considered to be more efficient. If we see the results above it reflects that the gross margin of the all the companies under analysis have increased, however, Lucky Cement have the highest margin if compared to other companies under analysis, reflecting the production and sales efficiency.

5.8 Net Profit Margin

Net profit margin indicates the percentage of sales revenue would remain with the companies under review after absorbing all costs. The variations that come from year to year may be due to seasonal or abnormal conditions. A declining net profit margin ratio may indicate a squeezing margin which may be possibly due to increased competition or rising costs. This ratio for the companies under review has increased over the periods this depicts that they are efficiently managing their cost of supply chain and earning fair sales revenue sufficient enough for distributing dividends and investing in projects.

5.9 Return on Asset (ROA)

The financial ratio Return on Assets (*ROA*) was used to tap the financial performance of the firm. ROA shows how effectively a firm utilizes its assets in generating profits. Return on Asset, is a measurement of management performance. The assets of the company are comprised of both debt and equity. Both of these are used to fund the operations of the company. The ROA figure indicates how effectively the company is converting the money it has to invest into net income. The higher the ROA number, the better, because it refers to a higher level of company's financial performance.

6. Conclusion

The discussion in this paper has been carried out to analyze the impact of supply chain activities on financial performance. We have analyzed on the basis of certain financial ratios computed through the information shared in the published accounts of these companies, being selected as sample. Further discussion has been done on non-financial information available in the same accounts of each company.

This study refers that there seems a direct impact between these two factors; however, these may not be considered as the only factors. There might be some other factors as well impacting financial performance of the companies.

If this research study is funded than the factors identified in the study can be further elaborated and analyzed on basis of existing economic condition of that particular company. The aspects can be further filters and narrowed down to a company's particular requirement.

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