

IMPACT OF FINANCIAL MANAGEMENT ON PROFITABILITY: EVIDENCES FROM INDIAN PETROCHEMICAL SECTOR

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ABSTRACT

Financial Management has the potential to influence profitability in the short run as well as in the long run both through incurrence of costs and through facilitating generation of revenue. This research paper aims to investigate the relationship between financial management and profitability of the domestically-listed large petrochemical companies. The variables considered are Long Term Debt to Equity Ratio, Current Ratio, Inventory Ratio, Debtors Ratio and Profit After Tax to Sales Ratio. The data was analyzed using multiple regression technique. The results obtained suggest that Long Term Debt to Equity Ratio appears to have significant but negative relationship with profitability. This leads us to believe that the enterprises having lower debt component tend to be more profitable. It further points out that Inventory and Debtors do not have significant influence on the profitability. This research may help the corporate managers and academicians to develop better insight for financial management in their attempt to optimize the profitability.

Keywords: Long Term Debt, Inventory, Debtors, Profitability, India.

Introduction:

Financial management has been receiving increased attention from both academic communities as well as practitioners mainly due to its huge potential in bringing sustainability and better performance in terms of profitability of the enterprise. This potential is built into both aspects of financial management viz. mobilization of funds and deployment of funds. On one end, mobilization of funds at different scales call for incurrence of appropriate costs while at the other end, deployment of funds have to be carefully done in a manner such that productive assets, fixed and/or current, are created and are capable of generating desired stream of returns to the organization. This process, therefore, is complex and multi-dimensional. Several variables such as cash & marketable securities, inventories, debtors, advances made, deferred revenue expenditures, fixed assets, investments, reserves and surplus, equity share capital, share premium, debenture and other long term borrowings, short term borrowings, creditors, bank

advances and provisions play their role. Each of these variables has different frequencies and varying degrees of influence on the profitability of the enterprise. The task of exploiting full potentials of financial management is therefore not easy. Neither concentrating all variables is a desirable possibility nor the selection of intuition-based variables likely to be fruitful in the view of dynamic business world. The problem of ascertaining important variables can be better addressed through a research-based approach.

Literature Review:

Research scholars have widely visited different practices of financial management to develop better understanding about the association exist between financial management and the profitability of the business enterprise. For example, various researchers such as (Ross, 1977), (DeAngelo & Masulis, 1980), (Thies & Klock, 1992), (Stohs & Mauer, 1996) and (Fama & French, 2002) have critically analyzed the capital structure of various enterprises from different

perspectives. (Pandey, 1985), (Bhat, 1980) looked in to the relationship among the size of firm, profitability, risk, growth and the capital structure. Kim Hiang Liow (2010) investigated firm's value, growth, profitability and capital structure. On the other end, (Lazaridis & Tryfonidis, 2006), (Vishnani & Shah, 2007) and (Khalaf, 2012) and (John, 2014) investigated different aspects of working capital for better understanding of their association with profitability of the enterprise. The research inputs by various authors are briefly described below.

(Ross, 1977), (Leyland & Pyle, 1977) have observed that the managers are not only penalized for bankruptcy but also are rewarded for increase in the valuation of securities. Ross advocates that the capital structure and the value of the firm bear positive association. According to Leyland and Pyle, the promoters' stake can be used as a signal of quality. The selection of capital structure by the business enterprise signals the outside investors with the presence of asymmetric information in favor of the insiders. (Kishore, 1978) examined the capital structure of the public enterprises and suggested that reasoning should be preferred over thumb rule while designing the capital structure of the public enterprises. Cash capacity of the enterprise must be given due importance while determining the borrowing limits. (DeAngelo & Masulis, 1980) advocated that the presence of corporate tax shields such as depreciation and investment tax credits means that there exists a market equilibrium in which each firm works out a unique optimal capital structure for itself. Capital structure choice wherein corporate and differential personal taxation exist, the supply side adjustments by firms enter into determination of equilibrium pricing of debt and equity.

Bhat, Ramesh (1980) investigated the impacts of business risk, size, growth, payout policy, debt-service capacity, profitability and degree of operating leverage on the capital structure decisions of the firm. They examined 62 companies from engineering industry using multiple regression technique and found that business risk, dividend policy, profitability and debt service capacity of the firm had significant influence on debt-equity choice.

(Titman, 1984) used product market route to analyze financial distress and capital structure. If the product or service is durable in nature, the customers might be interested in financial health of the company. The higher debt component in a company's capital structure does not send a positive signal in the product market whereas it adversely affects the product's competitive advantage. Hence, companies with larger debt component in capital structure are likely to experience financial difficulties leading to bankruptcy. This means that the firm's capital structure critically influences profitability of the enterprise. (Pandey, 1985) conducted an in-depth study about the impact of

industrial patterns, trend and volatility of leverage, size, profitability and growth on the debt equity mix of the business enterprise using a sample of 743 companies from across the 18 industrial groups. He observed the absence of any significant structural relationship among leverage, profitability and growth. (Harris & Raviv, 1991) examined a link between firm's capital structure and managerial control, voting rights. They noticed that the optimal capital structure is determined by the strategic role of the debt in providing the manager with critical resources to acquire voting rights, particularly when the managers are liquidity-constrained to buy enough votes in large firms. The incumbent managers may use the debt equity mix as an anti-take-over measure by exploiting the fact that common stock carries voting rights, but debt does not carry voting rights.

(Thies & Klock, 1992) observed that risk bears negative association with long term debt. However, risk bears positive relationship with short term debt as high variability transfers financing from long term debt to short term debt and equity. (Stohs & Mauer, 1996) in their study found that the size of the firm and capital structure are positively related. (Shin & Soenen, 1998) examined the relationship between the net trade cycle as a measure of working capital and Return On Investment (ROI) in U.S firms. They observed a negative association between the length of net trade cycle and Return On Assets (ROA). In addition, this inverse relationship between net trade cycle and return on assets differed from industry to industry.

(Fama & French, 2002) studied how dividend decisions and debt decisions impact the value of firm. According to them, such decisions do convey information about firm's profitability. They observed negative relationship between the firm's value and dividend payout. However, a firm's value and debt were found to have positive association. (DeLoof, 2003) conducted a study of 1,009 Belgian firms from 1992-1996 to examine the impact of working capital management on the profitability. They noticed a significant relationship among profitability and account receivables, inventories and account payables and suggested that managers in Belgian firms can improve profitability if they reduce account receivables, inventories and account payables to a reasonable minimum. (Sarma, Thenmozhi, & Preeti, 2004), in their study, noticed that the firms with higher leverage prefer non-traditional debt over traditional debt. According to them, the firms with non-traditional debt aptly considered the criteria such as profitability, cash ratio, volatility of earnings and bankruptcy costs.

(Pandey, 2004) investigated about the relationship between capital structure and profitability of 208 Malaysian companies from 1994 to 2000 and observed saucer-shaped relationship between capital structure and profitability. (Lazaridis & Tryfonidis,

2006) analyzed the association between working capital management and profitability of different enterprises and observed that debtors, inventories and creditors had some association with profitability. The relationship of the accounts receivables and account payables were positively related with the profitability and had high statistical significance. However, the association of inventory with the profitability was statistically insignificant. They suggested that account receivables and account payables are the areas that need greater attention to improve the profitability of the enterprise.

(Vishnani & Shah, 2007), in their study, observed negative association between profitability performance indicators and working capital management. (Kim Hiang Liow, 2010) in their elaborate study on firm's value, growth, profitability and capital structure of companies observed that larger sized firms performed better from view point of market valuation and were in a position to generate positive financial leverage effects for better profitability practices indicators.

(Satyanarayana, Ramanandh, & Sampathkumar, 2011) Observed that current assets have negative relationship with profitability. (Osama & L.A., 2011) Examined 53 Jordanian companies listed in Amman Stock Exchange and observed that the account receivables, inventory and account payables had negative but significant association with profitability of the companies. Similarly, (Khalaf, 2012), in his study on Jordanian companies observed that investment in current assets and profitability are negatively related. (John, 2014), in his study of manufacturing firms listed on Ghana Stock Exchange, noticed that debtors had significant negative relationship with profitability whereas the inventory had positive association with profitability.

Need for the Study:

As aptly brought out by the literature review, some authors such as (Kishore, 1978); (Sarma, Thenmozhi, & Preeti, 2004) have examined capital structure from different perspectives. A few others like Bhat R (1980) and (Pandey, 1985) have considered other variables such as size of firm, growth and volatility of earnings. A league of authors listed as (Shin & Soenen, 1998), (Deloof, 2003), (Lazaridis & Tryfonidis, 2006), (Vishnani & Shah, 2007) and (John, 2014) have explored the association of working capital and profitability. However, the capital structure with long run time frame and working capital with short run time frame needs to be simultaneously examined with reference to their association with profitability and the magnitude of influence they exert on the profitability of the enterprise. For this purpose in this research paper, Long Term Debt To Equity Ratio (henceforth, LTDER), Current Ratio (henceforth, CR), Inventory Ratio (henceforth, IR) and Debtors Ratio (henceforth, DR) and Profit After

Tax To Sales (henceforth, PATSR) are used as variables. The details of each ratio is given in Appendix – 1. Amongst the said variables, LTDER, CR, IR and DR are independent variables while PATSR is a dependent variable.

Hypotheses Development:

Based on the literature review and the variables stated above, the following hypotheses were developed:

1. Ho: LTDER has no significant influence on PATSR
H1: LTDER has significant influence on PATSR
2. Ho: CR has no significant influence on PATSR
H1: CR has significant influence on PATSR
3. Ho: IR has no significant influence on PATSR
H1: IR has significant influence on PATSR
4. Ho: DR has no significant influence on PATSR
H1: DR has significant influence on PATSR

Research Methodology:

Research Objectives:

The research objectives, therefore, are

- (1) To develop better understanding of the relationship of LTDER, CR, IR and DR with PATSR and extent of influence they exert on profitability of the enterprise.
- (2) To develop better insights into financial management practices and their impact on the profitability of the enterprise.

Research Techniques:

The companies in the petroleum, chemical and fertilizer industries are only considered here which is further listed on Bombay Stock Exchange and/or National Stock Exchange. The data for the variables LTDER, CR, IR, DR and PATSR were collected for a period of 10 years to weed out cyclical effects of the economy. The data required was historical and voluminous in nature. The said data was collected from published audited annual reports, data bases such as CAPITALine, and of Bombay Stock Exchange Ltd. and National Stock Exchange Ltd. The collected data was processed using various statistical techniques to examine the relationship of independent variables with dependent variable and to know the extent of influence exerted by independent variables over dependent variables. F-test was conducted and multi collinearity amongst independent variables was checked using matrix of co-efficients of correlations and VIF statistics to lend better reliability to the results.

Results and Discussions:

- (1) The standardized β of independent variables with their respective direction, values and significance level are depicted in Table 1. As stated, LTDER has a strong negative relationship with PATSR since the standardized β of LTDER stands at -0.461 . The significance level of 0.011 makes β

(LTDER) statistically very significant. Thus the weight of the evidence suggests that the null hypothesis H_0 (LTDER) is rejected whereas the alternate hypothesis H_a (LTDER) is accepted. This means that LTDER exerts significant influence over PATSR. An increase in LTDER will bring a decline to the profitability by number of times the value of the standardized β of (LTDER). Therefore LTDER appears to be an important determinant of PATSR.

- (2) The standardized β of CR, as shown in Table 1, stands at +0.010 which indicates that CR has positive but very weak relationship with PATSR. However the significance level of 0.955 renders β (CR) to be statistically irrelevant. The weight of the evidence, therefore, suggests that the null hypothesis H_0 (CR) is accepted whereas the alternate hypothesis H_a (CR) is rejected. This means that CR does not exert any significant influence on PATSR. A change in CR is not likely to bring about any change in PATSR.
- (3) As stated in Table 1, the standardized β of IR, stands at +0.157 which indicates that IR has positive but weak relationship with PATSR. However the significance level of 0.385 does not even allow this low value β (IR) to be statistically significant. Thus the weight of the evidence suggests that the null hypothesis H_0 (IR) is accepted whereas the alternate hypothesis H_a (IR) is rejected. This means that a change in IR practically does not have any influence over PATSR.
- (4) The standardized β of DR, as stated in Table 1, stands at -0.161. This indicates that DR has negative association with PATSR and the low value of the co-efficient further suggests that the relationship is weak. In addition, the significance level of 0.379 makes it statistically insignificant. The weight of the evidence, therefore, suggests that the null hypothesis H_0 (DR) be accepted and the alternate hypothesis H_a (DR) be rejected. This means DR does not exert any significant influence on PATSR. A change in DR is not likely to bring about any change in PATSR.
- (5) The results of the variance analysis are given in the Table 2 shows that $F = 2.863$ are at a significance level of 0.042 with DF (4, 28) which indicates that all standardized regression co-efficients are non-zero.
- (6) The multi co linearity amongst the independent variables has been checked through Matrix of Co-efficients of Correlations given in Table 3. The said matrix of co-efficients of correlations reveals that none of the four independent variables has co-efficient larger than ± 0.7 . This is further confirmed by VIF statistics given in Table 1. All the VIF statistics are less than 10 and are centered on their mean. Hence there is no cause of concern from

viewpoint of multi collinearity amongst the independent variables.

- (7) The test outputs described at points (5) and (6) above, provide considerable reliability to the results and the emerging Multiple Regression Equation is as follows.

$$\text{PATSR} = + 6.305 - 0.461 (\text{LTDER}) + 0.010 (\text{CR}) + 0.157 (\text{IR}) - 0.161 (\text{DR})$$
The adjusted R^2 i.e. the co-efficient of determination is 0.189 indicating that the variables in the equation explain 18.9 % of variations in PATSR and for the unexplained variations in the PATSR, some other variables are responsible.
- (8) The descriptive statistics pertinent to the analysis are depicted in Table 4. The predictive value of the analysis will be greater if the data sets of the companies are to be studied closely to resemble the pattern of descriptive statistics given in the said table.

Findings:

Capital Structure:

The Long-Term Debt to Equity Ratio, an indicator of the capital structure of the company, is found to have negative relationship with Profit to After Tax to Sales Ratio. The significance level of β (LTDER) makes it very relevant. This leads us to infer that the corporate in this sector consider capital structure as important variable influencing the profitability. The research findings of (Titman, 1984) confirmed the presence of negative and significant association between the capital structure and profitability. However, (Ross, 1977) and Leland and Pyle (1977) also identified significant but positive relationship between capital structure and profitability. On the contrary, (Pandey, 1985) noticed the absence of significant relationship between the two variables. On the other hand, Bhatt (1980) observed that profitability of the firm significantly influences the choice of capital structure.

Working Capital:

The Current Ratio (Current Assets to Current Liability Ratio), an indicator of working capital of the company, is found to have positive association with Profit to After Tax to Sales Ratio. However the significance level of β (CR) renders it irrelevant. This leads us to infer that the corporate in this sector do not consider working capital as an important variable influencing the profitability. This is in sharp contrast to the findings of (Vishnani & Shah, 2007), (Osama & L.A., 2011) who observed negative relationship between the working capital and profitability.

Inventory:

The Inventory Turnover Ratio bears a positive relationship with the profitability of the enterprise. However, the unacceptable significance level does not allow it to be important. It means that the corporate do

not view inventory turnover as a significant determinant of profitability. The corporate inventory holdings probably do not carry much importance. This is in sharp contrast to research findings of (Shin & Soenen, 1998) and (Deloof, 2003) who identified inventory as significant variable that shows negative relationship with profitability. On the other hand, (Lazaridis & Tryfonidis, 2006) noticed negative association between inventory and profitability, but did not find it to be significant.

Debtors:

The Debtors Turnover Ratio bears a negative relationship with the profitability of the enterprise. However, its unacceptable significance level does not allow it to be relevant. This indicates that the corporate do not view Debtors as a significant determinant of the profitability of the enterprise. The corporate do not assign much value to the credit to be extended to customers. This is contrary to the research findings of (Shin & Soenen, 1998), (Deloof, 2003), (Lazaridis & Tryfonidis, 2006) and (John, 2014) who noticed debtors as significant variable that holds negative association with profitability. However, (Lazaridis & Tryfonidis, 2006) noticed debtors to have significant positive association with profitability.

Recommendations & Managerial Implications:

The results, discussions and findings made us to the following recommendations and implications:

- The corporate managers in the petrochemical sector need to concentrate on Long Term Debt to Equity Ratio to enhance the profitability of the company. The long term debt is to be kept as low as possible. In other words, equity will have to be given greater importance. This has broader implications in the sense that for the corporate world, shareholders will gradually replace institutional loan providers as Performance Appraisers. The corporate managers will have to pay greater attention to the long-term interests of shareholders. This in turn will require greater transparency and reliability in financial reporting besides higher levels of corporate objectives-oriented performance. This would provide a very valuable support in the development of performance-oriented culture.
- It provides a good base for academicians for further research in areas like financial restructuring to improve profitability, management of funds in medium and small size companies, comparison of practices for financial management adopted by the companies in developed and developing nations.

Future Research Directions:

The present study focuses on companies in the petrochemical sector listed on Bombay Stock Exchange and/or National Stock Exchange in India.

The impact of financial management in other sectors of economy such as textiles, banking, insurance, engineering, infrastructure, information technology, telecommunication, etc. can be critically examined by carrying out replication studies, before generalizing the results. A universal research study to compare financial management practices adopted by the companies in developed nations and developing nations can also be carried out. Further the research can also be undertaken by considering more variables such as growth rate of economy, participation in international trade etc.

Table 1: Regression co-efficients

	Regression Co-efficients		t	Significance Level	VIF Statistics
	Direction	Value			
Constant	+	6.305	0.940	0.355	--
LTDER	-	0.461	-2.725	0.011	1.128
CR	+	0.010	0.057	0.955	1.270
IR	+	0.157	0.883	0.385	1.242
DR	-	0.161	-0.893	0.379	1.275

Dependent Variable: PATSR Adjusted R2= 0.189
Independent Variables: LTDER, CR, IR, DR N =33

Table 2: Variance Analysis

	Sum of Squares	df	Mean Square	F	Significance Level
Regression	293.122	4	73.280	2.863	0.042
Residual	716.726	28	25.597		
Total	1009.848	32			

Table 3: Matrix of Co-efficients of Correlations

	LTDER	CR	IR	DR
LTDER	1.000	0.209	0.195	-0.205
CR	0.209	1.000	0.269	0.222
IR	0.195	0.269	1.000	-0.278
DR	-0.205	0.222	-0.278	1.000

Table 4: Descriptive Statistics

Variables →	PATSR	LTDER	CR	IR	DR
Mean	4.98	0.97	1.30	9.90	18.28
Minimum	-7.65	0.09	0.86	4.51	4.44
Median	4.17	0.65	1.29	8.23	9.88
Maximum	22.26	5.54	1.71	30.54	79.92
Standard Deviation	5.62	1.12	0.23	6.11	19.85

Appendix – 1
Details of Variables

Particulars	Abbreviation Used	Formula
Profit After Tax to Sales Ratio	PATSR	Profit After Tax Sales
Long term Debt to Equity Ratio	LTDER	Long term Debts Equity
Current Ratio	CR	Current Assets Current Liabilities
Inventory to Sales Ratio	IR	Sales Inventory
Debtors to Sales Ratio	DR	Sales Debtors

References:

Bhat, R. (1980). Determinants of Financial Leverage: Some Further Evidence. *The Chartered Accountant*, 451-456.

DeAngelo, H., & Masulis, R. W. (1980). Optimal Capital Structure under Corporate and Personal Taxation. *Journal of Financial Economics*, 8(1), 3-29.

Deloof, M. (2003). Does Working Capital Management Affect Profitability of Belgian firms? *Journal of Business Finance & Accounting*, 3, 573-587.

Fama, E., & French, K. (2002). Testing Trade-off and Pecking Order Predictions About Dividends and Debt. *Review of Financial Studies*, 15, 1-3.

Harris, M., & Raviv, A. (1991). The Theory of Capital Structure. *Journal of Finance*, 46(1), 297-355.

John, M. K. (2014). Working Capital Management and Profitability: A Study of Listed Manufacturing Companies in Ghana. *Research Journal of Accounting and Finance*, 5(22), 122-133.

Khalaf, T. (2012). Impact of Working Capital Management Policy and Financial Leverage on Financial Performance: Empirical Evidence from Amman Stock Exchange Listed Companies. *International Journal of Management Sciences and Business Research*, 1(8), 1-8.

Kim Hiang Liow. (2010). Firm Value, Growth, Profitability and Capital Structure of Listed Real Estate Companies: An International Perspective. *Journal of Property Research*, 27(2), 119-146.

Kishore, B. (1978). Measurement of Debt Capacity - A Suggested Approach. *Institute of Public Enterprises (IPE) Journal*, 1, 1-4.

Lazaridis, I., & Tryfonidis, D. (2006). Relationship Between Working Capital Management And Profitability of Listed Companies In the Athens Stock Exchange. *Journal of Financial Management and Analysis*, 19, 26-35.

Leyland, H., & Pyle, D. (1977). Information Assymetries, Financial Structure and Financial Disintermediation. *Journal of Finance*, 32, 371- 388.

Osama, S., & L.A., F. (2011). Impact of Working Capital Efficiency on Profitability – An empirical Analysis on Jordanian Manufacturing Firms. *International Research Journal of Finance and Economics*, 66, 67-76.

Pandey, I. (1985). The Financial Leverage in India: A Study. *Indian Management*(March), 21-34.

Pandey, I. (2004). Capital structure, Profitability and market Structure: Evidence from Malayasia. *Asia pacific Journal of Economics & Business*, 8(2), 78-98.

Ross, S. (1977). The Determination of Financial Structure: The Incentive Signaling Approach. *Bell Journal of Economics*, Spring, 8(1), 23-40.

Sarma, L., Thenmozhi, M., & Preeti, S. (2004). Effect of Non- Traditional Debt on Financial Risk: Evidence From Indian Manufacturing Firms. *The ICAI Journal of Applied Finance*, 10(October), 5-19.

Satyanarayana, C., Ramanandh, K., & Sampathkumar, K. (2011). Relationship between Working Capital and Profitability – A Statistical Approach. *International Journal of Research in Finance and Marketing*, 1(7), 1-16.

Shin, H., & Soenen, L. (1998). Efficiency of working capital and corporate Profitability. *Financial Practice and Education*, 8, 37-45.

Stohs, M. H., & Mauer, D. C. (1996). The Determinants of Corporate Debt Maturity Structure. *Journal of Business*, 69(3), 279-312.

Thies, C. F., & Klock, M. S. (1992). The Determinants of Capital Structure Choice. *Review of Financial Economics*, 1(2), 40-53.

Titman, S. (1984). The Effect of Capital structure On Firm's Liquidation Decisions. *Journal of Financial Economics*, 13, 137-151.

Vishnani, S., & Shah, B. (2007). Impact of Working Capital Management Policies on Corporate Performance An Empirical Study. *Global Business Review*, 8, 267-281.
