

IMPACT OF WORKING CAPITAL POLICIES ON MARKET VALUE OF FIRM: A STUDY OF SELECTED INDIAN MANUFACTURING COMPANIES

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Abstract

Conventionally, the finance researchers across the world have predominantly focused on the areas of research, which are confined to capital budgeting, financial decision making, financial risk, operational risk, investments, dividends etc. However, current assets and current liabilities are indispensable components of working capital management which are to be carefully examined. Hence, the present study investigates the impact of working capital management policies namely investment policy and financing policy on the market value of Indian manufacturing firms measured by Tobin's-Q (TQ). The study uses the balanced panel data set of 100 manufacturing firms listed at BSE-500 indices for the period 2007-2017. The finding reveals a positive and significant impact of aggressive investment policy on the value of firms. Conversely, the aggressive financing policy of the firms have a significant and negative impact on the value of firms. Moreover the findings of the study implies that the firm's manager can create value of the firms by adopting a conservative approach towards working capital investment policy and working capital financing policies.

Key Words: Tobin's Q (TQ), working capital investment policy, working capital financing policy.

Introduction

Things have been looking prosperous for the Indian manufacturing sector as the government has been looking to make India the next manufacturing destination in the world. Indian manufacturing sector's gross value added at current price was US\$ 311.6 billion in November 2017, as per CSO report. Moreover, the Indian manufacturing sector grew at a growth rate of 7.32 per cent between FY12 and FY17 (IBEF). The Cumulative Foreign Direct Investment (FDI) in India's manufacturing sector has reached to US\$ 70.51 billion by June 2017 (IBEF). Hence, importance of the sector in the overall economic growth of economy requires an empirical analysis. As finance is the cardinal requirement of manufacturing sector to work smoothly and efficiently, this study have explored a very major dimension of working capital management policies and its relationship with the market value of manufacturing firms. The

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nucleus of working capital management is to assist the firm in continuing its day to day operations and manage the cash optimally so as to meet the short term financing needs of business. According to Van-Horne, et.al. (2008); Deloof, (2003); Mathuva, (2010) etc., working capital management is the management of components of current assets such as cash, marketable securities, receivables, and inventories. While Raheman, et.al. (2010); Padachi, (2006); Shajar, (2017) etc., define working capital as life giving force to any economic unit and its efficient management is considered as the most critical function of corporate management. Moreover the efficient working capital management is recognized as an important aspect of financial management practices in all organizational forms (Enqvist, et.al. 2014). Therefore firms should try to keep an optimal level of working capital that could enhance their value (Deloof, 2003). Working capital management efficiency is an indispensable factor for the manufacturing firms, where an extensive part of its assets are composed of current assets. So strategic working capital management controls the current assets and liabilities in such a way that removes the risk of meeting short-term expectations and avoids excessive investment on these assets (Shin, et.al. 1998; Makori, et.al. 2013; Shajar, 2017). The firms may have a discretion to adopt an aggressive working capital investment policy with a lower investment in current assets as compare to fixed assets, or it may adopt an aggressive financing policy in the form of high level of current liabilities as percentage of total liabilities. On the one hand an excessive level of current assets may impinge the value of firms negatively. Conversely, keeping the current assets at minimal level can be a reason for liquidity crunch and stock-outs, resulting in difficulties in maintaining smooth operations (Lamberson, 1995; Juan, 2007; Van-horne, et.al. 2008). However, researchers across the world are divided into two schools of thought with regard to the applicability of working capital policies on the market value of firm. Albeit, the findings explicit by earlier studies urges to explore the implication of the working capital policies on the market value of selected Indian manufacturing companies.

Literature review

Most of the corporate finance researchers across the world have explored the different dimensions of working capital management, but very few studies have undertaken working capital policy measures in specific. However few initial studies namely Gupta (1969); Gupta et.al. (1972); Lamberson (1995); Ding et.al. (2013) have focused on some of the major indicators and have examined the differences of firms among the different ratios related to liquidity, profitability and investments. Although, plethora of research work are available with regard to relationship between working capital management and different measures of profitability, the present review has primarily incorporated only those literature under consideration which are related with working capital policies. The studies of Afza, et. al. (2007); Nazir, et.al. (2009) find a negative relationship between the measures of market value of firms and degree of aggressiveness of working capital investment and financing policies. The result further indicates that firms yield negative returns if they follow an aggressive working

capital policy. The study of Al-shubiri (2011) signifies negative returns if firms follow an aggressive working capital policy. However, Pirashanthini et. al. (2013) exhibits absence of any impact of the working capital aggressive investment and financing policies on firm's profitability. Salawu (2007) in his study showed a significantly negative correlation between industry asset and liability policies. Ding et.al. (2013) in their study explain the characteristics of high to low working capital sensitive firms and report that firms obsessed with high working capital indicate high sensitivities of investment in working capital to cash flow, while low sensitivities of investment in fixed capital to cash flow. The findings further suggest that firms could mitigate the effects of cash flow shocks on fixed capital investment through balancing a trade-off between policies. Weinraub et.al. (1998) in their study examined the relative relationship between the working capital policies of ten diverse industry groups, which reported the significant difference among the policies of different industries. Moreover, significant and negative relationship between industry asset and liability policies were found in the study, which contemplates that the risk borne by applying aggressive working capital investment policy, can be balanced by relatively conservative working capital financial policies. The findings concerning with the studies of Awopetu (2012); Bei et.al. (2012); Temtime (2016) etc., explain that working capital policies are the significant predictors of market value of firms. Where Bei et.al. (2012) point out that working capital investing and financing policy leads to profitability because firms with minimum investment in current assets rely heavily on current liabilities to finance their working capital. On contrary Iqbal et.al. (2014) in their study suggest that the working capital investment policies help the companies to maximise their market value by investing the substantial amount in current assets and not taking risk of using current liabilities as a source of financing their working capital. Ogundipe et.al. (2012) in their study find that by adopting an aggressive investment policy firms can maximise their market value. However, though the finding is in line with the study of Pirashanthini et. al. (2013), showed an insignificant relationship between market value of firms and financing policy.

Research Gap

Conventionally, the corporate finance researchers across the world have predominantly focused on the areas of research, which are confined to capital budgeting, financial decision making, financial risk, operational risk, investments, dividends and company valuation decisions. However, current assets and current liabilities are indispensable components of working capital management to be carefully examined. As working capital management is a pivot, around which all the day to day financial requirement of firms revolves. Hence, a steady and strategic approach is always required to maintain a proper level in the various components of working capital i.e. cash receivables, inventory and payables etc. Thus, an in-depth literature review on the subject matter implied that a good number of research work are available in the Indian context and abroad concerning with working capital management and its relationship with the measures of profitability and liquidity, but studies related to working capital policies and market

value of firms are not frequently explored by the researchers especially in Indian context. So the present study is an attempt in this regard to examine the relative impact of aggressive/conservative working capital policies on the market value of 100 manufacturing firms listed at BSE-500 for the period of 2007- 2017.

Objective of the study

The present study has drafted two research objectives to under see the impact of working capital policies on the market value of selected Indian manufacturing firms.

1. To examine the impact of aggressive investing policy on the market value of selected manufacturing firms.
2. To examine the impact of aggressive financing policy on the market value of selected manufacturing firms.

Research methodology

Sample size

The sample of the study consists of 100 manufacturing firms listed on the Bombay Stock Exchange (BSE) for 10 years period ranging from April 2007 to March 2017. The required financial data for the purpose of the study were obtained from the CMIE (Centre for Monitoring Indian Economy) Prowess database. The prime reason for choosing this database is availability and reliability of financial statements provided by them. Moreover, the firms listed on stock exchange have a stimulus to reveal their available profit in order to attract the shareholders (Lazaridis, et.al. 2006; Mathuva, 2009). The total number of manufacturing firms listed at BSE-500 was 113 out of which 100 firms were taken for the study after applying some filters. Firms with anomalous variance in their data were eliminated from the study. Some of the firms were eliminated from the study due to absence of financial information for more than two consecutive years. Hence, finally the balanced panel data set for 10 years of 100 sampled firms resulting into 1000 observation are developed.

Variables of the study

The study uses Tobin's-Q as an explained proxy for measuring the market value of firms, whereas AIP (Aggressive investment policy) and AFP (Aggressive financing policy) are used as an explanatory proxy variable in the study to measure the impact of investing and financing policies on the firm's market value. Moreover, the study uses three firm specific and two macro-economic control variables in the study. The brief description of the above mentioned variables are as hereunder:

Explained and explanatory variables used in the study

Tobin's q = Market capitalisation/ Book-value of total assets.

TQ is a measure which compares the efficiency of firm value with respect to book value of firm's assets. A low TQ ratio between 0 to 1 indicates that the replacement cost of firm's asset are greater than the value of firm's stock which indicates undervaluation of stock. On the other hand a high TQ ratio of more than 1 implies the overvaluation of firms stock.

$AIP \text{ (Aggressive investment policy)} = \text{Current assets} / \text{Total assets}$

When the firms have lower investment in the current assets as compared to fixed assets, it implies aggressive investing policy adopted by the firm. Conversely if the investment in current assets is higher as compare to fixed assets, the firms are said to be following conservative investment policy with an opportunity cost of lower firm's value. Hence, the positive beta coefficient of AIP ratio reflects the negative impact of AIP on market value of firms. Negative beta coefficient indicates the positive impact of AIP on market value of firms. However a lower ratio connotes a relatively aggressive investing policy.

$AFP \text{ (Aggressive financing policy)} = \text{Current liabilities} / \text{Total assets}$

When the firms use higher level of current liabilities as compared to long-term debt, it signifies the firms aggressive approach towards financing policy. Conversely lower level of investment in current liabilities as compared to long-term debt connotes the conservative approach of firm's towards financing policy. The positive beta coefficient of AFP indicates the positive impact of AFP on firm's market value, whereas negative beta coefficient implies the negative impact of AFP on market value of firms. However, a higher ratio reveals a relatively aggressive financing policy.

Control variables used in the study

A control variable is the variable which is unchanged throughout an experiment, its assist the researcher in finding the better relationship between variables used in the study. Control variables in the literature of corporate finance have been used by many of the earlier researchers along with the main variables in the study. Some of the earlier studies dealing with control variables are Deloof (2003); Eljelly (2004); Lazaridis et.al. (2006), Juan et.al. (2007); Afza et.al. (2007); Nazir et.al. (2009); Mathuva (2010); Banos et.al. (2014); Ponsian et.al. (2014); Shajar (2017) etc. However, the present study has undertaken FGR, FL and SIZE as a firm-specific control variable while GDP and INF have been taken as a macro-economic control measures. The firm's growth rate (FGR) is measured by variation in its annual sales value with respect to previous year's sales. Financial leverage (FL) was taken as the ratio of total debt to total assets of the firm's. Size of the firm (SIZE) has been measured as the logarithm of its total assets. The study has used two macro-economic indicators as a control variable in the study in line with earlier studies of Lamberson (1995); Juan et.al. (2007); Nazir et.al. (2009) etc. Since, good economic conditions are reflected by the firm's profitability, GDP growth rate of manufacturing firms and rate of inflation during the study period have been incorporated in the study to measure the influence of macro-economic variables on the market value of firms.

Results and Discussion

Correlation Analysis

Table 1: Pearson correlation coefficients

	TQ	AIP	AFP	FGR	FL	SIZE	GDP	INF
TQ	1							
AIP	.046	1						
AFP	.004	.559***	1					
FGR	.031	.078**	.055*	1				
FL	-.48***	-.148**	.029	.032	1			
SIZE	-.18	-.286***	-.030	-.191***	-.013	1		
GDP	.103***	-.001	-.064**	.076**	.011	-.074**	1	
INF	-.24***	-.024	-.101***	.097***	.051	-.111***	-.228***	1

The p-values are in parentheses, with ***, ** and * denoting significance level at 0.01, 0.05 and 0.10.

Source: Output generated by SPSS and E-views, compiled by Author.

Correlation analysis is a statistical evaluation method which measures the closeness of linear relationship between two or more variables. Table 1 presents the correlation matrix among the variables of the study. The results reveal the positive and insignificant relationship between TQ and working capital policies, which corroborates the earlier studies of Al-shubiri (2011); Awopetu (2012); Alavinasab et.al. (2013) etc. However, Ogundipe et.al. (2012) find a positive and significant relationship with AIP and TQ, while positive and insignificant relationship is reported between AFP and TQ. Among the firm specific control variables FGR is positively related with firm's value, however FL and SIZE are negatively correlated with firm value, which is consistent with the earlier studies of Zubairi (2010); Almazari (2013); Shajar (2017) etc. Conversely macro-economic control variables namely GDP and INF were found to be significant at 1% level with a negative relationship with INF and positive relationship with GDP, which is in line with the earlier studies of Nazir et.al.(2009). Correlations among other variables were also found to be either positive or negative with a significant value.

Regression assumptions

The studies of Montgomery et.al. (1982), Berry (1993), Gujarati et.al. (2007) and Lumley et.al. (2002), recommended for meeting certain assumption of regression in the financial data before running the regression analysis. Hence, this study has undertaken multiple regression assumption test to procure the unbiased results to confirm whether the data are fit for the regression analysis or not. Normality of data is checked through Doornik- Hansen test and normal probability plots (P-P). Although the data seems to be non-normal, but the study assumes the variables to be normal as per the Central limit theorem, where violation of normality assumption is not a problem, in case of sample size to be equal to or more than 30 Lumley et. al. (2002). The linearity assumption of the study has been confirmed through Q-Q plot in the

study to inspect the shape of residuals in respective models (graph is not shown in the study). The auto-correlation in the study have been diagnosed through Durbin Watson (D-W) test, and the presence of auto-correlation are removed by applying Prais-Winsten test. Value of Durbin-Watson is 1.95 and 1.96 as reported in Table 2. The multicollinearity problem is checked through correlation matrix followed by variance inflationary factor VIF. The correlation matrix in Table 1, evinces that value of correlation coefficients are in the range of -.001 to .55 showing absence of multicollinearity. However it is further corroborated with the help of VIF value which depicts the value in between 1.007 to 1.703 (the table is not shown in the paper), much below than the threshold limit of 10 for detecting multicollinearity in the model (Gujarati et.al. 2007). The heteroscedasticity assumption in the study have been checked through Wald-test in the regression model, where the problem of heteroscedasticity have been removed by applying Arellano's (1987) correction for standard errors i.e. HAC (Heteroscedasticity and autocorrelation consistent) test (result in not reported in the study). So after confirming the regression assumptions, the regression model is applied and the results are shown. The assumption test have been performed applying statistical packages e.g., Gretl (version-2017C.exe), E-views (version-9.5) and SPSS (version- 20) as per the requirement of the study.

Regression model:

The study has developed two regression models in order to fulfill the research objectives of the study. The models have been framed in line with the earlier studies of Deloof (2003); Lazaridis et.al. (2006); Padachi (2006); Juan et.al. (2007); Nazir et.al. (2009); Gill et.al. (2010); Raheman et.al.(2010); Makori et.al. (2013); Shajar et.al. (2016); Temtime (2016) etc.

1. $(TQ)_{i,t} = \alpha + \beta_1 (AIP)_{i,t} + \beta_2 (FGR)_{i,t} + \beta_3 (FL)_{i,t} + \beta_4 (SIZE)_{i,t} + \beta_5 (GDP)_{i,t} + \beta_6 (INFL)_{i,t} + \varepsilon_{i,t}$
2. $(TQ)_{i,t} = \alpha + \beta_1 (AFP)_{i,t} + \beta_2 (FGR)_{i,t} + \beta_3 (FL)_{i,t} + \beta_4 (SIZE)_{i,t} + \beta_5 (GDP)_{i,t} + \beta_6 (INFL)_{i,t} + \varepsilon_{i,t}$

Where,

α = intercept of the model, ε = error term of the model, Subscript i denote companies (cross-section dimensions) whereas t denotes years (time-series dimensions), β_1 is a constant term representing Y intercept of the regression line.

TQ- Tobin's-Q., AIP- Aggressive investment policy., AFP- Aggressive financing policy., FGR- firm's growth rate measured by growth in sales., FL- Financial leverage of firms., SIZE- Size of firm measured by total assets., GDP- Annual GDP growth rate of manufacturing industry., INFL- Inflation is the consumer price index in percent.

Regression results**Fixed-effects, using 1000 observations, Time-series length = 10****Table 2** Dependent variable: TQ, Robust (HAC) standard errors

Variable	1st Model		2 nd Model	
	β -coefficient	t-value	β -coefficient	t-value
C	-2.619	-3.584***	-2.619	-3.749***
AIP	0.2958	0.7808	-----	-----
AFP	-----	-----	-1.1737	-3.924***
FGR	0.0530	0.4799	0.0927	0.8442
FL	-1.2729	-4.572***	-1.372	-5.022***
SIZE	1.2082	8.4344***	1.3262	9.1276***
GDP	0.0593	5.6484***	0.0557	5.3397***
INF	-0.1277	-10.137***	-0.1333	-10.64***
F-value	32.60***		33.37***	
Adjusted-R ²	0.76		0.77	
Durbin- Watson	1.95		1.96	
The p-values are in parentheses, with ***and** denoting significance at the 0.01, 0.05 levels respectively.				

Source: Output generated by E-views and Stata. Compiled by author.

Regression Analysis

The regression results showcased in Table 2 signifies the impact of working capital policies along with control variables on the market value of firms. The analysis of 1st model exhibits that the investment policy of market value of firms is having a positive beta coefficient with a positive but insignificant p-value. The positive β coefficient of AIP indicates a negative relationship between the degree of aggressiveness of investment policy and market value of firm, which further contemplates that market value of firm start growing, if the firm's increases their investment in current assets as compare to fixed assets and vice-versa. The findings are in line with the earlier studies of Afza et.al. (2007); Nazir et.al. (2009); Awopetu (2012); Osundina et.al. (2014); Shan et.al. (2015); Lee et.al. (2016); Temtime (2016) etc. Hence, the result implies that the investors in selected Indian manufacturing firms do not believe in the aggressive investment policy adopted by the firm in order to maximise their market value. Conversely the analysis of 2nd model reveals a negative and significant impact of AFP on the market value of firm. The negative coefficient of AFP signifies the negative relationship between market value and aggressive financing policy which suggests that lowering the aggressive financing policy ratio will increase the firm's performance and vice-versa. Temtime (2016) explains that market value of firms get diminished as firms increase their investment in short term liabilities in financing their working capital. Moreover, the negative relationship also indicates that investors are giving less priority to the firms which are adopting an aggressive financing policy. The result of

the study is consistent with the earlier researches of Mohamad 2010; Temtime 2016 etc. On the contrary the negative relationship between AFP and TQ is contradictory to the findings of Eljelly (2004); Nazir et.al. (2009); Alshubiri (2011); Awopetu (2012) etc. The control variables used in the study are growth rate of firms, financial leverage, firm size, GDP growth rate and inflation etc. The control variables used in both the models are showing almost similar impact on the explained variable. The firm-specific control variables namely growth rate of firms and size are found to have positive impact on the firm's policies with a significant p-value with size. Whereas financial leverage of the firm has a negative and significant impact on the firms policies, which is consistent with the earlier studies of Shin et.al. (1998); Gill et.al. (2010); Mehtap (2016) etc. The macro-economic control variables namely GDP and INF are having a significant impact on working capital policies, wherein increase in GDP growth rate will increase the firm's value Lamberson (1995); Nazir et.al. (2009), while increasing rate of inflation will decline the market value of firm. The *F*-values in both the regression models are found to be statistically significant at 1% level of significance, contemplating the fitness of model. Moreover, the adjusted-R² of the model explains that explanatory and control variables together influence the market value of firms by almost 76% and 77% respectively.

Conclusion:

The present study examined the impact of aggressive working capital policies (Investment/Financing) on the market value of 100 manufacturing firms listed at BSE-500 indices for the period from April 2007 to March 2017 using a balanced panel data. Findings of the study reported the positive and insignificant impact of aggressive investment policy on the market value of manufacturing firms implying a negative relationship between the degree of aggressiveness of working capital investment policy and market value of firms. Conversely negative and significant relationship between aggressive financing policy and market value of firms indicate that adopting an aggressive financing policy impinges the market value of firm's negatively. Furthermore the results suggest that the market value of firm using high level of current liabilities in their financing is less than their book value. Findings of the present study are expected to have a significant contribution in the field of corporate finance literature and in particular to working capital management as Tobin's Q has not been much considered in Indian context hitherto. Moreover, the study suggests that a firm pursuing aggressive working capital investment policy should match it with a conservative working capital financing to alleviate the risk sustained under aggressive working capital investment policies by safety involved under conservative working capital financing policy.

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