

PROMOTER OWNERSHIP AND WORKING CAPITAL MANAGEMENT EFFICIENCY OF INDIAN MANUFACTURING FIRMS

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Abstract

Poor cash flow leads to insolvency of the firm. One of the most important factors that lead to poor cash flow is the inefficiency of working capital management. This study investigates relationships between promoter ownership and working capital management efficiency of Indian manufacturing firms. A sample of 151 manufacturing firms was selected from Top 500 Companies listed on the Bombay Stock Exchange (BSE) for a period of five years (from 2010-2014). Results indicate that changes in promoter ownership play a role in changing working capital management efficiency of Indian manufacturing firms by reducing their cash conversion cycle and by improving cash conversion efficiency. This study contributes to the literature on the factors that cause changes in working capital management efficiency. The findings may be useful for financial managers, operations managers, investors, financial management consultants, and other stakeholders.

Keywords: Promoter Ownership, Cash Holdings, Current Ratio, Accounts Receivables, Accounts Payable, Inventory, Cash Conversion Cycle, Cash Conversion Efficiency

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1 Introduction

It is commonly agreed that poor cash flow leads to insolvency of the firm (Sharma, 2001; Hoque, Bhandari, Iyer, 2013). One of the important factors that lead to poor cash flow is the inefficiency of working capital management; that is, the longer the cash flow cycle, the poorer the cash inflow. Therefore, this study concentrated on the relationship between promoter ownership and the efficiency of working capital management by collecting data from Indian production firms.

There are three types of shareholders in the Indian listed firms: promoter shareholders, non-promoter shareholder institutions, and the general public. Firms operated by families are characterized as having concentrated ownership called promoters. Most of the shares are held by the 'promoter' -- the entity with controlling stakes in the company and its associates. The ownership of these family firms is frequently associated with pyramiding, cross holding, and family trusts. The non-promoter shareholders include banks, financial institutions, and mutual fund companies (Chakraborty et al., 2008). According to Kumar and Singh (2013), promoters are a group of persons who are involved in the incorporation and organization of a corporation. They are an important

part of companies in the Indian business context, as most of the companies are of family origin. Thus, a majority of the promoters belong to the same families, relatives, and in some cases, friends. The agency problem under the governance of promoters is low because a majority of the shareholders is from the same family and from relatives (Schulze et al., 2003).

The agency theory of Jensen and Meckling (1976), which focused on the function of the board, serves as the basic foundation of the structure of the board of directors (Fama and Jensen, 1983; Hillman and Dalziel, 2003). Based on agency theory, agency conflict (i.e., conflict between principal and agent) takes place in corporations because managers may not work in the best interests of shareholders to make 'corporate assets' productive and to maximize shareholders' wealth.

The board of directors goes in the hands of majority vote holders and they control the corporation by formulating new policies and by amending existing corporate policies including policies related working capital management.

According to Owens (2010), majority holdings occur when one party has more than 51% of the equity of the firm and the other partners have less than 49%. Once board of directors changes, the policies of the corporation including working capital management

may also change. The board of directors formulates corporate policies that affect the efficiency of working capital management. The components of working capital management include receivables, inventory, payables, and using cash efficiently for day-to-day operations (Gill and Biger, 2013). Since a majority of the shares in the hands of promoters belongs to family members and relatives, the board of directors formed by promoters can function better to improve working capital efficiency. This leads to the following research question:

1.1 Do changes in promoter ownership impact working capital management efficiency?

Although all the components of working capital efficiency such as accounts receivables, accounts payable, inventory, and the cash conversion cycle are important, cash held for the purpose of investment in physical assets, precautionary (i.e., safety reasons to protect firm from unforeseen fluctuations), speculative (i.e., to take advantages of any bargain purchases that may arise), and transactional motives (i.e., everyday transactions) is most vulnerable to wanton behavior by management (Besley and Brigham, 2005; Isshaq et al., 2009; Gill and Biger, 2013) and it leads to poor governance of the corporation.

Idle cash leads to opportunity cost of capital. According to the pecking order theory of Myers (1984), firms prefer to finance investments first with retained earnings or internal equity (i.e., cash available), then with safe debt and then risky debt, and finally with external equity in order to minimize asymmetric information costs and other financing costs. Since the board of directors formulate important corporate governance policies, it is responsible for the control of high cash balances, high volume of accounts receivable, high amounts of accounts payable, and a fast cash conversion cycle (Gill and Biger, 2013, p. 117). Therefore, it is expected that positive changes in promoter ownership cause favorable changes in working capital management efficiency.

Although many studies in the area of working capital management have been conducted since Nadiri (1969) pioneered a study on the desired level of real cash balances, no published studies were found that investigated the impact of promoter ownership on working capital management efficiency. However, notable previous studies emphasized the relationships between:

- Production output and cash balances (Nadiri, 1969).
- Cash balances and easiness of borrowing (Dittmar et al., 2003).
- Leverage, firm size, and cash levels (Saddour, 2006).
- Corporate governance and cash holdings (Drobetz and Gruninger, 2007).

- Sales growth and corporate liquidity (Gill and Mathur, 2011).

- Corporate governance and cash policy (Kuan et al., 2011; Lau and Block, 2012).

- Corporate governance and working capital management efficiency (Gill and Biger, 2013).

The present study extends the above studies by testing the relationship between promoter ownership and working capital management efficiency of Indian manufacturing firms. This research study proposes that promoter ownership has a strong impact on working capital management efficiency. This is because the board of directors formed by promoters is generally controlled by family members and their relatives and they are expected to improve working capital management efficiency by playing a better stewardship role. Thus, this study adds empirical substance to existing theory.

The organization of the remainder of the paper is as follows. Section two examines the previous literature and develops hypotheses. Section three describes the data and methodology used to investigate our research question. Section four discusses and analyzes the empirical results. Section five concludes and considers the implications of the findings.

2 Literature review

Stewardship theory of Donaldson and Davis (1991) indicates that the main role of the board of directors is to advise and support management by acting as stewards, rather than to discipline and monitor as agency theory prescribes, and align the interest of employees with corporate objectives to maximize shareholders' wealth (Davis et al., 1997; Corbetta and Salvato, 2004; Pieper et al., 2008; Arosa, Iturralde and Maseda, 2010).

Among all working capital items, the asset with the most liquidity is cash and it is one measure of a corporation's ability to pay its short-term liabilities, as they are due. However holding higher cash balances does not maximize shareholders' wealth or returns and may lead to agency problems. Therefore, an optimal cash policy is necessary to maximize shareholders' wealth and to avoid underpricing issues (Cossin and Hricko, 2004). Strong corporate governance is required to control cash and other components of working capital. Although firms require cash for the growth of production by increasing inventories (Michalski, 2008) to smooth operations, a higher level of inventory and cash can begin to backfire. Paying accounts payable after the due date also hurts the firm because of the penalty charged by suppliers. Building unnecessary working capital also does not benefit the firm because it has a negative impact on shareholders' wealth. Therefore, an optimal working capital management policy is necessary for the firm (Gill and Biger, 2013). The agency problem is low in the family controlled firms; that is, the board of directors formed

by promoters can be useful in improving the efficiency of working capital management and in maximizing shareholders wealth.

The CEO, together with the board of directors, formulates policies, including those related to working capital management. According to Yermack (1996) and Lipton and Lorsch (1992), a small board of directors is more effective in the decision-making process than a larger board of directors. According to Kyereboah-Coleman (2007), small board sizes should be encouraged to promote effective communication and decision-making. Jensen (1993) indicated that a lack of independent leadership creates difficulty for boards to respond to failure in top management. Fama and Jensen (1983) also argued that concentration of decision management and decision control in one individual hinders boards' effectiveness in monitoring top management.

The empirical studies on working capital management are as follows.

Nadiri (1969) pioneered the study on working capital management efficiency by building a model on optimal cash holdings and found that the demand for real cash balances is determined by the firm's output.

Dittmar et al. (2003) found that cash holdings double up in countries where the rights of shareholders are not well protected. The authors also found that when shareholder protection is poor, factors such as investment opportunities and asymmetric information become less important and firms hold larger cash balances when access to funds is easier. These findings suggest that agency problems are important determinants of corporate cash holdings. Therefore, strong corporate governance is necessary. The board of directors formed by promoters can be more successful in minimizing agency problems and, consequently, improving the efficiency of working capital management.

Saddour (2006), using tradeoff theory and pecking order theory, sampled 297 French firms and found that growth companies hold higher cash levels than mature companies.

Kuan et al., (2011) found that the impact of corporate governance differs between family-controlled and nonfamily-controlled firms. The authors also found that the separation of seat control rights and cash flow rights significantly affects the cash policy within different levels of cash holdings in firms.

Lau and Block (2012) found that founder firms hold a significantly higher level of cash than family firms. In addition, they found a positive interaction effect between founder management and cash holdings on firm value, suggesting that the presence of founders as managers helps to mitigate the agency costs of cash holdings.

Gill and Biger (2013) found that corporate governance plays some role in improving the efficiency of working capital management.

Ding, Guariglia, and Knight (2013) used Chinese companies' data and found that firms characterized by high working capital display high sensitivities of investment in working capital to cash flow. Therefore, an optimal level of working capital is required to improve the efficiency of working capital management.

Baños-Caballero, García-Teruel, and Martínez-Solano (2014) found the optimal level of investment in working capital balances, costs and benefits related to working capital management. The optimal level of investment decisions, however, are made by the board of directors and CEO.

In summary, the limited availability of literature indicates that promoter ownership influences the efficiency of working capital management. Since promoters belong to the same family, relatives, and their friends, the board formed by promoters is expected to improve the efficiency of working capital management. Hence following hypotheses:

H1: Changes in promoter ownership change cash holdings.

H2: Changes in promoter ownership change current ratio.

H3: Changes in promoter ownership change accounts receivables.

H4: Changes in promoter ownership change inventory holdings.

H5: Changes in promoter ownership change accounts payables.

H6: Changes in promoter ownership change cash conversion cycle.

H7: Changes in promoter ownership change cash conversion efficiency.

3 Methods

The study applied co-relational and non-experimental research design. This process of measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships. There is no single measure that fully expresses the efficiency of working capital management (Gill and Biger, 2013). We, therefore, chose seven different component measures of working capital management efficiency described in table 1.

3.1 Measurement

To remain consistent with previous studies, all the measures were adopted from the Gill and Biger (2013) study.

Table 1 shows the measurements of the dependent, independent, and control variables that were used in regression analysis.

Table 1. Proxy Variables and their Measurements

Dependent Variables	Measurement
Change in Cash Holdings ($\Delta CH_{i,t}$)	(Current year CH - Previous year CH)/Previous year CH
Change in Current Ratio ($\Delta CR_{i,t}$)	(Current year CR - Previous year CR)/Previous year CR
Change in Accounts Receivables ($\Delta AR_{i,t}$)	(Current year AR - Previous year AR)/Previous year AR
Change in Inventory ($\Delta INV_{i,t}$)	(Current year INV - Previous year INV)/Previous year INV
Change in Accounts Payables ($\Delta AP_{i,t}$)	(Current year AP - Previous year AP)/Previous year AP
Change in Cash Conversion Cycle ($\Delta CCC_{i,t}$)	(Current year CCC - Previous year CCC)/Previous year CCC
Change in Cash Conversion Efficiency ($\Delta CCE_{i,t}$)	(Current year CCE - Previous year CCE)/Previous year CCE
Independent (explanatory) Variables	Measurement
Change in Promoter Ownership ($\Delta PO_{i,t}$)	(Current year PO - Previous year PO)/Previous year PO
Control Variables	Measurement
Change in Sales Growth ($\Delta SG_{i,t}$)	(Current year sales - Previous year sales)/Previous year sales
Change in Firm Size ($\Delta FS_{i,t}$)	(Current year FS - Previous year FS)/Previous year FS
Change in Firm Performance ($\Delta FP_{i,t}$)	(Current year FP - Previous year FP)/Previous year FP

Notes:

- Cash holdings = Log of average cash
- Current ratio = Current assets/current liabilities
- Accounts receivables = (Accounts receivables/sales)/365 days
- Inventory = (Inventory/cost of goods sold)/365 days
- Accounts payables = (Accounts payables/cost of goods sold)/365 days
- Cash conversion cycle = No. of days A/R + no. of days inventory - no. of days A/P
- Cash conversion efficiency = Cash flow from operations/sales
- Sales growth = (Current year sales - previous year sales)/previous year sales
- Firm size = Natural log (ln) of average assets
- Firm performance = Net income after tax/revenue

The regression models used in this study are as follows:

$$\Delta CH = \Delta + \Delta_1 \Delta PO_{it} + \Delta_2 \Delta SG_{it} + \Delta_3 \Delta FS_{it} + \Delta_4 \Delta FP_{it} + \mu_{it} \quad (1)$$

$$\Delta CR = \Delta + \Delta_1 \Delta PO_{it} + \Delta_2 \Delta SG_{it} + \Delta_3 \Delta FS_{it} + \Delta_4 \Delta FP_{it} + \mu_{it} \quad (2)$$

$$\Delta AR = \Delta + \Delta_1 \Delta PO_{it} + \Delta_2 \Delta SG_{it} + \Delta_3 \Delta FS_{it} + \Delta_4 \Delta FP_{it} + \mu_{it} \quad (3)$$

$$\Delta INV = \Delta + \Delta_1 \Delta PO_{it} + \Delta_2 \Delta SG_{it} + \Delta_3 \Delta FS_{it} + \Delta_4 \Delta FP_{it} + \mu_{it} \quad (4)$$

$$\Delta AP = \Delta + \Delta_1 \Delta PO_{it} + \Delta_2 \Delta SG_{it} + \Delta_3 \Delta FS_{it} + \Delta_4 \Delta FP_{it} + \mu_{it} \quad (5)$$

$$\Delta CCC = \Delta + \Delta_1 \Delta PO_{it} + \Delta_2 \Delta SG_{it} + \Delta_3 \Delta FS_{it} + \Delta_4 \Delta FP_{it} + \mu_{it} \quad (6)$$

$$\Delta CCE = \Delta + \Delta_1 \Delta PO_{it} + \Delta_2 \Delta SG_{it} + \Delta_3 \Delta FS_{it} + \Delta_4 \Delta FP_{it} + \mu_{it} \quad (7)$$

In the above models, i refers to the individual firm, t refers to a specified time period, and $\mu_{i,t}$ refers to the error term.

In the estimated models, α measures the magnitude at which changes in promoter ownership changes the working capital management efficiency. We extend the above models by considering a set of control variables (SG , FS , and FP). We estimate the coefficients of variables of models by applying the weighted least squares (WLS) method.

3.2 Data collection

A database was built from a selection of 500 financial reports from Top 500 Publicly Traded Companies listed on the Bombay Stock Exchange (BSE) between

January 1, 2010 and December 31, 2014 to collect a sample of Indian manufacturing firms. Out of approximately 500 financial reports announced by Top 500 Publicly Traded Companies between January 1, 2010 and December 31, 2014, only 151 financial reports were usable. Cross sectional yearly data was used in this study. Thus, 151 financial reports resulted in 755 total observations. The sample included manufacturing firms that manufactured and processed products for the following sectors:

- Industrial equipment (40 firms).
- Materials (74 firms).
- Energy (25 firms).
- Utilities (12 firms).

3.3 Descriptive statistics

Table 2 reports descriptive statistics of the collected variables. The explanation on descriptive statistics is as follows:

- Accounts receivables: $\Delta AR12 = 7\%$; $\Delta AR13 = 8\%$; $\Delta AR14 = -1\%$.
- Inventory: $\Delta INV12 = -1\%$; $\Delta INV13 = -4\%$; $\Delta INV14 = -2\%$.
- Accounts payables: $\Delta AP12 = -1\%$; $\Delta AP13 = -1\%$; $\Delta AP14 = 4\%$.
- Cash conversion cycle: $\Delta CCC12 = -12\%$; $\Delta CCC13 = -7\%$; $\Delta CCC14 = -5\%$.

- Cash holdings: $\Delta CH12 = 5\%$; $\Delta CH13 = -1\%$; $\Delta CH14 = 2\%$.
- Current ratio: $\Delta CR12 = -3\%$; $\Delta CR13 = 2\%$; $\Delta CR14 = -1\%$.
- Cash conversion efficiency: $\Delta CCE12 = -11\%$; $\Delta CCE13 = -8\%$; $\Delta CCE14 = -3\%$.
- Promoter ownership: $\Delta PO11 = 1\%$; $\Delta PO12 = 2\%$; $\Delta PO13 = 1\%$.
- Sales growth: $\Delta SG11 = 15\%$; $\Delta SG12 = 20\%$; $\Delta SG13 = 8\%$.
- Firm size: $\Delta FS11 = 2\%$; $\Delta FS12 = 1\%$; $\Delta FS13 = 2\%$.
- Firm performance: $\Delta FP11 = -6\%$; $\Delta FP12 = -9\%$; $\Delta FP13 = -6\%$.

Table 2. Descriptive statistics

	Minimum	Maximum	Mean	Std. Deviation
$\Delta AR12$	-0.82	0.96	0.07	0.27
$\Delta AR13$	-0.53	0.94	0.08	0.27
$\Delta AR14$	-0.77	0.87	-0.01	0.25
$\Delta INV12$	-0.75	0.87	-0.01	0.23
$\Delta INV13$	-0.77	0.98	-0.04	0.25
$\Delta INV14$	-0.99	0.94	-0.02	0.25
$\Delta AP12$	-0.84	0.90	-0.01	0.28
$\Delta AP13$	-0.80	0.93	-0.01	0.28
$\Delta AP14$	-0.74	0.99	0.04	0.25
$\Delta CCC12$	-0.96	0.99	-0.12	0.42
$\Delta CCC13$	-0.98	0.92	-0.07	0.40
$\Delta CCC14$	-0.99	0.98	-0.05	0.42
$\Delta CH12$	-0.42	0.74	0.05	0.17
$\Delta CH13$	-0.57	0.40	-0.01	0.13
$\Delta CH14$	-0.59	0.80	0.02	0.18
$\Delta CR12$	-0.96	0.90	-0.03	0.32
$\Delta CR13$	-0.84	0.96	0.02	0.26
$\Delta CR14$	-0.90	0.99	-0.01	0.24
$\Delta CCE12$	-0.96	0.97	-0.11	0.46
$\Delta CCE13$	-0.99	0.88	-0.08	0.41
$\Delta CCE14$	-0.98	0.91	-0.03	0.50
$\Delta PO11$	-0.51	0.44	0.01	0.08
$\Delta PO12$	-0.13	0.51	0.02	0.06
$\Delta PO13$	-0.40	0.52	0.01	0.08
$\Delta SG11$	-0.66	0.93	0.15	0.22
$\Delta SG12$	-0.82	0.98	0.20	0.22
$\Delta SG13$	-0.89	0.91	0.08	0.22
$\Delta FS11$	-0.02	0.76	0.02	0.07
$\Delta FS12$	-0.01	0.06	0.01	0.01
$\Delta FS13$	-0.03	0.43	0.02	0.04
$\Delta FP11$	-0.98	0.93	-0.06	0.36
$\Delta FP12$	-0.91	0.95	-0.09	0.38
$\Delta FP13$	-0.95	0.95	-0.06	0.36

Notes: Variables include changes in accounts receivables (ΔFP), inventory (ΔINV), accounts payables (ΔAP), cash conversion cycle (ΔCCC), cash holdings (ΔCH), cash conversion efficiency (ΔCCE), promoter ownership (ΔPO), sales growth (ΔSG), firm size (ΔFS), and firm performance (ΔFP).

3.4 Pearson bivariate correlation analysis

Bivariate correlation analysis shows that:

- $\Delta AR12$ is negatively correlated with $\Delta SG11$.
- $INV13$ is negatively correlated with $\Delta SG12$.

- $\Delta AP12$ is negatively correlated with $\Delta SG11$; $\Delta AP13$ is positively correlated with $\Delta SG12$; and $\Delta AP14$ is negatively correlated with $\Delta SG13$.
- $\Delta CCC12$ is negatively correlated with $\Delta PO11$ and $\Delta CCC13$ is negatively correlated with $\Delta PO12$.

• $\Delta CH12$ is positively correlated with $\Delta FSI1$; $\Delta CH13$ is negatively correlated with $\Delta PO12$; and $\Delta CH14$ is negatively correlated with $\Delta PO13$ and $\Delta SG13$.

• $\Delta CR12$ is negatively correlated with $\Delta PO11$ and positively correlated with $\Delta SG11$.

• $\Delta CCE14$ is positively correlated with $\Delta PO13$ and $\Delta SG13$ (see Table 3).

Table 3. Pearson correlations

Variables	$\Delta AR12$	$\Delta INV12$	$\Delta AP12$	$\Delta CCC12$	$\Delta CH12$	$\Delta CR12$	$\Delta CCE12$	$\Delta PO11$	$\Delta SG11$	$\Delta FSI1$	$\Delta FPI1$
$\Delta AR12$	1										
$\Delta INV12$	0.174**	1									
$\Delta AP12$	0.210***	0.150	1								
$\Delta CCC12$	0.213***	0.039	0.211***	1							
$\Delta CH12$	-0.001	-0.184**	-0.014	-0.092	1						
$\Delta CR12$	0.003	-0.049	-0.248***	0.118	0.201**	1					
$\Delta CCE12$	-0.069	-0.080	0.181**	-0.043	-0.018	-0.032	1				
$\Delta PO11$	-0.007	0.046	0.094	-0.181**	0.020	-0.230***	0.141	1			
$\Delta SG11$	-0.210***	-0.030	-0.214***	-0.068	0.017	0.246***	-0.026	0.018	1		
$\Delta FSI1$	0.036	-0.062	-0.098	-0.004	0.193**	-0.023	-0.121	-0.264***	-0.207**	1	
$\Delta FPI1$	0.087	0.096	0.106	0.017	-0.060	0.097	-0.078	-0.133	-0.085	-0.141	1

Variables	$\Delta AR13$	$\Delta INV13$	$\Delta AP13$	$\Delta CCC13$	$\Delta CH13$	$\Delta CR13$	$\Delta CCE13$	$\Delta PO12$	$\Delta SG12$	$\Delta FSI2$	$\Delta FPI2$
$\Delta AR13$	1										
$\Delta INV13$	-0.062	1									
$\Delta AP13$	0.174**	0.059	1								
$\Delta CCC13$	0.084	0.004	0.281***	1							
$\Delta CH13$	-0.147	-0.080	0.023	-0.019	1						
$\Delta CR13$	-0.083	0.048	-0.252***	0.009	.092	1					
$\Delta CCE13$	-0.096	0.004	0.162**	0.005	.179**	-0.118	1				
$\Delta PO12$	0.138	-0.001	-0.031	-0.189**	-.168**	0.067	0.024	1			
$\Delta SG12$	0.082	-0.176**	0.175**	0.060	-.068	-0.043	0.108	0.206**	1		
$\Delta FSI2$	-0.115	0.005	0.001	0.064	.070	0.015	0.070	-0.036	0.285***	1	
$\Delta FPI2$	-0.098	0.038	-0.022	-0.052	.073	-0.015	0.044	-0.019	-0.279***	-0.057	1

Variables	$\Delta AR14$	$\Delta INV14$	$\Delta AP14$	$\Delta CCC14$	$\Delta CH14$	$\Delta CR14$	$\Delta CCE14$	$\Delta PO13$	$\Delta SG13$	$\Delta FSI3$	$\Delta FPI3$
$\Delta AR14$	1										
$\Delta INV14$	0.062	1									
$\Delta AP14$	0.234***	0.226***	1								
$\Delta CCC14$	0.022	0.049	0.175**	1							
$\Delta CH14$	0.056	-0.047	0.169**	0.068	1						
$\Delta CR14$	0.122	-0.075	-0.079	-0.004	0.071	1					
$\Delta CCE14$	0.094	0.050	0.068	-0.115	-0.028	-0.009	1				
$\Delta PO13$	0.104	0.124	-0.010	-0.159	-0.175**	0.002	0.188**	1			
$\Delta SG13$	0.075	0.076	-0.208**	0.108	-0.237***	-0.076	0.227***	0.121	1		
$\Delta FSI3$	-0.107	0.001	0.047	0.056	-0.086	-0.045	-0.076	-0.017	0.023	1	

Notes: Variables include changes in accounts receivables (ΔAR), inventory (ΔINV), accounts payables (ΔAP), cash conversion cycle (ΔCCC), cash holdings (ΔCH), cash conversion efficiency (ΔCCE), promoter ownership (ΔPO), sales growth (ΔSG), firm size (ΔFS), and firm performance (ΔFP). ***, ** and * imply significance of each mean difference at the 1%, 5%, and 10% level, respectively.

4 Analysis and discussion

In this section we present the empirical findings on the relationship between promoter ownership and working capital management efficiency of the Indian manufacturing firms. To counter problem of heteroskedasticity (changing variation after short period of time), we used the weighted least square (WLS) model with cross section weight of four industries (industrial equipment manufacturing, material production, energy production, and utilities products manufacturing). There was also possibility of endogeneity issues because we used multiple

regression analysis. The issues of endogeneity also take place if certain variables are omitted and there are measurement errors. To minimize endogeneity issues, the most important variables that impact the working capital management efficiency were used and the measurements were borrowed from the previous empirical studies. As the sample of companies only included companies that “survived” during the study period, there might have been a survival bias in the study (Gill and Biger, 2013, p. 124).

4.1 Promoter ownership, cash holdings, and current ratio

Table 4 reports the estimated coefficients of Equations 1 and 2. Negative relationships between:

- $\Delta PO12$ and $\Delta CH13$ and $\Delta PO13$ and $\Delta CH14$ indicate that changes in promoter ownership reduce cash holdings in the Indian manufacturing firms.

- $\Delta SG13$ and $\Delta CH14$ indicate that changes in sales growth reduce current ratio.

- $\Delta PO11$ and $\Delta CR12$ indicate that changes in promoter ownership reduce current ratio.

Positive relationships between $\Delta FS11$ and $\Delta CH12$ indicate that changes in firm size increase cash holding in Indian production firms.

Table 4. WLS regression – promoter ownership, cash holdings, and current ratio

Variables	$\Delta CH12$	$\Delta CH12$	$\Delta CH13$	$\Delta CH13$	$\Delta CH14$	$\Delta CH14$	$\Delta CR12$	$\Delta CR12$	$\Delta CR13$	$\Delta CR13$	$\Delta CR14$	$\Delta CR14$
$\Delta PO11$	0.163 (0.89)	0.320 (1.70)	-	-	-	-	-0.740** (-2.17)	-0.684** (-1.99)	-	-	-	-
$\Delta SG11$	-	0.057 (0.90)	-	-	-	-	-	0.438*** (3.75)	-	-	-	-
$\Delta FS11$	-	0.898** (2.91)	-	-	-	-	-	0.278 (0.49)	-	-	-	-
$\Delta FP11$	-	0.030 (0.73)	-	-	-	-	-	0.050 (0.67)	-	-	-	-
$\Delta PO12$	-	-	-0.407*** (-2.77)	-0.413** (-2.71)	-	-	-	-	0.382 (1.24)	0.467 (1.47)	-	-
$\Delta SG12$	-	-	-	0.021 (0.42)	-	-	-	-	-	-0.125 (-1.19)	-	-
$\Delta FS12$	-	-	-	0.400 (0.51)	-	-	-	-	-	-0.223 (-0.14)	-	-
$\Delta FP12$	-	-	-	0.021 (0.77)	-	-	-	-	-	0.030 (0.52)	-	-
$\Delta PO13$	-	-	-	-	-0.440*** (-2.14)	-0.377* (-1.88)	-	-	-	-	0.003 (0.01)	-0.013 (-0.05)
$\Delta SG13$	-	-	-	-	-	-0.175** (-2.75)	-	-	-	-	-	-0.048 (-0.62)
$\Delta FS13$	-	-	-	-	-	-1.519 (-1.61)	-	-	-	-	-	-1.317 (-1.14)
$\Delta FP13$	-	-	-	-	-	-0.057 (-1.37)	-	-	-	-	-	0.074 (1.47)
Constant	0.046** (3.27)	0.020 (1.05)	-0.011 (-1.02)	-0.019 (-1.10)	0.021 (1.36)	0.049** (2.51)	-0.013 (-0.50)	-0.093** (-2.68)	0.020 (0.93)	0.049 (1.39)	-0.028 (-1.50)	0.001 (-0.05)
Obs	151	151	151	151	151	151	151	151	151	151	151	151
χ^2 -test	0.80	2.37*	7.66**	2.12*	4.60**	4.28**	4.72**	4.82**	0.153	0.94	0.000	1.18
R ²	0.006	0.066	0.051	0.057	0.031	0.108	0.034	0.127	0.011	0.026	0.000	0.032
Adjusted R ²	-0.001	0.038	0.044	0.030	0.024	0.083	0.026	0.100	0.004	-0.002	-0.007	0.005

Notes: In the Weighted Least Square Regression (WLS) models, the dependent variables are changes in cash holdings (ΔCH) and changes in current ratio (ΔCR). Independent variable is changes in promoter ownership (ΔPO) and control variables include changes in sales growth (ΔSG), firm size (ΔFS), and firm performance (ΔFP). ***, ** and * imply significance of each mean difference at the 1%, 5%, and 10% level, respectively.

4.2 Promoter ownership, accounts receivables, and inventory

Table 5 reports the estimated coefficients of Equations 3 and 4. Negative relationships between:

- $\Delta SG11$ and $\Delta AR12$ indicate that changes in sales growth reduce accounts receivables.

- $\Delta FS12$ and $\Delta AR13$, and $\Delta FS13$ and $\Delta AR14$ indicate that changes in firm size decrease accounts receivables in production firms.

- $\Delta SG12$ and $\Delta INVI3$ indicate that changes in sales growth reduce inventory level of production firms.

Positive relationships between:

- $\Delta PO13$ and $\Delta AR14$ indicate that changes in promoter ownership increase accounts receivables.

- $\Delta SG13$ and $\Delta INVI4$ indicate that changes in sales growth increase inventory level of production firms.

- $\Delta FP13$ and $\Delta INVI4$ indicate that changes in firm performance increase inventory level of production firms.

4.3 Impact of promoter ownership on accounts payables and cash conversion cycle

Table 6 reports the estimated coefficients of Equations 5 and 6. Negative relationships between:

- $\Delta SG11$ and $\Delta AP12$ indicate that changes in sales growth reduce accounts payables.

- $\Delta PO11$ and $\Delta CCC12$; $\Delta PO12$ and $\Delta CCC13$; and $\Delta PO13$ and $\Delta CCC14$ indicate that changes in promoter ownership reduce cash conversion cycle of Indian production firms.

- $\Delta FS13$ and $\Delta CCC14$ indicate that changes in firm size reduce cash conversion cycle of Indian production firms.

Positive relationships between $\Delta SG12$ and $\Delta AP13$ indicate that changes in sales growth increase accounts payables.

Table 5. WLS regression – promoter ownership, accounts receivables, and inventory

Variables	$\Delta ARI2$	$\Delta ARI2$	$\Delta ARI3$	$\Delta ARI3$	$\Delta ARI4$	$\Delta ARI4$	$\Delta INV12$	$\Delta INV12$	$\Delta INV13$	$\Delta INV13$	$\Delta INV14$	$\Delta INV14$
$\Delta PO11$	-0.122 (-0.40)	-0.074 (-0.23)	-	-	-	-	0.011 (0.05)	-0.074 (-0.29)	-	-	-	-
$\Delta SG11$	-	-0.222** (-2.06)	-	-	-	-	-	-0.070 (-0.81)	-	-	-	-
$\Delta FS11$	-	0.024 (0.05)	-	-	-	-	-	-0.530 (-1.30)	-	-	-	-
$\Delta FP11$	-	0.085 (1.23)	-	-	-	-	-	-0.003 (-0.06)	-	-	-	-
$\Delta PO12$	-	-	0.401 (1.16)	0.298 (0.843)	-	-	-	-	-0.119 (-0.39)	0.088 (2.85)	-	-
$\Delta SG12$	-	-	-	0.068 (0.581)	-	-	-	-	-	-2.60** (-2.58)	-	-
$\Delta FS12$	-	-	-	-3.441* (-1.88)	-	-	-	-	-	2.358 (1.50)	-	-
$\Delta FP12$	-	-	-	-0.096 (-1.49)	-	-	-	-	-	-0.005 (-0.084)	-	-
$\Delta PO13$	-	-	-	-	0.549** (2.01)	0.476* (1.76)	-	-	-	-	0.258 (0.93)	0.161 (0.589)
$\Delta SG13$	-	-	-	-	-	0.117 (1.36)	-	-	-	-	-	0.200** (2.32)
$\Delta FS13$	-	-	-	-	-	-2.840** (-2.23)	-	-	-	-	-	0.811 (0.63)
$\Delta FP13$	-	-	-	-	-	0.077 (1.37)	-	-	-	-	-	0.126** (2.23)
Constant	0.076*** (3.23)	0.119*** (3.73)	0.082** (3.37)	1.14** (2.88)	-0.033 (-1.58)	0.000 (0.007)	0.018 (0.95)	0.040 (1.56)	-0.034 (-1.58)	-0.022 (-0.64)	-0.040* (-1.89)	-0.055** (-2.06)
Obs	151	151	151	151	151	151	151	151	151	151	151	151
χ^2 -test	0.16	1.80	1.34	1.78	4.02**	3.09**	0.002	0.52	0.154	1.99*	0.865	2.68**
R ²	0.001	0.051	0.009	0.049	0.027	0.081	0.000	0.016	0.001	0.054	0.006	0.071
Adjusted R ²	-0.006	0.023	0.002	0.021	0.020	0.055	-0.007	-0.014	-0.006	0.027	-0.001	0.044

Notes: In the Weighted Least Square Regression (WLS) models, the dependent variables are changes in accounts receivables (ΔAR) and changes in inventory (ΔINV). Independent variable is changes in promoter ownership (ΔPO) and control variables include changes in sales growth (ΔSG), firm size (ΔFS), and firm performance (ΔFP). ***, ** and * imply significance of each mean difference at the 1%, 5%, and 10% level, respectively.

Table 6. WLS regression – promoter ownership, accounts payables, and cash conversion cycle

Variables	$\Delta API2$	$\Delta API2$	$\Delta API2$	$\Delta API3$	$\Delta API4$	$\Delta API4$	$\Delta CCC12$	$\Delta CCC12$	$\Delta CCC13$	$\Delta CCC13$	$\Delta CCC14$	$\Delta CCC14$
$\Delta PO11$	0.395 (1.24)	0.375 (1.15)	-	-	-	-	-1.022** (-2.16)	-1.173** (-2.35)	-	-	-	-
$\Delta SG11$	-	-0.271** (-2.44)	-	-	-	-	-	-0.062 (-0.37)	-	-	-	-
$\Delta FS11$	-	-0.364 (-0.68)	-	-	-	-	-	-0.587 (-0.71)	-	-	-	-
$\Delta FP11$	-	0.069 (0.98)	-	-	-	-	-	-0.129 (-1.19)	-	-	-	-
$\Delta PO12$	-	-	-0.051 (-0.15)	-0.259 (-0.73)	-	-	-	-	-1.252** (-2.83)	-1.349** (-2.96)	-	-
$\Delta SG12$	-	-	-	0.291** (2.47)	-	-	-	-	-	0.194 (1.29)	-	-
$\Delta FS12$	-	-	-	-1.033 (-0.56)	-	-	-	-	-	2.483 (1.06)	-	-
$\Delta FP12$	-	-	-	0.014 (0.22)	-	-	-	-	-	0.005 (0.061)	-	-
$\Delta PO13$	-	-	-	-	-0.012 (-0.04)	0.089 (0.33)	-	-	-	-	-0.998** (-2.19)	-1.137** (-2.53)
$\Delta SG13$	-	-	-	-	-	-0.345 (-4.01)	-	-	-	-	-	0.331 (2.33)
$\Delta FS13$	-	-	-	-	-	0.671 (0.53)	-	-	-	-	-	-4.279** (-2.03)
$\Delta FP13$	-	-	-	-	-	0.010 (0.17)	-	-	-	-	-	0.07 (0.75)
Constant	0.014 (0.59)	0.073** (2.21)	0.005 (0.22)	-0.031 (-0.79)	0.027 (1.25)	0.047* (1.75)	-0.107** (-2.94)	-0.092* (-1.81)	-0.028 (-0.90)	-0.101** (-2.00)	-0.087** (-2.50)	-0.053 (-1.21)
Obs	151	151	151	151	151	151	151	151	151	151	151	151
χ^2 -test	1.54	2.65**	0.021	1.56	0.002	4.13**	4.65**	1.56	7.99**	2.89**	4.81**	3.47**
R ²	0.011	0.074	0.000	0.043	0.000	0.105	0.033	0.045	0.053	0.076	0.032	0.090
Adjusted R ²	0.004	0.046	-0.007	0.015	-0.007	0.079	0.026	0.016	0.046	0.050	0.026	0.064

Notes: In the Weighted Least Square Regression (WLS) models, the dependent variables are changes in accounts payables (ΔAP) and changes in cash conversion cycle (ΔCCC). Independent variable is changes in promoter ownership (ΔPO) and control variables include changes in sales growth (ΔSG), firm size (ΔFS), and firm performance (ΔFP). ***, ** and * imply significance of each mean difference at the 1%, 5%, and 10% level, respectively.

4.4 Relationship between changes in promoter ownership and changes in cash conversion efficiency

Table 7 reports the estimated coefficients of Equation 7. Negative relationships between $\Delta FS13$ and $\Delta CCE14$ indicate that change in firm size decrease cash conversion efficiency of Indian production firms.

Positive relationships between:

- $\Delta SG11$ and $\Delta CCE12$ and $\Delta SG13$ and $\Delta CCE14$

indicate that changes in sales growth increase cash conversion efficiency of Indian production firms.

• $\Delta PO11$ and $\Delta CCE12$ and $\Delta PO13$ and $\Delta CCE14$ indicate that changes in promoter ownership increase cash conversion efficiency of Indian production firms.

• $\Delta SG12$ and $\Delta CCE13$ indicate that changes in sales growth increase cash conversion efficiency of Indian production firms.

Table 7. WLS Regression – Promoter Ownership and Cash Conversion Efficiency

Variables	$\Delta CCE12$	$\Delta CCE12$	$\Delta CCE13$	$\Delta CCE13$	$\Delta CCE14$	$\Delta CCE14$
$\Delta PO11$	1.005** (1.99)	0.834 (1.57)	-	-	-	-
$\Delta SG11$	-	-0.125 (-0.69)	-	-	-	-
$\Delta FS11$	-	-0.811 (-0.93)	-	-	-	-
$\Delta FP11$	-	-0.095 (-0.83)	-	-	-	-
$\Delta PO12$	-	-	0.019 (0.04)	-0.153 (-0.31)	-	-
$\Delta SG12$	-	-	-	2.78* (1.70)	-	-
$\Delta FS12$	-	-	-	1.061 (0.41)	-	-
$\Delta FP12$	-	-	-	0.010 (0.12)	-	-
$\Delta PO13$	-	-	-	-	1.332** (2.44)	1.159** (2.22)
$\Delta SG13$	-	-	-	-	-	0.609*** (3.68)
$\Delta FS13$	-	-	-	-	-	-4.354* (1.78)
$\Delta FP13$	-	-	-	-	-	-0.093 (-0.86)
Constant	-0.136** (-3.51)	-1.03* (-1.92)	-0.090** (-2.64)	-1.56** (-2.83)	-0.017 (-0.40)	-0.018 (-0.36)
Obs	151	151	151	151	151	151
χ^2 -test	3.97**	1.34	0.002	0.89	5.96**	5.81***
R^2	0.028	0.039	0.000	0.025	0.040	0.141
Adjusted R^2	0.021	0.010	-0.007	-0.003	0.033	0.117

Notes: In the Weighted Least Square Regression (WLS) models, the dependent variable is changes in cash conversion efficiency (ΔCCE). Independent variable is changes in promoter ownership (ΔPO) and control variables include changes in sales growth (ΔSG), firm size (ΔFS), and firm performance (ΔFP). ***, ** and * imply significance of each mean difference at the 1%, 5%, and 10% level, respectively.

5 Conclusion

The present study found that promoter ownership and promoter control improve the efficiency of working capital management of Indian manufacturing firms. Increases in promoter ownership and control reduce the cash conversion cycle of the Indian manufacturing firms (see Table 2). This may be because the agency problem is low when promoters control firms. As described in the introductory section, a majority of the promoters belong to same families, relatives, and in some cases, friends. The agency problem under the governance of promoters is low because a majority of the shareholders is from the same family and from relatives (Schulze et al., 2003). Thus, the findings lend

some support to agency theory of Jensen and Meckling (1976) in that promoter ownership reduces cash holdings and cash conversion cycle, and increases cash conversion efficiency which is in the favor of the firm. The results of this study also lend some support to the tradeoff theory of cash holdings.

5.1 Limitations

This study is limited to the sample of Indian manufacturing firms. This is a co-relational study that investigated the association between promoter ownership and the components of working capital management efficiency. There is not necessarily a causal relationship between the two. The findings of

this study could only be generalized to firms similar to those that were included in this research. In addition, sample size is small. Future study should be conducted on different countries to see if the findings support the findings of this study in other countries.

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