

BOARD GENDER DIVERSITY AND WORKING CAPITAL MANAGEMENT: EMPIRICAL EVIDENCE FROM FINANCIAL SECTOR OF INDIA

¹Dr. Nazia Hasan, ⁴Dr. Puneet Sethi

¹Assistant Professor TMIMT,
Teerthanker Mahaveer University, Moradabad, Uttar Pradesh,
nazia14m@gmail.com

²Dr. Pankhuri Agarwal ,

²Assistant Professor TMIMT,
Teerthanker Mahaveer University, Moradabad, Uttar Pradesh,
abhyarch.2012@gmail.com

³Ms. Disha Rahal,

³Assistant Professor TMIMT,
Teerthanker Mahaveer University, Moradabad, Uttar Pradesh,
singhdisha.4945@gmail.com

⁴Dr. Puneet Sethi

⁴Associate Professor TMIMT,
Teerthanker Mahaveer University, Moradabad, Uttar Pradesh,
sethipuneet5@gmail.com

ABSTRACT

Purpose- The aim of this study is analyse the impact of board gender diversity (BGD) on working capital management (WCM) decision. Further, this study also tested the impact of WCM on firm performance (FP).

Design/methodology/approach- The study uses panel data regression model with fixed effect estimations and generalized method of moments (GMM). This study use panel data analysis of six financial listed companies on NSE during the period of 2023 -2013 taken from the NSE website and financial reports.

Findings- The study found that female directors pursue CWCM strategies. Beside this our study also proves that female directors do not support AWCM and MWCM strategies. The results also showed that CWCM, AWCM and MWCM strategies have a significant influence on FP. Regarding control variables, BSZE has an insignificant influence on ROA. Moreover, FAGE has a negative and significant influence on ROA and FSZE has a negative and significant influence on ROA. Furthermore, BSZE and FAGE has a positive influence on AWCM, MWCM and CWCM while FSZE has a positive influence on MWCM.

Originality/value- While previous research has examined the effect of WCM of FP, this study is the first to include BGD and its impact on WCM strategy in Indian context

Keywords Board gender diversity, working capital management, profitability, working capital management strategy

Paper type Research paper

1. Introduction

In accordance with Sharma and Kumar, (2011), Working capital management (WCM) is an important part of corporate finance theory which deals with short term financing and firm's investment decisions. WCM has a relationship with day-to-day activities of firm (Yousaf and Bris, 2021; Usman et al. 2020). It is an indication of liquidity of firm and it is measured in terms of difference between current assets and current liabilities (Ujah et al. 2021). Many researchers and practitioners believe that efficient management of WC is essential for a firm while conducting day-to-day operations (Abuzayed, 2012). This efficient management of WC aims to avoid excessive investment in current assets and firms will achieve balance between liquidity and profitability (Nguyen, 2020; Garcia-Teruel and Martinez-Solano, 2007). Too much investment in current assets will harm firm's performance and low level of current assets results in decrease of liquidity. Thus, there is a trade-off between them, this is maintained by management of WC (Talonpoika et al. 2016). The main aim of WCM is to manage current assets and current liabilities while maintaining satisfactory level of working capital (Lyngstadaas and Berg, 2016). If it is not managed properly, it leads to liquidity crisis and profitability reduction (Hameer et al. 2021). Therefore, WCM control assets and liabilities and maximize profitability of firms (Wassie, 2021). Aldubhani et al. (2022) claimed that WCM directly impact

on profitability of firms. Jayarathne (2014) indicated that the way the is managed has a profound impact on profitability of a firms. This implies that WCM is the key decision that financial manager makes. Every organization whether it is profitable or not, different size, different background of business requires necessary amount of working capital (Singh and Kumar, 2014). Thus, for making comparison of firms based on liquidity and profitability, WCM is one of the key areas (Hameer et al. 2021).

There are several studies who have determined the predictors of WCM (Addisu et al. 2023; Hameer et al. 2021; Bhattacheryay, 2023; Seth et al., 2020; Maheswari, 2014; Akinlo, 2012; Abuzayed, 2012) and relate WCM with firm performance. Additionally, these studies revealed a positive and negative relationship between WCM components and profitability of firms. Beside this many researchers use theoretical to explain the firm behaviour and focused on working capital (Akendele et al. 2022; Upreti and Kulshrestha, 2022; Nuhui and Dermaku, 2017). Additionally, this research is confined to developing countries and emerging economies. Within the context of corporate governance, few previous studies are available on the board of directors- WCM relationships. Especially in the context of India where corporate governance (CG) structures are relatively weak, it is important to explore if BGD improve firm performance (FP) through WCM strategies. Additionally, this study considers the financial sector of India which has direct consequence of economic growth of India.

In Indian context it is not clear what WCM strategies should BGD adopts for optimal allocation of resources so that firm performance is maximum. Based on the needs of capital, firms decide whether to choose conservative, moderate and aggressive working capital policies. Conservative WCM policies involve low-risk with low gain and aggressive WCM policies involve high-risk with high gain. Moreover, this study also examines the mediating role of WCM between BGD and FP. Findings of this study contributes to existing literature on three WCM strategies (conservative, moderate and aggressive). Further, this study evaluated the best WCM approach for the better performance of finance sector in India.

2. Prior literature and hypothesis development

2.1 Underpinning theory

Two theories underpin our framework i.e. resource dependency theory and agency theory which suggests that BGD influences board effectiveness. The resource dependency theory suggests that firms are open system with interdependent relationships with external agencies (Pfeffer & Salancik, 1978) and the success of firms are dependent on these relationships with external agencies (Daily et al. 2003). Moreover, Daily et al. (2003) also proposed that board directors spans the boundary of firms. In this view, having linkages with external agencies, board directors bring value to the organization. Furthermore, the presence of women in board directors may be a resource that can be used to enhance the monitoring and control of management (Carter, 2010). Terjesen et al. (2009) also confirmed that the presence of women in board directors bring different valuable resources to the firm. Hillman et al. (2007) confirmed that women directors have made successful relationships with external agencies. Thus, under these circumstances, women directors enhance firm effectiveness.

The most influential theory in CG is agency theory (Daily et al., 2003). Through the lens of agency theory, the most important role of the board of directors is to control and monitor managers, thereby reducing agency problems. Loukil et al. (2019) draw conclusion and report that gender diversity in board provides more benefits in terms of monitory and reducing agency costs.

Figure 1. Conceptual framework

2.3 Board gender diversity and conservative working capital management strategy

Conservative WCM strategy relies on heavy investment in assets. In this regard, firms operate and generate higher profit along lower liquidity risk (Nastit et al. 2019). As mentioned earlier, conservative WCM policies are always associated with low-risk and low gain. Within this context previous studies such as (Al-amarneh, Yaseen and Iskandrani, 2017; Djan, Zehou and Bawuah, 2017; Kristianto and Djuminah, 2018), found that firms having top female managers tend to take less risky financing and investment decision than male counterparts. Studies such as Adams and Funk, 2012; Faccio et al., 2016; Yu et al., 2017 as confirmed that female directors avoid risk and prefer conservative WCM strategies. Khan et al. (2022) also confirmed that female directors are risk averse and are likely to choose conservative WCM strategies. Moreover, Nadeem et al. (2019) argued that female directors restrict managers to avoid risk and investment. Similarly, Nazir and Afza (2009) explained that managers can increase firm value by choosing conservative WCM strategy. Thus, based on above arguments, we propose that

H1. BGD positively influence conservative WCM strategy

2.4 Board gender diversity and moderate working capital management strategy

For optimal performance and efficient management of working capital, three strategies are available namely conservative, moderate and aggressive. When firms balance conservative and aggressive strategy, moderate WCM strategies are likely to improve FP (Khan et al. 2022). In other words, moderate strategy lies between conservative and aggressive one (Jędrzejczak-Gas, 2017; Zimon, 2020). Bolek (2013) found that most of the companies follow conservative and moderate WCM strategy to improve their performance. Moreover, Khan et al. (2022) stated that BGD reduces excessive cash holdings but may not increase the liquidity risk of firm. Thus, BGD direct their managers to choose moderate WCM strategy. The presence of financial experts in board of directors' constraints risk taking of firm and accordingly FP is improved (Nguyen, 2021). Thus, based on above arguments, we propose that

H2. BGD positively influence moderate WCM strategy

2.5 Board gender diversity and aggressive working capital management strategy

Nastiti et al. (2019) stated that aggressive WCM strategy involves high risk but is likely to generate higher profit. Accordingly, firms display aggressive WCM strategy when they have a higher proportion of current liabilities and smaller proportion of assets (Nazir and Afza, 2009). The choice of WCM strategy is influenced by BGD (Nastiti et al. 2019). Rasyid et al. (2018) stated that aggressive WCM policies may have an impact of firm value and profitability. Similarly, Naqi and Siddiqui (2020) claimed that BGD increases working capital by adopting aggressive WCM policies. Moreover, the findings of Yahya et al. (2021) dictated that powerful CEOs manipulate female directors to promote aggressive WCM strategy. Surprisingly, Rasyid (2018) found that aggressive WCM policy has a negative impact on firm's profitability. Guizani and Abdalkrim (2023) found that when gender equality is greater, female directors support aggressive WCM strategy. Thus, based on above arguments, we propose that

H3. BGD positively influence aggressive WCM strategy

2.5 Conservative working capital management strategy and firm performance

Conservative WCM strategy has a high potential to increase the profit but face a high liquidity risk (Sunardi et al. 2021). Mandipa and Sibindi (2022) argued that when firms choose conservative WCM strategy, there is a plenty of cash on-hand, more inventory in warehouses and all payables are current. In the same vein, Jabbouri et al. (2022) found that firms operating on conservative WCM strategy never missed sales by holding enough inventory. Sohail et al. (2016) stated that those companies who choose conservative WCM strategy are likely to maintain all components that measure WCM and boost profit. In similar vein, Sunardi et al. (2021) found that conservative WCM strategy has a positive influence on firm's growth. The study of Wassie (2021) suggest that Ethiopian exporter companies may use conservative WCM strategy to enhance FP. The study of Farhan et al. (2021) and Nanda and Panda (2018) stated that Indian firms adopted conservative WCM strategy for investment and financing strategy. Ahmad et al. (2022) found that conservative WCM strategy has a positive influence on FP. The case study of Panigrahi (2014) also reported that conservative WCM strategy positively influence firm performance in Indian context. Thus, based on above arguments, we propose that

H4. Conservative WCM strategy positively influence firm performance

2.6 Moderate working capital management strategy and firm performance

A moderate working capital strategy strikes a balance between risk and profitability (Bolek, 2013). Moderate WCM strategy lies in between conservative and aggressive WCM strategy, and maintain a balance between risk and return (Adam and Quansah, 2019). The moderate WCM strategy generates higher return that conservative but lower than aggressive WCM strategy (Kaur, 2014). The study of Kaviani et al. (2014) yielded no significant relationship between moderate WCM strategy and free cash flows. Wichitsathian (2022) found that moderate WCM strategy has a positive influence on firm's profitability. The study of Ramachandran and Janakiraman (2009) in Indian context found that paper industry generates profit while operating on moderate WCM strategy. Thus, based on above arguments, we propose that

H5. Moderate WCM strategy positively influence firm performance

2.7 Aggressive working capital management strategy and firm performance

Aggressive WCM strategy prefers high profit along with high risk (Ahmad et al. 2008). Aggressive strategies increase the short-term debt, so that the cost of debt will be higher and it will reduce the profitability (Rasyid, 2018). Nazir and Afza (2009) reported a negative relationship between firm's profitability and aggressive WCM strategy. Similarly, Nabi et al. (2016) found that aggressive WCM strategy has a negative impact on firm's profitability and shareholder's worth. Rasyid (2018) found that aggressive WCM strategy has a positive impact on company profitability. Wichitsathian (2022) found that aggressive WCM strategy has no impact on the firm's profitability. There is a mixed results which needs to be examined. Thus, based on above arguments, we propose that

H6. Aggressive WCM strategy positively influence firm performance

3. Research design

3.1 The sample

Our initial sample consisted of all the ten Indian financial listed companies on National Stock Exchange (NSE). Out of ten, four companies are not listed on NSE. So, the author collected data from the six financial listed companies on NSE during the period of 2022 -2012 taken from the NSE website and financial reports.

3.2 Data analysis and model

Present study examined the impact of BGD on WCM strategies. Further this study also explores the influence of WCM strategies on FP. The selection of variables for this study influenced by previous literature. This includes independent, dependent, mediating and control variables. Firm performance in terms of ROA is taken as dependent variable. WCM is measured from CCC is selected as independent variable. BSZE, FAGE and FSZE are considered as control variables. The WCM strategies such as conservative, moderate and aggressive are measured by using dummy variable. A firm is pursuing an aggressive strategy if the CCC is less than or equal to the 25th percentile, between 25th and 75th percentile CCC is considered moderate strategy, while more than 75th percentile is conceptualized as a conservative strategy. A similar type of this methodology is adopted by Khan et al. (2022). The chosen variables along with their measurement are illustrated in Table 1.

Table 1. Variables with their measurement

Variables	Type	Abbreviation	Measurement
<i>Dependent variable</i>			
Firm performance	Dependent	FP	Earnings before interest and tax (EBIT)/Total Assets
Conservative WCM strategy	Dependent	CWCM	1=if the value of CCC is equal or greater than 75th percentile 0= Otherwise
Moderate WCM strategy	Dependent	MWCM	1 = if the value of CCC is between 25th and 75th percentile, 0 = otherwise
Aggressive WC strategy	Dependent	AWCM	1=if the value of CCC is equal or less than 25th percentile, 0 = otherwise
<i>Mediating variable</i>			
Working capital management	Mediating	WCM	Accounts receivables – accounts payable
<i>Independent variable</i>			

Board gender diversity	Dependent	BGD	The proportion of female directors on board
<i>Control variables</i>			
Board size	Control	BSZE	Natural log of total board members
Firm age	Control	FAGE	Natural log of the number of years since the inception of the firm
Firm size	Control	FSZE	Natural log of the total assets

To test the proposed hypothesis, we estimate the models using panel data methodology. To test H1, H2 and H3, this study uses a pooled cross-sectional logit model proposed by Stone and Rasp (1991) is utilized as the two-step GMM model is not suitable for dichotomous dependent variables. To ensure that the instruments used in the estimation are valid, we use the Sargan and Hansen tests of over identifying restrictions. Wald test is used to test the joint significance of the estimated coefficients for all the variables. The model (Eq. 4, 5 and 6) is tested with a two-step GMM as the dependent variable is on continuous scale. Accordingly, models are developed below to test the proposed hypothesis.

$$CWCM_{it} = \beta_0 + \beta_1(BGD_{it}) + \beta_2(BSZE_{it}) + \beta_3(FAGE_{it}) + \beta_4(FSZE_{it}) + v_{it} + \epsilon_{it} \quad (1)$$

$$MWCM_{it} = \beta_0 + \beta_1(BGD_{it}) + \beta_2(BSZE_{it}) + \beta_3(FAGE_{it}) + \beta_4(FSZE_{it}) + v_{it} + \epsilon_{it} \quad (2)$$

$$AWCM_{it} = \beta_0 + \beta_1(BGD_{it}) + \beta_2(BSZE_{it}) + \beta_3(FAGE_{it}) + \beta_4(FSZE_{it}) + v_{it} + \epsilon_{it} \quad (3)$$

$$FP_{it} = \beta_0 + \beta_1(CWCM_{it}) + \beta_3(FAGE_{it}) + \beta_4(FSZE_{it}) + v_{it} + \epsilon_{it} \quad (4)$$

$$FP_{it} = \beta_0 + \beta_1(MWCM_{it}) + \beta_3(FAGE_{it}) + \beta_4(FSZE_{it}) + v_{it} + \epsilon_{it} \quad (5)$$

$$FP_{it} = \beta_0 + \beta_1(AWCM_{it}) + \beta_3(FAGE_{it}) + \beta_4(FSZE_{it}) + v_{it} + \epsilon_{it} \quad (6)$$

where FP denotes firm performance, CWCM denotes conservative working capital strategy, MWCM denotes moderate working capital strategy, AWCM denotes aggressive working capital strategy, BGD denotes board gender diversity, BSZE denotes board size, FAGE denotes firm age, FSZE denotes firm size, v denotes individual firm effects, ϵ denotes error term, i and t denote firms and time respectively.

4. Empirical result

4.1 Descriptive statistics

Table 2 shows the descriptive statistics of variables under consideration for this study. It includes mean, SD, minimum and maximum values of the sample. The descriptive statistics show that maximum value for FP is 8.8% in a year while minimum is 1.2%. Further, results revealed that firm size of 4.877 as measured by natural logarithm of total assets with SD of 0.506. Around 41% of firms are using CWCM, 24% MWCM and 35% pursue AWCM strategy. Table 2 also shows the descriptive summary of control variables.

Table 2. Descriptive statistics of variables

Variables	Minimum	Maximum	Mean	SD
FP	0.012	0.088	0.0375	0.0156
CWCM	0.000	1.000	0.4146	0.2772
MWCM	0.000	1.000	0.2432	0.0710
AWCM	0.000	1.000	0.3511	0.0715
BGD	0.000	0.307	0.049	0.085
BSZE	8.000	13.000	11.000	1.690
FAGE	3.287	3.302	3.297	0.005
FSZE	4.250	5.985	4.877	0.506

4.2 Variance inflation factor (VIF)

Further, multicollinearity was also accessed as shown in Table 3. Analysis revealed that the value of VIF was below 10 for all the variables considered in the study, which indicates multicollinearity is not present in the data (Newbold et al., 2013).

Table 3. Multicollinearity results

Variables	VIF
FP	1.237
CWCM	1.150
MWCM	1.429
AWCM	1.205
BGD	1.125
BSZE	1.131
FAGE	1.292
FSZE	1.708

4.3 Regression analysis

The results of logit regression are presented in Table 4. From Table it is observed that BGD influence CWCM. This implies that female directors follow CWCM in financial sector. Thus, H1 is supported and H2 and H3 is rejected. This implies that presence of female directors on board leads to efficient management of working capital and risk aversion. Further, BSZE and FAGE has a positive influence on AWCM, MWCM and CWCM while FSZE has a positive influence on MWCM. The results of two-step system GMM revealed a positive and significant influence of MWCM and CWCM on FP as depicted by model 2 and model 3 (see Table 5) while AWCM has a negative and significant influence on FP. This is contradicted with the study of Raheman et al. (2010) who found that AWCM significantly impact of FP of manufacturing sector. However, it is consistent with the study of Vural et al. (2012). The significant results of impact of CWCM on FP is supported by previous studies (Sohail et al., 2016; Sunardi et al., 2021; Wassie 2021; Farhan et al., 2021; Nanda and Panda, 2018; Ahmad et al., 2022; and Panigrahi, 2014). Also, current study showed that MWCM has a positive and significant influence on FP. This finding is in line with previous studies (Wichitsathian 2022; Ramachandran and Janakiraman, 2009). Thus, hypothesis H4, H5 and H6 is supported.

Table 4. Results from fixed effects estimation applied on Regression models

Variables	AWCM	MWCM	CWCM
Constant	.948(.004)	-.110**(.000)	2.731**(.003)
BGD	.598(.265)	.319(.408)	.419**(.000)
BSZE	-.143**(.002)	.299**(.015)	-.118**(.005)
FAGE	.286**(.004)	-.302**(.001)	-.296**(.001)
FSZE	.045(.084)	.431**(.021)	-.137(.000)
Pseudo R2	.148	.163	.594

Table 5. Effect of AWCM, MWCM and CWCM on FP

Variables	Model 1 FP	Model 2 FP	Model 3 FP
Intercept	.156(.000)	.199(.000)	2.731(.005)
AWCM	-.265(.003) **		
MWCM		.699(.015)**	
CWCM			.796(.001)**

BSZE	-.344(.268)	.164(.129)	.230(.354)
FAGE	-.149(.011)	-.262(.000)**	-.213(.031)**
FSZE	-.274(.023) **	.253(.029) *	-.224(.045) **
Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
AR (1)	.039	.056	.083
AR (2)	0.487	0.671	0.769
Sargan test	0.612	0.412	0.563
Hansen test	0.323	0.353	0.348

Further, based on the results of model 1, model 2 and model 3 showed that BSZE has an insignificant influence on FP. This result is contradicted with the study of Larmou and Vafeas (2010); Bahar and Herliansyah (2023). Moreover, FAGE has a negative and significant influence on FP as shown the results of model 1, model 2 and model 3. Furthermore, FSZE has a negative and significant influence on FP as shown by the results of model 1 and model 3. This is in line with the study of Bahar and Herliansyah (2023). Model 2 shows positive and significant influence of FSZE on FP. The results of AR (1) and AR (2) shows that residues are correlated in first order and not in second order (Arellano and Bond, 1991). Sargan test (greater than 0.10) in all models suggest the validation of our instruments and the absence of serial correlation.

5. Conclusion

WCM plays an important role in financial management practices because of its effect on liquidity, profitability and solvency. Maintaining efficient level of working capital aids financial manager to take decisions efficiently. In this study, we seek to explain the relationship between the BGD, WCM strategies and FP. Further, we also explore the effect of presence of female directors on WCM strategies. Using a sample of data from the six financial listed companies on NSE during the period of 2022 -2012, our study found that female directors pursue CWCM strategies. Beside this our study also proves that female directors do not support AWCM and MWCM strategies. The results also showed that CWCM, AWCM and MWCM strategies have a significant influence on FP. Regarding control variables, BSZE has an insignificant influence on ROA. Moreover, FAGE has a negative and significant influence on ROA and FSZE has a negative and significant influence on ROA. Furthermore, BSZE and FAGE has a positive influence on AWCM, MWCM and CWCM while FSZE has a positive influence on MWCM.

6. Implications

This study has several implications from theoretical and managerial perspectives. From the theoretical perspectives, this study contributes to existing literature on WCM along with BGD. Also, this paper highlights the importance of female directors in pursuing WCM strategies, so that they can take efficient financial decisions accordingly. From the managerial perspectives, present study is useful for policy makers in helping them to design and include female directors on board. The results also provide guidelines to policy makers to support female directors on board and formulate strategies accordingly. In this way, firms appoint more female directors on board to ensure efficient WCM.

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