Female directorship and real earnings management in Bangladesh: Towards an analytical assessment

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CHRONICLE	ABSTRACT
	We analyze the association between female directorship on the board and real earnings management in context of an emerging economy, in Bangladesh. To accomplish the task, we utilize a sample of 2193 firm-year observations listed on the Dhaka Stock Exchange throughout the period 2000-2017. Our exploration indicates that the presence of female directors, the proportion of female directors on the board, as well as the presence of independent female director; all of these forms are positively associated with real earnings management. Therefore firms, with female director(s), tend to be involved in higher levels of earnings management through lower price discount, unfavorable credit facility and lower scales of production. This study also underscores that firms with female director(s) are more likely to abide by defensive financial reporting policies and they lean towards employing more income-decreasing earnings. On the other hand, their counterparts in firms with a less representation from female on the board are much less likely to engage in similar practices. So, the persistence of female directors may resolve the problem of income-increasing real earnings management in a significant manner. Additionally, we provide evidence that corporate governance plays a beneficial role in limiting real earnings management especially when the board appoints female director(s).

1. Introduction

Existing literature on board diversity and firms' performance corroborates on the broad view that women representatives on the board increases firm's financial performance(see, Adams & Ferreira, 2009; Campbell & Mínguez-Vera, 2008; Carter et al., 2003; Erhardt et al., 2003; Farrell & Hersch, 2005) In comparison with males, females on the board are represented at a much lower proportion. Davies (2011) documents that the level of under-representation of the women on the board in all over the world, ranging from as low as 3.6% in Asia- Pacific to the highest of 23% in Sweden whereas in Bangladesh the rate stands at 14%. There exists widely held concerns for balanced gender representation on the corporate

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board. Prior studies provide mixed evidence regarding the contribution of female board member on ensuring reporting quality (Arun et al., 2015; Kaplan et al., 2009; Sun et al., 2011).

Previous studies report that earnings management might derive from accounting judgment (Healy & Wahlen, 1999) and flexibility of accounting choices (Watt & Zimmerman, 1990). For example, under Generally Accepted Accounting Principles, corporate managers have discretion over reporting earnings to maximize the value of information relevant to the firms. Some people state that earnings manipulation ranges from earnings frauds (violating Generally Accepted Accounting Principles, GAAP) to earnings management (complying GAAP). Within GAAP, the sources of earnings management include different application methods, timing of acquisition and merger, choice of accounting methods, accounting policies, and accounting estimates (Teoh et al., 1998). Management can modify these methods or their applications at any phase to fulfill their own objective at shareholder's cost.

In comprehensive terms of the research literature, earnings management is considered as earnings manipulation or fraudulent financial reporting to maximize one party's interests by expropriating other party's benefits. Earnings management can be divided into accrual earnings management and real earnings management (REM). In accrual earnings management, managers apply their judgment or discretion over different accounting methods and estimates to affect reported earnings, having no direct effect on firm's cash flows (Dechow et al., 1995; Healy & Wahlen, 1999; Jones, 1991). On the other hand, real earnings management (REMs) is a process of manipulation through strategic timing of operating, investing and financing decisions, which may directly affect operating cash flows of the firms (Gunny, 2010; Lenard & Yu, 2012; Roychowdhury, 2006). Many prior studies show the usage of discretionary accrual to manage earnings, but manager may also apply real decisions to manipulate earnings. Osma and Noguer (2007) note that the boards with higher levels of independence manipulate earnings through research and development expenditure. So, firms' management can perform manipulation by different layers of real activity decisions. Several studies have been conducted to examine the real earnings management, and they have focused mostly on investment activities (Bartov, 1993; Bens et al., 2002; Bushee, 1998; Dechow & Sloan, 1991). Roychowdhury (2006) defined real earnings management as "management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds". His study deliberates on operational activities of management to identify real earnings management. Existing research posits that Roychowdhury (2006) model exhibit considerable explanatory power to detect real earnings management (Cohen et al., 2008; Cohen & Zarowin, 2010).

If managers' incentives are compensated on the basis of firms' financial performance, there may exist a tendency to overstate performance through earnings management. In many companies, management is remunerated both directly (in terms of regular salary added by bonus) and indirectly (in terms of status, future promotions, and job security) contingent on a firm's performance when compared with some pre-established criteria. Management is entitled to some discretionary power in case of financial reporting. Thus, combining management's compensation and discretion on earnings leads to a possibility of agency problems. So, managers are responsible both from ethical and professional perspectives to ensure that related stakeholders receive high quality earnings reports (Krishnan & Parsons, 2008).

Emerging economies are predominantly characterized with features of poorly defined property rights and weak rule of law (La Porta et al., 1999), weak investor protection and governments with low-levels of administrative efficiency (La Porta, et al., 2000), lack of freedom of the press (Kaufmann et al., 2012) and virtual absence of financial transparency (Fan et al., 2011). As an emerging economy, Bangladesh inherits and shares almost all of these regular typologies. Khan (2003) argued that Bangladesh confirms many characteristics of an emerging economy, including widespread corruption, insufficient rule of law, lack of accountability and transparency and low-capacity in terms of public governance. In a country endowed with improper regulatory environments, ownership concentration is likely to be high while litigation risk is low (Monem, 2013), law enforcement is modest at best(La Porta et al., 1999), and investor protection is minimal (La Porta et al., 1998; La Porta et al., 1999). Moreover, La Porta et al. (1998)

state that for similar country-specific cases, the legal system aids to protect investors by conferring the rights to discipline managers on them. Leuz et al. (2003) also suggest that a country's legal and institutional environment influences the facets of reported earnings. Hence, it is of consequential importance to uncover the impact of institutional factors on reporting earnings.

World Bank (2007) and Farooque et al. (2007) note that there is a dominant presence of family ownership or inside ownership in Bangladesh. The dominance presence of inside or concentrated ownership (Farooque et al., 2007) may accelerate the expropriation of minority shareholders by majority or concentrated owner. In this sort of ownership environment, agency problem type II (conflict between majority and minority shareholders) is more critical than problem type I (Conflict between principal and agent) (Anderson et al., 2004). Bangladesh Securities and Exchange Commission (BSEC) issued revised corporate governance (CG) guideline in 2012 to ensure transparency and accountability as well as protect the interest of minority shareholders. Revised CG guidelines comprises of two areas, board composition and activities, as well as external auditor's role and activities. In case of board composition, researchers have focused on the association between gender diversity on the board and firm performance(Campbell & Mínguez-Vera, 2008; Joecks et al., 2013; Julizaerma & Sori, 2012; Marinova et al., 2016)

In Bangladesh, it is of noteworthy importance to see the impact of female director on ensuring transparency and accountability or on limiting earnings management. To the best of our knowledge, the association between female director and earnings management has not yet been studied in Bangladesh. Corporate governance mechanisms are conceptualized in two variants, internal and external. Internal mechanisms constitutes ownership structure, capital, and board, whereas the market for corporate control is the domain of external mechanism (Martin-reyna & Duran-encalada, 2012). In our study, we consider the female directorship of the listed firms in Dhaka Stock Exchange (DSE), Bangladesh. We also analyze how female directorship affects the earnings management behavior. Our objective is to explicate the relationship between female directorship and real earnings management practices among companies operating within an emerging market environment. We consider three independent variables (presence of female directors, proportion of female directors and independent female directors) to delineate their respective impacts on real earnings management.

The present study contributes to the literature in several dimensions. In context of a developing country, most of the earnings management studies are usually conducted with reference to discretionary accrual. While in Bangladesh, the nature of relationship between real earnings management and ownership structure has not yet been studied intensively. Razzaque et al. (2016) studied the association between real earnings management and family ownership while leaving the impact of corporate governance for future research agendas. We aim to analyze the relationship between real earnings management and female directorship. Our study exploits 18 years of periodic data (2000-2017). To ensure the robustness of our result; we divide our sample into two time frames. For the first time in its history, Bangladesh Securities and Exchange Commission (BSEC) issued corporate governance guideline in 2006. This guideline was operationalized in a "conform or explain basis". Again in 2012, BSEC issued a revised compulsory corporate governance guideline(BSEC, 2012). This study purports to see the effect of corporate governance on earnings management behavior. Hence, the two time frames are structured as: pre-compulsory corporate governance (2000-2011) and post-compulsory corporate governance (2012-2017).

Our study finds that presence of female directors, proportion of female directors on the board, and independent female directors are positively correlated with real earnings management through income-decreasing earnings management. We also find evidence to claim that, if firms appoint any independent female director on the board, revised corporate governance guideline contributes positively towards management to limit real earnings management (REMs).

The remainder of the paper proceeds as follows. Section 2 reviews the existing literature and develops the hypotheses, section 3 discusses the relevant research methodology, section 4 constitutes the analyses and results and section 5 summarizes the major findings.

2. Earnings management

Companies manage their institutional impression through financial statements (Davidson & MacKinnon, 2004). Due to the presumed separation of ownership and management to avoid agency problems, investors are supposed to rely on the information provided by their respective management. Management are endowed with discretion in case of accounting standards to estimate and project financial numbers different from the actual underlying economic situation of a firm. Prior studies show that earnings management might be derived both from accounting judgment (Healy & Wahlen, 1999) and accounting choices flexibility (Watt & Zimmerman, 1990). Referring to flexibility of accounting principle and estimate, García-meca and Sánchez-ballesta (2009) state that earnings management is a process of selecting a standard set of accounting estimate and polices to present firms performance and position to others in more informative ways. It also provides credible signals about both the trajectories of future performance and the modes of opportunistic behavior in part of management. While this strategy for income smoothing is accepted in corporate realms, but resorting to this discretion rather excessively lead to earnings management and in consequence may be harmful for firms. There is no general consensus on the detailed definition of earnings management (Beneish, 2001). Healy and Wahlen (1999) defined earnings management as "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported economic numbers". Their definition divulges several relevant aspects. Firstly, the management can manage earnings using their own judgment. For example, they can apply their judgment to estimate depreciation. Secondly, they can misinform the different stakeholder regarding the true economic conditions and outcomes of the firms. It may occur when the management can access information, which are inaccessible by outsiders, and can modify it from unethical motives.

Scott (2000) categorizes earnings management in two different forms: opportunistic earnings management and efficient earnings management. Burgstahler and Dichev (1997) and Balsam et al. (2002) provided evidence consistent with opportunistic earnings management behavior. Management may get discretion while selecting accounting methods or estimations (Bradshaw et al., 2001; Schipper, 1989). So, management has the prospect of presenting financial reports in a course desirable to them (Jensen, 2001). This strand of opportunistic behavior of management could lead to temporary resource misallocation (Bradshaw et al., 2001). Previous studies also assert substantial evidence that top executives engage in earnings management (Defond et al., 1994; Guidry et al., 1999; Healy, 1985; Teoh et al., 1998; Teoh et al., 1998). Subramanyam (1996) and Balsam et al. (2003) explain the behavior of efficient perspective of management. As a proxy of earnings management, they focus on discretionary accruals, because discretionary accruals have a significant and positive relationship with future earnings of the firms. Management can also manipulate and misrepresent financial statements in different methods. One of them is by manipulating accrual (discretionary accrual, also known as abnormal accrual) without affecting cash flow. Higher discretionary accrual indicated more earnings management. Discretionary accrual can also be accounted for based on several existing models, such as, the Jones model (Jones, 1991), the modified Jones model (Dechow et al., 1995), the modified Jones model due to (DeFond & Subramanyam, 1998) the modified Jones model due to (Larcker & Richardson, 2004), and followed by the modified Jones model with return on assets (ROA) included as an additional independent variable as due to (Kothari et al., 2005). Previous studies present that by testing accrual quality, earnings management can indeed be measured. Earnings management has been measured by taking operating cash flows into consideration. (Dechow & Dichev, 2002).

Management can manipulate earnings management by affecting real activity decisions too. Several studies conducted to examine the real earnings management have concentrated mostly on investment activities (Bens et al., 2002; Bushee, 1998; Dechow & Sloan, 1991). Roychowdhury (2006) defined real earnings management as "management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds". His analysis has been performed on operational activities of management to identify real earnings management. Previous research instituted that Roychowdhury (2006) model possess an extensive explanatory success to detect real earnings management (Cohen et al., 2008; Cohen & Zarowin, 2008). Our study also exploits similar real earnings management model to detect earnings management. Graham et al. (2005) and Bruns and Merchant, (1990) conducted a survey where they find top financial executives prefer to manipulate earnings through real activities rather than accrual management because management achieves more flexibility in REMs compares to accrual earnings management. At any given period of the year, management can apply REMs whereas accruals management techniques are amenable to be applied only at the end of the respective fiscal year. Real Earnings Management involves alteration or manipulation of real activities of the firms to meet some prior target of management at a cost of firm's resources.

Roychowdhury (2006) attested to the view that firms apply various real earning management (REMs) techniques to reach the financial target and to avoid losses. Specifically, he argued that firms may offer price discount to raise sales, may resort to overproduction to report higher a gross profit margin ratio, and may reduce discretionary expenditure to represent inflated earnings. REMs also involve changing regular investment and operational decisions. If the reported types of change or alteration are enacted for an optimal reason, we should not anticipate any adverse outcomes in future for such managerial actions or decisions. However, these mechanisms may have been undertaken for the personal vested interest of the management, rather than for the firm. Likewise, Roychowdhury (2006) and Cohen and Zarowin (2010) mention that real earnings management attribute unfavorably on future value. Moreover, it influences the cash flow of the firms. Management offers sales discount to pan sales manipulation. This action, in turn, generates customer expectation regarding lower sales price in future and may force the firm to offer their product at a lower price. If firms produce more to increase the gross margin ratio it may lead to an upsurge in carrying cost and it may exert more effort as required to sell the products produced in excess. Management's preference of real earnings management over accrual management may also exist for divergent reasons. However, Roychowdhury (2006) mentioned two reasons relevant for choosing real earnings management. First, it is easier for auditors or regulators to find out accrual management than real earnings management decisions regarding pricing and production manipulation. Second, management can manipulate by real decision at any time of the year thus allowing much more flexibility in the management. More emphatically, Cohen et al. (2008) report that management switched their choice from accrual management to real earnings management in the Post Sarbanes- Oxley Act (SOX) period in a manner consistent with the evidence provided by (Graham et al., 2005). Our study will use the most relevant real earnings management model as depicted in (Roychowdhury, 2006) in order to detect earnings management.

2.1 Earnings management and gender diversity on the board

The issue of earnings management includes both monetary and ethical dilemmas, for which present studies commonly conceptualize gender diversity on the board to be a determining factor (Krishnan & Parsons, 2008b). Men and women exhibit differential competences and attitudes because of different socialization processes (Srinidhi et al., 2011). Several previous studies have explored the impact of gender diversity of the board on both earnings management and financial reporting quality (Gull et al., 2017; Arun et al., 2015; Srinidhi et al., 2011; Gavious et al., 2012; Labelle et al., 2010; et al., 1999; Peni & Vahamaa, 2010). Betz et al. (1989) found variation between men and women across several dimensions of monetary and financial criteria. They state that women highlight symbiotic manners, whereas men emphasize on creation of wealth and aggressive advancement through the organizational hierarchy.

Women tend to be more compliant to ethics in their work place and more likely to communicate incidents of fraud and irregularities of the financial statements (Kaplan et al., 2009). Previous studies also revealed that women are less prone to engage in opportunistic behavior while making organizational decisions and they also attach lower importance on upstreaming personal interests (Krishnan & Parsons, 2008). Moreover, they are more likely to risk-averse than men (Barber & Odean, 2001) and they are more cautioned and more defensive than males in different approaches of decision making process (Byrnes et al., 1999). They are also incline to act more decisively than men to increase reported earnings quality because they are tend to be situationally aware to reputational loss and the risk of lawsuits (Srinidhi et al., 2011). following this category of argument, it is expected that women are likely to engage in a restrained mode of strategy towards earnings management (Gul et al., 2009).Women are less likely to be involved in risky environment particularly in a financial setting (Powell & Ansic, 1997). In a similar venture, Krishnan and Parsons (2008) found that quality of earnings management and number of female directors on the board are a positively associated and argued that women are more compliant to ethical norms in their judgment.

Gull et al. (2017) conducted a recent study to uncover the impact of statutory and demographic attributes on earnings management. They argue that, if female directors are appointed on the board only to fulfill the female quotas, then it will not assist in reducing earnings management. Moreover, they mentioned that personal attributes play a greater role towards restraint earnings management. For example, they stated that audit committee membership and business expertise are key attributes of female directors which stimulate the effective monitoring of earnings management. They concur that women's experience and leadership are positively associated with earnings management.

However, in contrast, Sun et al. (2011) find no association between female representation on audit committees and earnings management. Similarly, Peni & Vahamaa (2010) report no statistical relation between earnings management and the gender representation on the board. In light of the divergent views, we examine the relationship between female directors on board and earnings management in Bangladesh. We test presence of female directors and number of female director(s) on the board with real earnings management. We present two hypothesizes in alternative forms.

H1: The level of the real earnings management is lower if the board includes a female member.
H2: Higher female board members, proxied by the number of female director(s) on corporate boards, is associated with lower real earnings management.

A recent study, in the United Kingdom by Arun et al. (2015), finds that independent female directors limit earnings management practices. Moreover, the presence of female directors on the audit committee is inversely associated to earnings management (Thiruvadi & Huang, 2011). Gavious et al. (2012) argue that female independent directors on boards are less likely to engage in earnings management. Nevertheless, it is interesting to investigate whether independent female members can make a detectable difference in Bangladesh, thus generating another hypothesis:

H3: The level of the real earnings management is lower if the board includes a female independent member.

We employ Models 1 to 3 to test the above mentioned hypotheses:

$$\text{REM}_{it} = \alpha_0 + \alpha_1 \text{BD\_FEM} + \alpha_2 \text{CONT} + \Sigma \text{ Industry Year Fixed Effect} + \varepsilon_{it} \qquad (1)$$
$$\text{REM}_{it} = \alpha_0 + \alpha_1 \text{BD\_FEMNO} + \alpha_2 \text{CONT} + \Sigma \text{ Industry Year Fixed Effect} + \varepsilon_{it} \qquad (2)$$
$$\text{REM}_{it} = \alpha_0 + \alpha_1 \text{BD\_INDFEM} + \alpha_2 \text{CONT} + \Sigma \text{ Industry Year Fixed Effect} + \varepsilon_{it} \qquad (3)$$

where REM_{it} is real earnings management, measured by management's real activities for firms i at time t. BD_FEM and BD_INDFEM stand for the presence of female director(s) and independent female director(s) on the board respectively. BD_FEMNO indicates number of female director(s) on the board. CONT depicts control variables and ε_{it} is the usual error term. Similar to Razzaque et al. (2016) all models of our study have been estimated via a two-dimensional industry year fixed effect to account for the unobserved group level heterogeneity.

3. Research methodology

3.1. Data and methodology

From 2000 to 2005, no corporate governance guideline for public listed companies were existent to be followed. In 2006, BSEC issued voluntary corporate governance guideline for listed companies. Again in 2012, BSEC issued revised corporate governance guideline for public listed companies to follow (BSEC, 2012). Our study utilizes a large data set ranging over an eighteen-year period from 2000 to 2017 and sample size is 2193 firm years. Following previous studies on earnings management, (Alves, 2012; Cohen et al., 2008; Cohen & Zarowin, 2010; Roychowdhury, 2006), our study excludes all financial companies from the sample. As an electronic database of public listed companies is not available in Bangladesh, we employ primary data encoded manually. The main sources of data include company annual report, prospectus, different public issue offer documents, and monthly review of Dhaka Stock Exchange. We perform panel data analysis for this study for of its capability to separate the effects of specific interventions and treatments both across cross-sections and time (Hsiao, 2003).Moreover it provides valid control over unobserved effects due to omitted variable bias. (Munnik & Schotman, 1994). Table 1 and 2 charts the number of observation conferring to each year and each industry respectively.

3.2 Research design

3.2.1 Dependent Variable: Real earnings management

Recently, there has been a renewed appreciation for understanding and documenting the procedure of firms to manage earnings through real activities manipulation in addition to accrual-based activities (see, Gunny, 2009; Roychowdhury, 2006; Zang, 2007). For example, Roychowdhury (2006) finds evidence that firms use multiple real earnings management tools in order to meet certain financial reporting. In a contemporary survey of top executives, Graham et al. (2005) provide evidence and suggestions that managers prefer real earnings management undertakings compared to accrual-based earnings management. This is the case since real management activities can be indistinguishable from optimal business decisions, and thus more difficult to detect, although the costs involved in such activities can be economically significant to the firm. Cohen et al. (2008) explore the pervasiveness of real earnings and accrual-based management in the period of pre- and post-SOX period on three different incentives for manipulating earnings. They found that by following the passage of SOX, REMs increased significantly, while accrual-based earnings management declined considerably. Consistent with Cohen et al. (2008) findings, Graham et al. (2005) document that those firms are switching from accrual-based management to real earnings management, possibly because these will be costlier as well as more challenging to detect. Moreover, they document that 80% of Chief Financial Officers (CFOs) mentioned, they show a reduced amount of research and development expenses to report higher levels of profit and 55% responded that they would be disinclined to initiate a new project to meet earnings target. Similar to Roychowdhury's (2006) proxies, to measure real activities manipulations, we choose abnormal cash flows from the operation, production costs and discretionary expenses. Following Roychowdhury (2006), several studies examine the real earnings management activities by employing the same proxies (Cohen et al., 2008; Gunny, 2010; Razzaque et al., 2016; Zang, 2007) to increase the empirical validity of these proxies. We apply three methods to examine the impact on the three variables mentioned above:

1. Accelerating sales value through more lenient or increased price discount
2. Reducing cost of goods sold through increased production
3. Reporting lower discretionary expenses

We use Dechow et al.'s (1998) model as implemented by Roychowdhury (2006) to generate a standard or normal level of cash flow from operation (CFO), production cost and discretionary expenses.

Table 1

Sample date test by Year

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Number of listed firms	102	105	103	115	115	116	116	117	123	123	129	141	148	153	167	167	144	118	2304
annual reports are not available	10	8	9	6	7	7	6	7	7	6	5	6	5	4	5	4	4	3	111
Final sample	92	97	94	109	108	109	110	110	116	117	124	135	143	149	162	163	140	115	2193

Table 2

Sample date test by Industry

Industry	Engineering	Food	Fuel & Power	Jute	Textile	Pharmaceutical	Paper & Printing	Service & Real estate	Travel and leisure	Cement	IT-Sector	Tannery	Ceramic	Telecommunication	Miscellaneous	Total
Number of listed firms	366	296	166	51	476	340	19	47	30	99	86	84	67	14	161	2304
annual reports are not available	16	15	8	2	37	6	1	3	2	5	4	3	2	0	5	111
Final sample	350	281	158	49	439	334	18	43	28	94	82	81	65	14	156	2193

Abnormal cash flows from operation (AB_CFO): By offering further sales discount and lenient credit period, firms can increase sales for a short period of time. These sales discount and lenient credit period will improve current year earnings, assuming that firms' gross margin ratio is positive. This extra sales revenue will not result into higher current year operating cash flows at the same proportion. Actual cash flows will be lower than normal level cash flows. Abnormal cash is measured as the difference between actual cash flow from operation and normal level cash flows from operation. We measure normal CFO as a function of sales and change in sales and estimate normal level operating cash flow from operation by following a cross-sectional regression model. This model is employed for each industry and each year.

$$\frac{CFO_{it}}{Assets_{i,t-1}} = k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{Sales_{it}}{Assets_{i,t-1}} + k_3 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it}$$

where: CFO_{it} = Cash flow from operation during the period for firms i and time t; $Assets_t$ = Value of total asset at the end of year t; $Sales_t$ = value of total sales during the period of t; and $\Delta Sales_t$ = change in sales between $Sales_t - Sales_{t-1}$.

Abnormal production cost (AB_PROD): By producing more units, management can spread the fixed cost per unit, thus lowering per unit cost. As long as this reduction cannot be outweighed by incremental marginal cost per unit and holding, management can produce more unit and report the lower cost of goods sold. Firms can report the lower cost of goods sold and higher operating margin. Due to operating at the level of excess production, production cost will be unusually higher than the normal level of production cost. Abnormal production cost is defined as the difference between the actual production cost and a normal level of production cost. We express a normal level of production cost as a function of sales and change in sales in the previous two years. According to Roychowdhury (2006), Cohen et al. (2008), and

Cohen and Zarowin (2008), following cross-sectional regression, we will estimate the normal level of production cost.

$$\frac{Prod_{it}}{Assets_{i,t-1}} = k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{Sales_{it}}{Assets_{i,t-1}} + k_3 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + k_4 \frac{\Delta Sales_{it-1}}{Assets_{i,t-1}} + \varepsilon_{it}$$

where: $Prod_t$ = Production cost for the year t. We compute that by adding changes in inventory with the cost of goods sold. All other variables are defined as in the previous setting.

Abnormal discretionary expenses (AB_DIS): Firms may report lower discretionary expenses, which include research and development expenses, selling expenses and administrative expenses, and advertising expenses, in order to enhance current year earnings. Hence, firms are reporting an abnormally lower level of discretionary expenses than the actual level of discretionary expenses. Abnormal discretionary expenses are the difference between actual discretionary expenses and normal level of discretionary expenses. Normal discretionary expenses can be measured as a linear function of sales. We estimate a normal level of discretionary expenses by following cross-sectional regression according to Roychowdhury (2006), Cohen et al. (2008), and Cohen and Zarowin (2008),

$$\frac{Disexp_{it}}{Assets_{i,t-1}} = k_{1t} \frac{1}{Assets_{i,t-1}} + k_2 \frac{Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it},$$

When we measure discretionary expenses using current year sales, it may exert a significant effect on residual of the equation. To measure this, this study deploys previous year sales to measure discretionary expenses.

$$\frac{Disexp_{it}}{Assets_{i,t-1}} = k_{1t} \frac{1}{Assets_{i,t-1}} + k_2 \frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it,}$$

where: $Disexp_t$ = discretionary expense for the period of t. Combined value of research and development, advertising, and selling and administrative expenses are considered to measure discretionary expenses. Other variables are defined as in the previous setting. To control for heteroscedasticity, all variables are scaled by prior year asset ($Assets_{it-1}$) in all three previous equations. The abnormal CFO, abnormal discretionary expenses and abnormal production costs are measured as the difference between the normal levels predicted from the above equations and actual values. As proxies of REMs, we use these three variables in our study. If a company wants to show a higher profit by real earnings management for a specific level of sales, they will try to act upon one or all of these: lower cash from operation, and/or less discretionary expenses, and/or higher production cost. For the sake of simplicity, we multiply abnormal cash flow and discretionary expenses by negative one to reorganize all three variables in the same direction. A positive value indicates earnings management through lowering cash flow and discretionary expense, and overproduction. In order to measure Real earnings management proxies (REM_PROXY), we take sum of the values of AB_CFO, AB_DIS and AB_PROD. In a similar manner to Cohen & Zarowin (2008), we encounter the empirical procedures on the variables individually to observe the effect of the individual variable as well. Firms may simultaneously engage in one or more techniques for manipulating financial statement Prior studies disclose that firms manipulate their earnings by exploiting more than one techniques (Cohen et al., 2008; Deng & Wang, 2006; Razzaque et al., 2016; Roychowdhury, 2006). They report that REM is the proxy for AB_CFO, AB_DIS, REM_1, AB_PROD and REM_2. REM_1 is the aggregate of AB_CFO and AB_DIS. REM_2 is the aggregate of AB_DIS and AB_PROD. In our study, we also test the relationship between REMs proxies and our chosen independent variables.

3.3 Independent variable

We plan to test the association between female directorship and real earnings management and hence, female directorship is our independent variable. Annual reports of listed firms of DSE presents the name

of director with their pictures respectively. In our study, we test three hypothesizes. Firstly, we see the impact of female directors' presence on real earnings management. We employ a dummy variable to accomplish this. If board appoints female director(s), coded with one, zero otherwise. Secondly, we test the association between number of female director(s) and real earnings management. Third, persistence of independent female director(s) on the board is framed as independent director in our estimated models. This is also depicted as another independent dummy variable, if board appoints independent female director(s), coded with one, zero otherwise.

3.3.1 Control variable

Several control variables as suggested by prior REMs and CG literature. We use several control variables in our model for analyzing firm-specific attributes that may affect the level of real earnings management. Following existing literature, we include LEV and LOSS as control variables for risk of bankruptcy (Dyreng et al., 2011). This study also includes SIZE and AGE as a control variable (Becker et al., 1998; Cohen & Zarowin, 2008; Deng & Wang, 2006; Roychowdhury, 2006). LEV is measured as the ratio of total debts to total asset, LOSS is a dummy variable coded with one if the firm report loss, zero otherwise. SIZE is measured as natural logarithm of total asset of the firms and AGE is measured by natural logarithm of total age of the firms. OCF is defined as net operating cash flow divided by previous year's total assets.

4. Results

4.1. Descriptive statistics

Table 3 reports descriptive statistics of all the relevant variable of this study. On average, the sample firms possess a negative REM. It indicates that on average Bangladeshi firms tend to be conservative and they are involved in income decreasing real earnings management indeed. By and large, proportion of female director on the board is more than 14% for the sample firms. Compared to other countries, it is 10.72 percent in France (Gull et al., 2017). Regarding number of female directors on the board, Table 3 shows that the average number of female director on the board is 0.99 and the maximum number 5. These results are not inconsistent with the prior study of (Gavious et al., 2012) who found that on average female directors on the board of Israeli companies is 1 and the maximum female board members is 5. Similarly, Arun et al. (2015) found that average number of female board member is 1 and maximum female members on board is 4. Among the control variables, LEV is 57 percent which is near to what is reported by Hsu & Koh (2005), near about 54 percent. In comparison to other developing countries, it is 36 percent in Jordan (see, Al-fayoumi, Abuzayed, & Alexander, 2010) and 34 percent in China (see, Wei, Xie, & Zhang, 2005).

4.2 Correlation matrix

Table 4 reports the correlation among different variables of this study. We find a positive relationship of REMs proxies with presence of female director on the board and proportion of female director on the board and this relationship is statistically significant ($p < 0.05$). On the other hand, a positive relationship also exists between REMs proxies and the presence of independent female director on the board but not statistically significant. REMs proxies are negatively associated with three control variables (AGE, SIZE). Moreover, this study finds that REMs proxies are positively associated with other three control variables (LEV, LOSS and OCF). Table 4 shows that the highest level of correlation was reported to exist between the independent variable of our study with a coefficient of 35% and significant at 1% level. Since the value of the coefficient is less than 80%, therefore, in our analysis, the multicollinearity problem is not prevalent between the independent variables.

4.3 Regression result

Tables 5-8 report cross-sectional time series regression analysis with time and firms specific fixed effect. The adjusted R^2 of our estimated models is rather low. Previous studies also document that the lower levels of adjusted R^2 are not atypical in this sort of regression models (Gavious et al., 2012; Razzaque et al., 2016; Srinidhi et al., 2011; Sun et al., 2011). Firms resort to different techniques to manage earnings. Roychowdhury (2006) identifies three procedures that management apply to manage earnings: abnormal cash flow, abnormal discretionary expenses and abnormal production cost. For further specification Tables 5-7 present all proxies of real earnings management.

Table 3
The results of some basic statistics

Variable	N	Mean	S.D.	Quartiles				
				Min	.25	Mdn	.75	Max
REM	2193	-0.01	0.22	-1.10	-0.11	-0.00	0.09	0.89
REM1	2193	0.00	0.11	-0.50	-0.05	0.00	0.06	0.39
REM2	2193	-0.01	0.19	-0.93	-0.08	0.00	0.07	0.74
AB_CFO	2193	0.00	0.08	-0.26	-0.04	0.00	0.04	0.25
AB_DIS	2193	-0.00	0.06	-0.24	-0.02	0.00	0.03	0.20
AB_PROD	2193	-0.01	0.16	-0.70	-0.05	0.00	0.05	0.55
BD_FEM	2193	0.58	0.49	0.00	0.00	1.00	1.00	1.00
BD_FEMNO	2193	0.99	1.07	0.00	0.00	1.00	2.00	5.00
BD_FEMPRO	2193	0.14	0.15	0.00	0.00	0.13	0.25	0.75
BD_INDFEM	2193	0.11	0.31	0.00	0.00	0.00	0.00	1.00
LEV	2193	0.58	0.39	0.04	0.36	0.54	0.72	3.10
LOSS	2193	0.14	0.35	0.00	0.00	0.00	0.00	1.00
OCF	2193	0.06	0.18	-4.88	0.00	0.05	0.12	2.50
SIZE	2193	20.85	1.68	17.26	19.68	20.70	21.99	25.29
AGE	2193	2.44	0.89	0.00	1.95	2.71	3.14	3.66

Where REM is real earning management; AB_CFO is the abnormal cash flows from operations; AB_DIS is the abnormal discretionary expenses; AB_PROD is the abnormal production costs; REM_1 is the aggregate of AB_CFO and AB_DIS; REM_2 is the aggregate of AB_PROD and AB_DIS; BD_FEM is a dummy variable coded with the value one if the firm appoints a female board member, zero otherwise; BD_FEMNO is number of female directors on the board; BD_FEMPRO stands for proportion of female directors on the board; BD_INDFEM a dummy variable coded with the value one if the firm appoints independent female board members, zero otherwise; LEV is the ratio of total debt to total asset of the current period;;LOSS is a dummy variable coded with the value one if the firm incurred a loss in the previous period, zero otherwise; OCF is measured by net operating cash flow divided by previous year's total assets; SIZE is the natural logarithm of total assets of the current period; AGE is the natural logarithm of years since the firm is incorporated.

Table 4
The summary of Pearson correlation analysis

Variable	REM	REM1	REM2	A_CFO	A_DIS	A_PROD	BD_FEML	BD_FEMPRO	BD_INDFEM	LEV	LOSS	OCF	SIZE	AGE
REM	1.00													
REM1	0.70***	1.00												
REM2	0.92***	0.43***	1.00											
AB_CFO	0.51***	0.81***	0.14***	1.00										
AB_DIS	0.52***	0.65***	0.56***	0.09***	1.00									
AB_PROD	0.87***	0.25***	0.94***	0.13***	0.26***	1.00								
BD_FEM	0.06**	0.06**	0.05**	0.05**	0.03	0.04*	1.00							
BD_FEMPRO	0.06**	0.06**	0.05**	0.05**	0.04*	0.05**	0.79***	1.00						
BD_INDFEM	0.04*	-0.01	0.05**	-0.02	0.02	0.05**	0.30***	0.14***	1.00					
LEV	0.12***	0.13***	0.06**	0.18***	-0.01	0.08**	-0.11***	-0.13***	0.025	1.00				
LOSS	0.07***	0.11***	0.02	0.13***	0.02	0.02	-0.13***	-0.16***	-0.06**	0.35***	1.00			
OCF	0.01	-0.01	0.02	-0.02	0.02	0.02	0.01	0.00	0.06**	-0.04**	-0.08***	1.00		
SIZE	-0.01	0.00	-0.02	0.00	-0.00	-0.02	-0.02	0.02	-0.07***	-0.13***	-0.19***	0.01	1.00	
AGE	-0.04*	-0.05**	-0.05*	0.01	-0.11***	-0.01	-0.02	-0.05**	0.05**	0.19***	0.08***	-0.00	-0.14***	1.00

* p<0.10.   ** p <0.05.   *** p <0.01.

Table 5 reports the regression results, to uncover the statistical association between prevalence of female directors on the board and real earnings management. Model 1, 4 and 6 show the aggregate measures of real earnings management. The result indicates that female director was positively associated with real earnings management, where REM is significant at p<0.01 and t values are 3.25. More unequivocally, results depict, if board appoints female director, they are involved in more earnings management through less price discount and less credit facility (p<0.01).

Table 5
The results of statistical test

VARIABLES	1	2	3	4	5	6
BD_FEM	0.033***	0.014***	0.005	0.019***	0.014*	0.019**
	[3.25]	[3.74]	[1.53]	[3.79]	[1.84]	[2.07]
LEV	0.088***	0.042***	0.001	0.042***	0.046***	0.047***
	[4.47]	[5.70]	[0.13]	[4.48]	[2.87]	[2.64]
LOSS	0.043***	0.032***	0.006*	0.038***	0.005	0.012
	[3.14]	[5.62]	[1.71]	[5.57]	[0.51]	[0.99]
OCF	0.005	-0.013	0.009	-0.004	0.009	0.018
	[0.19]	[-0.93]	[1.25]	[-0.25]	[0.49]	[0.78]
SIZE	-0.004	0.002	-0.001	0.001	-0.005*	-0.005*
	[-1.17]	[1.12]	[-0.80]	[0.46]	[-1.65]	[-1.77]
AGE	-0.019***	-0.001	-0.010***	-0.011***	-0.009*	-0.018***
	[-3.15]	[-0.45]	[-5.84]	[-3.43]	[-1.90]	[-3.47]
Constant	0.029	-0.065**	0.031	-0.034	0.063	0.093
	[0.38]	[-2.13]	[1.50]	[-0.86]	[0.96]	[1.36]
Industry year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,187	2,187	2,187	2,187	2,187	2,187
R-squared	0.04	0.07	0.02	0.05	0.02	0.02
Adj. R-squared	0.03	0.05	0.00	0.03	0.01	0.01

Robust t-statistics in brackets
*** p<0.01, ** p<0.05, * p<0.10

Table 6 presents the regression result, which examines the relationship between proportion of female director on the board and real earnings management. The result depicts that proportion of female director on the board are also positively associated with real earnings management, where REM is significant at p<0.01 and t values are 3.02. Hence, firms are more likely to involve in real earnings management if the board has more representation from females. This result is consistent with Byrnes et al. (1999) previous result. Similar to previous studies (Arun et al., 2015), Bangladeshi women director are more conservative towards reporting profit when compare to men. So, the result suggest that the gender difference of a firm's directors may affect the attitude of management towards the quality of financial reporting. Findings of the analysis indicate that firms with more female director on the board are more likely to follow defensive financial reporting policies and tend to employ more income-decreasing earnings than their counterparts in firms with a less female representation on the board. So, we can argue that female directors may induce to resolve the problem of income-increasing real earnings management.

Table 7 reports the regression results regarding the association between presence of independent female director on the board and real earnings management. The result shows that the persistence of independent female directors is also positively associated with real earnings management, where REM is not statistically significant at p<0.05. This result is consistent with previous study (Sun et al., 2011).

This study documents that presence of female board members are not negatively associated with real earnings management. Different justifications may be offered as potential explanations for this situation. Firstly, Bangladesh Securities and Exchange Commission issued a directive regarding shareholding proportion by sponsors/promoters and directors of all listed companies of Dhaka and Chittagong stock exchanges. Sponsor, promoters and, directors should have at least 30% of total paid-up capital in aggregate(Bangladesh Securities and Exchange Commission, 2011). As family ownership is -ubiquitous in Bangladesh (World Bank, 2009), BSEC's directives induce higher ownership or control by family. If female board member come the family ownership, they may not apply their own judgment to ensure transparency and accountability. Secondly, female directors in absolute minority may not capable or willing to reduce earnings management, since, only 14% board members are female. Thirdly, if they were appointed on the board only to fulfill the gender quotas, it will be unsuccessful to limit real earnings management.

Table 6
The results of the regression analysis

VARIABLES	1 REM	2 AB_CFO	3 AB_DIS	4 REM1	5 AB_PROD	6 REM2
BD_FEMPRO	0.014***	0.005***	0.002	0.007***	0.007**	0.009**
	[3.02]	[3.00]	[1.53]	[3.21]	[2.01]	[2.22]
LEV	0.088***	0.041***	0.001	0.042***	0.046***	0.047***
	[4.46]	[5.65]	[0.14]	[4.46]	[2.88]	[2.64]
LOSS	0.041***	0.030***	0.006	0.036***	0.004	0.010
	[2.97]	[5.41]	[1.64]	[5.37]	[0.43]	[0.89]
OCF	0.005	-0.013	0.009	-0.004	0.009	0.018
	[0.20]	[-0.94]	[1.25]	[-0.24]	[0.50]	[0.79]
SIZE	-0.004	0.001	-0.001	0.001	-0.005	-0.005*
	[-1.18]	[1.03]	[-0.78]	[0.40]	[-1.63]	[-1.75]
AGE	-0.019***	-0.001	-0.009***	-0.010***	-0.008*	-0.018***
	[-3.06]	[-0.38]	[-5.76]	[-3.35]	[-1.83]	[-3.39]
Constant	0.034	-0.060*	0.031	-0.029	0.063	0.094
	[0.45]	[-1.92]	[1.49]	[-0.71]	[0.97]	[1.37]
Industry year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,187	2,187	2,187	2,187	2,187	2,187
R-squared	0.04	0.07	0.02	0.05	0.02	0.02
Adj. R-squared	0.03	0.05	0.00	0.03	0.01	0.01

Robust t-statistics in brackets
*** p<0.01, ** p<0.05, * p<0.10

To overcome this problem, Gull et al. (2017) recommended that females should be appointed on the board on the basis of their statutory and demographic attributes. Despite this, the present study finds that female board member plays a significant role to reduce real earnings management, when firms seek to manage earnings through increasing income. Among the control variable, LEV, LOSS and OCF are positively correlated with REM. On the other hand SIZE and AGE are negatively associated with REM.

Table 7
The results of the regression analysis

VARIABLES	1 REM	2 AB_CFO	3 AB_DIS	4 REM1	5 AB_PROD	6 REM2
BD_INDFEM	0.037**	-0.002	0.006	0.005	0.032**	0.038***
	[2.16]	[-0.23]	[1.28]	[0.57]	[2.56]	[2.59]
LEV	0.086***	0.041***	0.000	0.041***	0.045***	0.045**
	[4.36]	[5.55]	[0.06]	[4.37]	[2.80]	[2.55]
LOSS	0.041***	0.029***	0.006*	0.035***	0.006	0.012
	[3.05]	[5.18]	[1.66]	[5.19]	[0.60]	[1.07]
OCF	-0.002	-0.013	0.008	-0.006	0.004	0.012
	[-0.06]	[-0.97]	[1.12]	[-0.34]	[0.22]	[0.53]
SIZE	-0.005	0.001	-0.001	0.000	-0.005*	-0.006*
	[-1.40]	[0.64]	[-0.90]	[0.03]	[-1.68]	[-1.82]
AGE	-0.021***	-0.001	-0.010***	-0.011***	-0.009**	-0.019***
	[-3.37]	[-0.60]	[-5.93]	[-3.62]	[-2.09]	[-3.66]
Constant	0.064	-0.042	0.035*	-0.007	0.071	0.106
	[0.85]	[-1.38]	[1.72]	[-0.17]	[1.11]	[1.57]
Industry year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2.187	2.187	2.187	2.187	2.187	2.187
R-squared	0.04	0.06	0.02	0.04	0.02	0.02
Adj. R-squared	0.03	0.05	0.00	0.03	0.01	0.01

4.4. Robustness of the Results

To ensure the robustness of our results, we conduct several forms of sensitivity analysis. The first sensitivity analysis illustrates the effect of test variable on results in two different time periods. Board composition is one of the internal corporate governance mechanisms. BSEC issued revised corporate governance guideline in 2012.This code was mandatory for all of the listed firms to follow. Prior to that guideline, it had been optional. To check the robustness our result, we divide our sample into pre-compulsory CG (2000-2011) and post-compulsory CG (2012-2017). We test three regressions individually

to check each independent variable effect on REMs in two different sample periods. Sub-sample data has been used to test the relationships and shown in table 8.

Model 3 of Table 8 reports independent female directorship are inversely associated with REMs, during compulsory CG (p<0.01) and positively associated before compulsory period (p<0.01). These findings document that CG motivates female directors to reduce REMs. On the other hand, presence of female directors is another determining factor on REMs. Model 1 shows that the presence of female directors on the board is positively related to REMs, before compulsory CG (p<0.1) and during compulsory CG, this study reports no association. It concurs that female directors play a positive role towards restraint earnings management due to CG. Moreover, proportion of female directors is also positively associated with REMs, before compulsory CG (p<0.1) and during compulsory CG, this study depicts inverse association while this association is not statistically significant. Here, this study also confirms that firms are less likely to be involved in real earnings management during compulsory CG when proportion of female directors has been enlarged. So, analysis shows that CG governance plays a definitive role towards changing the attitude of management to REMs positively in case of female directors on the board. This result is seems to be pervasive when board appoint independent female directors during compulsory period.

For the second layer of robustness test, we use a dummy variable for CG (Dummy_CG). This dummy variable coded with the value one if the data are taken from 2012-2017, zero otherwise. Model 4 of table 8 shows coefficient with a negative sign. It may indicate that due to revised CG, the magnitude of earnings management has been declined while not in a statistically significant manner. Third, we eliminate all the outliers from our test and control variables. Hence, a- winsorization procedure has been used to exclude all extreme data points from our study. All the observation, which are more than three standard deviations away from mean, is replaced by values within exactly three standard deviations.

Table 8
The results of the regression analysis

VARIABLES	1 REM		2 REM		3 REM		4 REM
Study period	2000-2011	2012-2017	2000-2011	2012-2017	2000-2011	2012-2017	2000-2017
BD_FEM	0.047***	0.018					
	[3.62]	[1.06]					
BD_FEMPRO			0.032***	-0.001			
			[4.74]	[-0.11]			
BD_INDFEM					0.079***	-0.097***	
					[4.07]	[-2.72]	
CG_DUMMY							-0.024
							[-1.46]
LEV	0.056**	0.159***	0.057**	0.155***	0.054**	0.152***	0.156***
	[2.29]	[6.05]	[2.37]	[5.87]	[2.22]	[5.79]	[6.02]
LOSS	0.025	0.086***	0.020	0.087***	0.023	0.086***	0.087***
	[1.37]	[3.91]	[1.12]	[3.95]	[1.31]	[3.90]	[4.01]
OCF	0.008	0.033	0.009	0.031	-0.003	0.053	0.035
	[0.27]	[0.43]	[0.31]	[0.41]	[-0.11]	[0.69]	[0.47]
SIZE	-0.002	-0.003	-0.002	-0.003	-0.002	-0.001	-0.003
	[-0.52]	[-0.50]	[-0.38]	[-0.55]	[-0.53]	[-0.25]	[-0.60]
AGE	-0.015*	-0.029***	-0.014*	-0.028***	-0.018**	-0.024**	-0.029***
	[-1.78]	[-3.20]	[-1.69]	[-3.13]	[-2.06]	[-2.54]	[-3.20]
Constant	0.001	0.012	-0.017	0.032	0.029	-0.007	0.048
	[0.01]	[0.09]	[-0.18]	[0.25]	[0.31]	[-0.06]	[0.38]
Industry year fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,342	845	1,342	845	1,342	845	845
R-squared	0.03	0.09	0.04	0.09	0.04	0.10	0.09
Adj. R-squared	0.01	0.07	0.02	0.07	0.02	0.08	0.07

Robust t-statistics in brackets
*** p<0.01, ** p<0.05, * p<0.10

5. Conclusion

In this paper, we have studied the relationship between the persistence of female directorship on the board and real earnings management utilizing a sample of Bangladeshi firms listed on the Dhaka Stock Exchange during the period 2000-2017. In our analysis, we have found presence of female directors, proportion of female directors, and prevalence of independent female directors were positively and significantly associated with real earnings management. These findings have indicated that the listed firms of Bangladesh which appoint female director on the board were more likely to be involved in earnings management. This study underscores that firms with female directors involve real earnings management through low or minimal price discount, tight credit facility and reduced production cost. There may be different justifications for these result such as proportion of female directors on the board being rather low, female directors' hailing from the controlled shareholders' family, and females being appointed on the board singularly to fulfill quotas. These problems may be solved if firms appoint their board members by taking their respective statutory and demographic attributes into consideration (Gull et al., 2017). Our results are also consistent with this claim. Revised corporate governance guideline (2012) references some criteria for independent directorship. This study also finds that during compulsory CG period (2012-2017), independent female directorship is inversely associated with real earnings management. In addition, we find that Bangladeshi firms with female directors exhibit more income-decreasing earnings. This can be argued that presence of female directorship may solve the problem of income increasing real earnings management through their conservative attitude towards this setting of decision making. The impact of CG on earnings management has also been tested categorically. We detect some level of positive impact of CG on real earnings management. Prior to the enactment of corporate governance, the correlation turned out to be statistically significant and positive in all of the three circumstances. It highlights that corporate governance motivates or coerces female directors to limit earnings management behavior of management.

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