



Exploring and Explaining the Effects of Financial Literacy and the Complementary Relationship of Female Board Members on Preventing Earning Management (Evidence from Companies Listed on Stock Exchange)

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ABSTRACT

To achieve balance, equality and elimination of prejudices, as well as the full development of organizations, women need to be able to participate in the decision-making process at various levels of the organization. In recent years, in the employment rate of women in society has increased significantly. The reason is the remarkable competencies in women's management style. Therefore, a new view to the management of women is emerging in developing countries. The purpose of this study was to investigate the complementary relationship between female board members and financial literacy with preventing earning management in companies listed on stock exchange. 124 companies were selected as the research sample using Systematic Sampling and after applying restrictions, from 2012 to 2018. Hypotheses have been tested and analyzed using combined data regression techniques. The results of the study indicate that having female members in board of directors has a significant effect on earning management. The presence of educated women in the board will reduce profit management. Therefore, companies are encouraged to have financially educated women on their board of directors.

Keywords:

Female Board - Financial Literacy - Earning Management



1. Introduction

With regard to the close relationship between accounting profession and economic sectors in society, observing ethical principles is considered among vital components of this field. It is also widely accepted that existence of this profession depends on society; and as a result, it must respect interests in society and observe ethical values in terms of fulfilling community-related affairs. Reviewing scientific literature in this field suggests that earnings management is an important ethical subject in today's accounting profession.

Earnings management in financial statements is known as one of the most important factors influencing economic decision-makings and its higher quality and reliability can greatly help users to make right decisions. One of the main goals of accounting standards is to aid users to make relatively relevant and right decisions based on financial statements. On the other hand, managers may report earnings in a way that is contrary to common interests of users to achieve some specific goals, favored probably by certain people (Yaghoubnezhad et al, 2012). Earnings management can be defined as the actions that managers take to manipulate information to accomplish specific goals (Shamsaei, 2013). It is very difficult to clearly define earnings management in accounting literature, because the boundary between earnings management and financial frauds is not obviously determined. However, there are many conceptual differences between fraudulent accounting activities and judgments and estimations based on accepted accounting principles (Mashayekhi, & Hosseinpour, 2016).

In this respect, Rahman et al. (2013) examined motivations such as self-interest, management rewards, and tax incentives. In the process of earnings management, managers make judgments on financial reports and arrange transactions in such a way that financial reports can mislead some shareholders or some financial statement figures may be changed. In other words, earnings management is defined as intentional manipulation of transactions and reports by managers to mislead shareholders (Vadiee & Anbarani, 2012).

2. Literature Review

The stock exchange is one of the constituents of the financial market and one of the most important

institutions of the capital market, which plays an important role in equipping sources of savings in the investment and financing of production units. Since investment is considered as one of the essential elements in the process of economic growth of any country (Khajavi et al, 2011). and one of the important factors of development in the current century (Malekian et al, 2010), it can be concluded that the stock exchange is a sector of economics (an economic sector) that is linked to other economic sectors and can play an important role in the economic growth and development of a country. The stock price index has always been affected by economic variables; moreover, the stock market downturn and boom are heavily influenced by volatility in this variable. The Tehran Stock Exchange (TSE) is recognized as the country's most important capital market institution; therefore, understanding the characteristics of this market and removing its bottlenecks is of great importance and requires extensive research and effort. Identifying the factors affecting the price and stock price crash risk and analyzing the stock price behavior against these factors can help improve the capital market boom and be effective in better evaluating the stock exchange as well as improving and controlling its performance. This, in turn, can meet a large part of the needs of investors and shareholders (Taqavi et al, 2008).

Accounting means to appropriate numbers and figures as objects or events according to regular and logical rules. The main purpose of accounting and financial reporting is to meet the information needs and demands of users. Financial statements are the primary means of transferring information to individuals and users outside the organization. One of the key financial statements is the income statement that is very important in assessing the management stewardship task or their accountability for the resources at their disposal. The income statement comprises the returns on resources controlled by the business entity management and reflects the performance of the business entity during the period in question. Since business entity management is responsible for the preparation of financial statements and also because managers have direct access to information and the right to choose optional accounting methods, earnings management is possible. Earnings management does not necessarily reflect the actual performance of the company and may result in

providing incorrect information about the company. Earnings management is the process of performing general actions within the accepted accounting principles that contribute to achieving the desired level of earnings (Ebrahimi & Ebrahimi, 2010).

Accounting income is the most common measure of a company's performance. Given the fact that accounting and financial reporting rules and standards provide significant opportunities for corporate executives in the area of earnings management, organizations have become increasingly focused on earnings management analysis. Earnings management can be influenced by the characteristics and incentives of corporate executives. Given that these characteristics, features, and incentives differ with regard to the femaleness of financial and executive managers, the role of the femaleness of financial and executive managers has been overlooked in this area so far. Psychology and management scholars have always acknowledged that gender differences play an essential role in leadership and management styles, communication skills, conservatism, and risk-taking, as well as managers' decision-making (Watson, 2002).

Detecting earnings management is very critical for users of financial statements in order to evaluate current period performance, predict future profitability, and also determine firm value. However, detecting and identifying earnings management, especially when it is not conducted by clear motivations, is really difficult and time-consuming. The previous research has used different criteria to identify earnings management (Jansen et al, 2012). In addition, managers with high financial literacy are more familiar with financial standards and decision-makings, various earnings management techniques, as well as quality of information disclosure; and as a result, they have more ability to manipulate information and manage earnings (Mollazadeh et al, 2016).

Given the above-mentioned differences and their potential consequences in governing corporates, the topic of gender diversity in the context of corporate finance, especially in state-owned companies, has been increasingly considered by researchers over the past few years. Although many women are graduated in accounting, financial management, etc.; senior managers have been often reluctant to delegate responsibilities such as financial and executive management of a company to women. As a result, this

study aimed to compare performance of male and female executive and financial managers and to examine impact of their gender differences on earnings management in firms listed on Stock Exchange. Therefore, the main research hypothesis was defined as follows: "Is there a significant difference between gender and financial literacy of the board of directors and preventing earnings management in firms listed on Stock Exchange?"

In this regard, Umar et al (2020) in a study examined gender diversity and profit management. The study examines the relationship of gender diversity and earning management practices through dynamic penal estimation. They estimate discretionary accruals using well-known model of Kothari, Leone, and Wasley (2005). Whereas, this study considers three different aspects such as women in the board, women in the audit committee and women CEO for estimation of gender diversity. This finding of this study is based on a sample of 100 listed non-financial companies over the period of 2010-2015. Consistent with previous findings, they document that negative impact of gender diversity in the corporate board and audit committee with earning management practices. Furthermore, the results reveal that the presence of female as a CEO plays a pivotal role in constraining earnings management practices.

Sanchez et al. (2019) also selected a sample of 273 firms from 2006 to 2014 and investigated the impact of women in the board and effective management in reporting stability. The results of this study showed that presence of women in the board could reduce the risks of stability in managerial disclosure. In other words, presence of women meant more balance and more trusted information (García-Sánchez et al, 2019).

Likewise, Ajina et al. (2017) studied corporate disclosure, information asymmetry, and liquidity in France Stock Market. To this end, they selected a sample of 163 firms listed in France Stock Exchange and examined the relationship between earnings management and readability of firms' annual financial reports. The research findings demonstrated a significantly negative relationship between earnings management and readability of corporate financial reports (Ajina, & Habib, 2017).

Safari Graily et al (2017) used an empirical test of the opportunistic approach and investigated earnings management and readability of financial reporting. They also employed the fog index and the text length

index to measure readability of financial reporting and utilized Kasznik's (1999) model to measure earnings management. Multivariate regression model based on panel data method was also used to test the research hypothesis through a sample of 93 firms listed on Stock Exchange during the years 2011 to 2015. The research findings indicated a negative relationship between earnings management and readability of financial reporting of firms. In other words, the opportunistic approach of earnings management was confirmed (Safari Graily, 2017).

Mollazadeh et al. (2016) further examined the effect of CEOs' financial literacy on earnings management. The population of the study included 130 firms listed on Stock Exchange. The educational level was also used as a criterion for measuring CEOs' financial literacy. Multivariate panel regression model and mean equality test were correspondingly employed for data analysis. The results showed that CEOs' financial literacy with respect to actual events and accruals were not effective in firms' earnings management. On the other hand, there were not significant differences between earnings management based on discretionary accruals and real event accruals in companies with CEOs having financial literacy and other companies (Mollazadeh et al, 2016).

Chen and Gaviious (2016) also examined the supplementary relationship between female board of directors and financial literacy and earnings management in high-tech companies of Israel. Their results showed that presence of many women without financial literacy in the board of directors was less effective than presence of those with high level of financial literacy in terms of preventing earnings management. Additionally, their results suggested that percentage of women with financial literacy was significantly correlated with controlling earnings management. Moreover, women with financial literacy in the board were more effective than men in preventing earnings management (Chen & Gaviious, 2016).

Besides, Movahedi (2015) examined the relationship between board characteristics and earnings management with quality of information disclosure in firms listed on Stock Exchange. The panel data method was accordingly used to test hypotheses within 2007-2009 based on information from 140 firms, selected using systematic elimination sampling method. The results showed that these

mechanisms were significantly and positively correlated with quality of disclosure. In addition, there was a positive relationship between separating CEOs' duties from that of the chairman of the board with quality of information disclosure. The results revealed that firms with higher disclosure quality had less earnings management (Movahedi, 2015).

In their research, Biabani and Grekes (2014) examined the "relationship between female executives in the board of directors and the performance of the companies listed on the Tehran Stock Exchange". The required information was extracted from 114 companies listed on the Tehran Stock Exchange using the Cochran sampling method over the 2007-2011 period. The research findings indicate that the presence of female executives in the board of directors has a positive and significant relationship with return on assets (ROA) and return on equity (ROE), but has no significant relationship with Tobin's Q ratio and sales (Biabani, 2014).

In their research entitled "Investigating Ethical Factors Affecting Earnings Management", Vadiee and Anbarani (2012) concluded that all male and female accounting students make similar judgments about earnings management by examining the relationship between the individual's gender and considering earnings management ethical (Vadiee & Anbarani, 2012).

Hassan Ghalibaf Asl et al. (2007) examined the "impact of board composition on firm performance". "The ratio (or number) of non-executive board members" was used as the independent variable and "board composition criteria" and "firm performance" as the dependent variables. Tests show that there is no significant relationship between "non-executive members" and any of the performance measures (Ghalibaf Asl & Rezaei, 2007).

Furthermore, Jiang et al. (2013) shed light on the effect of CEOs' financial literacy on earnings management in China and found that CEOs with financial literacy were less engaged in earnings management with real figures. In addition, they observed no significant relationship between CEOs' financial literacy and earnings management based on discretionary accruals. They also reported that CEOs with higher financial literacy could provide more accurate profit information and high-quality financial statements (Jiang, 2010).

In his research entitled "Is There Any Business for Female Managers? Evidence from the Market Response to the Appointments of New Managers," Adams et al. (2010) argue that female managers have more independent thinking than male managers and improve the supervision process, according to the research conducted in this area. They have also found that investors place a high value on female executives. They believe that providing information with the least amount of information asymmetry facilitates earnings quality. However, some studies have shown that gender diversity certainly does not help improve firm performance (Adams & Ferreira, 2009).

In his study entitled "Discovering the Quality of Gender and Income", Krishnan (2008) has studied the community of managers and concluded that earnings quality is high for a group that is gender diverse at high levels of management. In other words, in this study, moral (ethical) behaviors are more common among women than men (Gopal & Linda, 2008).

In their research entitled "Gender-Related Boardroom Dynamics: How Women Make and Can Make Contributions on Corporate Boards", Huse et al. (2006) stated that the presence of women on boards could improve the board behavior and effectiveness only because the women in corporate boards are more inclined to attend board meetings than their opposite sex (i.e., men) (Huse & Solberg, 2006).

In their research entitled "Board Diversity and Corporate Financial Performance," Erhardt et al. (2003) used a large number of US firms as an example to examine the relationship between board diversity and corporate financial performance. By presenting this evidence, they have demonstrated that board diversity is positively associated with increased earnings (Erhardt & Sharder, 2003).

In their research entitled "How Does Women's Presence Affect Management?", Fondas and Sassalos (2000) infer that gender-diverse boards of directors are more effective than all-male or all-female boards of directors. They also argue that women may be able to improve decision-making in a given context by applying different points of view in a discussion (Fondas & Sassalos, 2000).

Given the above-mentioned theoretical principles, the following hypotheses are presented.

Hypothesis 1: There is a significant and positive relationship between earnings management and percentage of women in the board of directors.

Hypothesis 2: Boards of directors with women having financial literacy are more effective in earnings management compared with those lacking this literacy.

3. Methodology

In terms of purpose, the present study was an applied research using a quantitative method. Considering time dimension, it was a retrospective and post-event study. The regression analysis with panel data was also used to test the research hypotheses. The data employed in this study were collected via library method from the database of Rahavard Novin and the website of Tehran Stock Exchange and then processed by Microsoft Excel. In addition, Eviews 10 was further utilized to analyze and test the research hypotheses. The statistical population of the study included all the listed firms on Tehran Stock Exchange between 2011 and 2017. The selected firms were required to meet the following conditions:

- 1) Its financial year must end on March 29th of each year.
- 2) It must have not changed its financial year during the study period.
- 3) Its financial statement information in the study period must be completely available.
- 4) It must not be an investment or intermediary company.
- 5) Transaction of the firm's shares must not be interrupted more than 1 month.

Given the above conditions, the statistical sample included 124 firms. It should be noted that the data of the sample companies were collected from the database of Rahavard Novin, Codal website, and the statistical archives of Tehran Stock Exchange.

3.1. Research Model and Variables

Multiple regression model was used to measure the complementary relationship between female gender of the board and financial literacy (Mollazadeh et al, 2016):

$$EM_{i,t} = \beta_0 + \beta_1 FemDir_{i,t} + \beta_2 FemDirFin_{i,t} + \beta_3 IFRS_{i,t} + \beta_4 Size_{i,t} + \beta_5 Age_{i,t} + \beta_6 ROA_{i,t} + \beta_7 SalesGr_{i,t} + \beta_8 R\&D_{i,t} + \beta_9 Ret_{i,t} + \beta_{10} Q_{i,t} + \beta_{11} Vol_{i,t} + \varepsilon_{i,t}$$

Wherein,

- FemDirFin: 1 if there is at least one woman with financial literacy in the board; otherwise 0;
- Size: Natural logarithm of the total assets of the company;
- Age: Firm's age;
- ROA: Firm's operating profit, scaled by firm's net assets;
- SalesGr: Percentage of changes in annual sales;
- R&D: Research and development costs;
- Q: Tobin's Q index, which is equal to book value of assets minus book value of equity plus market value of equity;
- Ret: Equity returns in the first year;
- Vol: Stock volatility;

According to the related literature, a manager with financial literacy is someone who is educated in or has backgrounds in one of the following subjects: MSc in accounting or finance, CPA, and current or past relevant job position as executive manager in a financial institution (Grohmann et al, 2018).

Female Gender of Board of Directors

Female gender includes behaviors, social roles, and social thoughts in which the dominant culture on society is carried out by women. Each gender has some dominating thoughts in society that can design and determine expectations of both genders (Naseri & Naseri, 2016, Kyaw et al, 2015).

Financial Literacy

Financial literacy means knowledge on financial affairs, which in turn may include examining financial phenomena as well as the nature, the laws and the relationships governing them. Lack of understanding of economics and financial affairs is thus a deterrent factor to equity ownership. Lack of financial literacy has been also found very effective in loss of welfare caused by lack of participation in capital markets (Grohmann et al, 2018, Moradi & Izadi, 2015).

Earnings Management

Earnings management is defined as the process of public actions of accepted general principles of accounting that helps to get to the intended level of profit. Earnings management includes a wide range of actions influencing earnings as well as a wide range of bookkeeping practices that only affect accounting criteria of earnings measurement (Kazemi Nojehdeh, 2015).

In this research, two components are defined to measure earnings management: 1) discretionary accruals, and 2) passive accruals.

Discretionary Accruals

Discretionary accruals are unexpected accruals specified by Jones's (1991) modified model and they control the effect of performance (Kothari et al, 2005) and growth (Raman & Shahrur, 2015) on items. Finally, the model below is presented to measure discretionary accruals (Chen, & Gavigous, 2016):

$$TACC/ITA = \alpha_0(1/LTA) + \alpha_1(Rev_Del/LTA - AR_DeL/LTA) + \alpha_2 GPPE/LTA + \alpha_3 ROA + \alpha_4 ExFin/LTA + \alpha_5 Age + \alpha_6 BM + \varepsilon$$

Wherein,

- TACC: Total accruals;
- ITA: Backlog of total assets;
- Rev_Del: Revenue changes from last year;
- AR_DeL: Changes in receivable accounts;
- GPPE: Gross fixed assets;
- ROA: Net profit before scaling unexpected items by backlog of total assets;
- Age: Firm age;
- BM: Total asset ratio to total assets minus book value of equity plus market value of equity

Measuring Passive Accruals

The measurement method proposed by Jivoli and Hein (2000) is used to measure passive accruals. Passive accruals are calculated as the net income plus depreciation minus operating cash flow minus operating accruals (Chen, & Gavigous, 2016), as follows:

$$\Delta Accounts\ Receivables + \Delta Inventories + \Delta Prepaid\ Expenses - \Delta Accounts\ Payable - \Delta Taxes\ Payable$$

To control firm size, the passive accruals were scaled since the beginning of the total asset year.

4. Results

Performance of various regression models can be affected by different data. Consequently, descriptive statistics of variables used in this study were initially examined in the Table (1) below.

The table (1) shows large standard deviations for the observations, which in turn indicates high dispersion of observations. In addition, reported skewedness and kurtosis suggest that distribution of observations is almost normal.

The test proposed by Levin-Lin-Chu was thus used to test stationarity of the research variables and since probabilities of all the variables were less than 5%, all the variables in the study period were reliable at the intended level. Reliability means that mean and variance of the research variables over time and covariance of variables between different years have

been constant. Therefore, there will be no problem of false regression in estimation of coefficients.

Linear regression method assumes that all the residual terms have equal variance. This study used Breusch-Pagan test to examine homogeneity of the residual variance. The results showed that the research models do not reject the null hypothesis, claiming homogeneity of variances. As a result, ordinary least squares (OLS) method was used to test the research models.

The Breusch-Godfrey test for serial autocorrelation was employed to check independency of the residuals. The null hypothesis in this test implies lack of autocorrelation and the alternative hypothesis suggests existence of serial autocorrelation between residuals. The results of the test show that the null hypothesis is accepted in all the research models. In other words, the error terms in the research model are not autocorrelated.

Table 1: Descriptive statistics of research variables

Variables	Mean	Median	Max.	Min.	SD	Skewedness	Kurtosis
Earnings management	0.004	0.005	1.27	-1.20	0.19	0.49	1.16
Female board of directors	0.36	0	1	0	0.48	0.56	1.32
Financial literacy	0.15	0	1	0	0.36	1.9	2.16
Growth rate	0.23	0.15	34.7	-1.09	1.85	1.93	3.13
Leverage	0.65	0.66	1.022	0.04	0.16	-0.55	3.51
Firm size	12.81	12.8	16.05	9.98	1.12	0.06	2.65
Liquidity	0.09	0.1	0.59	-0.56	0.18	-0.42	3.37

Table 2: Results of stationarity test for research variables

Variable	LLC Statistic	Possibility	Results
Earnings management	-22.83	0.000	Stationary
Women in the board	-2.86	0.000	Stationary
Financial literacy	-3.24	0.000	Stationary
Growth rate	-36.47	0.000	Stationary
Leverage	-21.8	0.000	Stationary
Firm size	-12.41	0.000	Stationary
Liquidity	-19.02	0.000	Stationary

Table 3: Results of testing constancy of error term variance

Model	F Statistic	Possibility	Results	Estimation method
First	0.84	0.47	Homogeneity of variance	OLS
Second	1.38	0.58	Homogeneity of variance	OLS

Table 4: Results of autocorrelation test for error terms

Model	F Statistic	Possibility	Results
First	1.486	0.59	Lack of autocorrelation for error term
Second	1.08	0.35	Lack of autocorrelation for error term

Results of Testing Research Hypotheses

Hypothesis 1: There is a significant and positive relationship between earnings management and percentage of women in the board.

The results of testing the first hypothesis are illustrated in Table 5. As stated above, the panel method with random effects was used to estimate the model. According to the results, significance of the whole model to test the research hypothesis at 95% confidence level is confirmed since the F statistic is less than 5%. In addition, the adjusted coefficient of determination for the research model is equal to 0.48, indicating that the independent variables explain up to 46% of variations in earnings management. Durbin-Watson statistic is also 1.91, confirming lack of autocorrelation between disruptive components.

In general, results of testing the hypothesis in Table 5 shows that coefficient of presence of women in the board is equal to 0.12, confirming the positive effect of presence of women in the boards of directors on earnings management at 95% confidence level for the relevant variable (0.02). In other words, it can be stated that presence of more women in the board does not necessarily decrease earnings management. Accordingly, the first hypothesis was confirmed at 95% confidence level.

The results of the control variables also demonstrate that financial leverage and firm size have significant impacts on earnings management at 95% confidence level, while growth rate and liquidity have significantly negative effects on earnings management. Therefore, it can be said that earnings management, and consequently, earnings manipulation is greater in cases where risk or firm size increase and the company is new or it has low debt. The results of the first model correspondingly show that probability of earnings manipulation, and subsequently, earnings management in a firm decrease when it progresses on its growth path and its liquidity increases. These results indicate that individuals in firms with good growth rates have also higher commitment and work conscience, which

is consistent with results indicating reduced earnings manipulation.

Table 5: Estimation results of the first research model

Model Variable	Dependent variable: Earnings management, Estimation method: Regression			
	Estimated coefficient	Standard error	Statistics	Possibility
Constant	1.58	0.89	1.77	0.07
Female board of directors	0.12	0.02	5.19	0.02
Growth rate	0.14	0.06	2.33	0.03
Leverage	-0.11	0.01	-8.20	0.01
Firm size	0.13	0.017	7.58	0.01
Liquidity	-0.02	0.013	-1.56	0.03
Coefficient of determination			0.52	
Adjusted coefficient of determination			0.46	
Durbin-Watson statistic			1.91	
F statistic			11.24	
Probability of F statistic			0.000	

Hypothesis 2: Boards of directors with women having financial literacy are more effective in earnings management compared with those lacking this literacy.

The results of testing the second hypothesis are illustrated in Table 6. As stated above, the panel method with random effects was used to estimate the model. According to the results, the significance of the whole model to test the research hypothesis at 95% confidence level is confirmed since the F statistic is less than 5%. In addition, the adjusted coefficient of determination for the research model is equal to 0.54, indicating that the independent variables explain up to 54% of variations in earnings management. Durbin-Watson statistic is also 1.93, which confirms lack of autocorrelation between error terms.

The results show that coefficient of the board members with financial literacy is equal to -0.04, which confirms negative effect of percentage of female board members on earnings management at 95% confidence level. In addition, coefficient of the board members without financial literacy is equal to 0.14, implying positive impact of percentage of female

board members on earnings management. Comparison of effect of female board members with and without financial literacy on earnings management indicates that the former one is more effective. Accordingly, the second hypothesis was confirmed at 95% confidence level.

The results of the control variables also suggest that financial leverage and firm size have significant impacts on earnings management at 95% confidence level, while growth rate and liquidity have significant and negative effects on earnings management. Therefore, it can be stated that earnings management, and consequently, earnings manipulation is greater in cases where risk or firm size increases and the company is new or it has low debt. In addition, results of the second model of the research show that probability of earnings manipulation, and subsequently, earnings management in a firm decrease when a company progresses on its growth path and its liquidity increases.

Table 6: Estimation results of the second research model

Model Variable	Dependent variable: Earnings management, Estimation method: Regression			
	Estimated coefficient	Standard error	Statistics	Possibility
Constant	1.86	0.95	1.95	0.058
Women of the board with financial literacy	0.108	0.4	2.7	0.04
Women of the board without financial literacy	-0.04	0.017	-2.35	0.04
Growth rate	0.14	0.06	2.33	0.03
Leverage	-0.11	0.01	-8.20	0.01
Firm size	0.13	0.017	7.58	0.01
Liquidity	-0.02	0.013	-1.56	0.03
Coefficient of determination	0.64			
Adjusted coefficient of determination	0.54			
Durbin-Watson Statistic	1.93			

Model Variable	Dependent variable: Earnings management, Estimation method: Regression			
	Estimated coefficient	Standard error	Statistics	Possibility
F statistic	12.16			
Probability of F statistic	0.000			

5. Discussion and Conclusions

This study investigated whether presence of women in the board of directors can reduce earnings management in companies or not. This research used the financial literacy of female board members as the mediating variable. The results of this study were also estimated using the panel data method. It should be noted that presence of female board members with financial literacy is one of the factors affecting earnings management. Documented evidence also supports presence of women in firms' boards. However, a manager must have financial literacy to control a firm's financial statements. Presence of female executives with financial literacy may be thus suitable in other fields related to unique features of women in the business field. In fact, an accepted claim in the gender literature about unique characteristics of women in senior posts states is that complementary differences between men and women help an organization to create a healthy and balanced management in business. However, women are required to have suitable financial education to effectively help the board, especially in terms of preventing accounting abuses. The results showed that women with suitable financial backgrounds could play an effective role in preventing earnings management. The presence of male board members with financial literacy does not seem to be more effective than that of female counterparts. However, it is assumed that presence of female board members with financial literacy has a significant and positive effect on limiting earnings management. Therefore, an important implication of the research findings is contributing to the increasing presence of women in the board of directors so it is hoped that at least one woman with suitable financial literacy is present in a firm's board.

After examining all the sample companies, membership of women with and without financial literacy in the board was found to be significantly

correlated with earnings management. Therefore, presence of women without financial literacy in the boards is significantly and positively correlated with earnings management, while presence of women with financial literacy in the boards decreases earnings management in firms. Results of the present study were consistent with findings reported by Harakeh et al (2019), Chauhan and Dey (2017), and Chen and Gavius (2016).

Results of this study also showed a significant and positive relationship between growth rate and firm size as the control variables and earnings management, which were in line with Ajina and Habib (Mollazadeh et al, 2016). In addition, the results of the control variables showed that financial leverage and firm liquidity were significantly and negatively correlated with earnings management, which meant increasing financial leverage and liquidity could decrease earnings management, in agreement with the findings by Lazem & Jilani (2018).

According to the results of the research as well as its limitations, the following suggestions are presented for future research:

- 1) This study examined a linear relationship between female board members and earnings management in firms listed on Stock Exchange. Future studies exploring new literature as well as new econometric approaches can investigate second and third-degree nonlinear relationships.
- 2) The regression relationship in this study was estimated once for all the industries existing in the statistical sample. It is therefore recommended to estimate different industries separately in future studies.

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