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Females on the Board of Directors and its effect on earnings management: A demographic approach.

A research based on Europe.

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Abstract

This study investigates whether demographic characteristics, such as age, gender proportion, female CEO during early years of tenure, creates the incentive for female directors on the board, to engage in earnings, for the years 2011 through 2020 based on Europe. The aim of this study is to broaden the body of knowledge on diversity and its influence on companies. In terms of the demographic characteristics, which is linked to the human capital theory, it is unclear whether the age, gender, role as a CEO and their effect on earnings management when it comes to the female directors, provides sufficient statistical evidence to eliminate the ambiguity regarding this topic particularly in Europe. From this research, I conclude that the relation between the gender proportion on earnings management is insignificant. The relation between the female who occupies the role of CEO and earnings management is positive and significant, but to a lesser extent during early years of tenure. Additionally, this study finds significant results for the age, as a moderating variable, on the relation between the female director and earnings management. My findings suggest that older CEOs engage in earnings to a lesser extent than younger ones. Concludingly, I find out that age and early years of tenure moderates the relationship between the female director, female CEO, and earnings management.

Keywords: Gender diversity, Female CEO, Female Director, Female Proportion, Age, Tenure, Earnings Management, Discretionary Accruals.

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Introduction

For many countries around the globe, earnings management (EM) happens to be an event of severe nature. In order to mitigate EM practices and reimpose investor reliance, the regulatory body is constantly seeking ways to improve the laws of governance (Al-Sartawi & Sanad, 2019).

The financial crisis served as an opportunity to improve corporate standards besides the fact that regulators were already seeking ways to enhance board success through other mechanisms in light of corporate regulations by keeping track of the managers' behavior. The thought of having females on a board was unusual back then and in practice it was pretty much ignored (Sanad et al., 2021).

Eventually, gender diversity started to draw the attention, because regulators were curious to the benefit it will have on the course of business ethically but also the impact it would have on corporate standards. Gender diversity on corporate boards has become popular, particularly in Europe. After this, Davies decided to study the female participation on corporate boards. Davies found out that female dominated the FTSE 100 London Stock Exchange, and that women were only excluded from 23 boards in the FTSE 250. Even though, the proportion of female directors on boards kept increasing, the occurrence of having female directors on the board is still unusual in Europe. The researchers found that around three-quarters of supervisory boards and the majority of management boards in Europe do not have at least one female director.

The study on the link between EM and gender diversity is still unclear. A variety of reasons may contribute to this discrepancy in results. Prior research assumes that all women behave the same and simply calculated gender diversity as a percentage, presence, or number. However, there are aspects that bring dissimilarity in women's behavior such as their age, knowledge, experience, position, and other factors (Orazalin, 2019; Parlovic et al., 2018; Reguera et al., 2017). This is the reason Khalif and Achek (2017) refused to use dummy variables when it comes to research about the female directors and gender diversity because it disregards other important characteristics of the female directors which may have strong implications. Therefore, the research question: *What is the effect of certain demographic characteristics of female board directors on earnings management in Europe?*

According to a German study (Panzer et al., 2015), female directors have a negative association with discretionary accruals. However, Abdou et al., (2020), discovered for a study conducted in the United Kingdom, that when the female has a low participation on the board, the EM level is low as well. In order to gain a better understanding of the link between female participation on the board and earnings management it is better to include more European countries in the sample since every country has its own way of appointing women to corporate boards. A study that has contributed a lot to close the gap in the gender diversity literature is that of Kyaw et al., (2015), in which he observes this link for a number of European companies.

According to Fama & Jensen(1983), the requirement or mandate for organizations to have a certain level of diversity among their employees, especially in terms of gender, race, ethnicity or other demographic characteristics is enough to stop the principal-agent problem. This is why the agency theory is the core of prior research examining the relation between female board directors and earnings management. The agency theory does not stress statutory diversity enough thus it becomes difficult to predict the coherence between board diversity and companies' performance (Carter et al., 2013). Another drawback of the principal-agent problem is that it fails to take into account the wide set of talent required for directors on the board. This is necessary for them to conduct their obligations appropriately (Adams & Funk, 2020; Al-Sartawi, 2020; Arioglu, 2018). Researchers such as Ben-Amar et al., (2013), find it important and highlighted that demographic factors complement each other in improving board performance.

Sanad et al (2021) suggested the consideration of other demographic characteristics that would affect earnings management other than the gender itself. While there is substantial literature on the relationship between gender diversity on the Board of Directors and earnings management, empirical findings are inconsistent. A study in the UK hypothesizes that there is a link between female board directors and earnings management practices (Arun et al.,2015) meanwhile another UK study indicated a negative link between female board of directors and income-increasing accrual-based management (Guedes et al., 2018). Furthermore, Davidson et al. (2007) investigate if the executives' age and the opportunities and choices that comes with the age, have an impact on earnings management. As a result, they find that CEOs nearing retirement age are more likely to engage in earnings, than younger ones. Additionally, Fahlevi et al., (2020) discovered that CEOs with lengthy tenure report earnings less aggressively than

CEOs with a short tenure.

This study investigates whether the age, gender proportion and the role as a CEO during early years of tenure, creates the incentive for female directors on the board, to engage in earnings. The findings imply that no conclusion can be drawn on the relation between the female gender proportion and earnings management. The relation between the female who occupies the role of CEO and earnings management is positive and significant, but to a lesser extent during early years of tenure. The same applies for the age, as a moderating variable, on the relation between the female director and earnings management. Older CEOs are less likely to engage in earnings than younger ones.

The mixed findings are also due to the sample chosen. There is little research being done on other parts of the world and Europe is no exception. Each country has its own legislation and operate differently in businesses. I use an Ordinary Least Square regression to investigate the correlation between the variables, using a sample size of 11,045 European firms. The findings could contribute to diversity and its impact on. In fact, it has also introduced something new to the research on gender diversity and earnings management. Namely, age and early years of tenure as moderating variable. This contributes to the gender diversity literature, by looking at demographic aspects that could make the relation between the presence of a female on the board and earnings management, stronger. Finally, this research has helped clear the mixed results in some way and seek some clarification on some demographic aspects particularly in Europe.

Al-Sartawi & Sanad (2019) argue that the use of any method to engage in earnings, results in an increase in information asymmetry between the two parties. Information failure conceals the company's true performance and consequently triggers outsiders to question the reliability and credibility of the financials (Krishnan and McDermott, 2012).

The purpose of this study is to extend to the body of knowledge on diversity and its influence on companies. In terms of the demographic characteristics, which is linked to the human capital theory (Gull et al., 2018), it is unclear whether the age, knowledge, experience, position, and their effect on earnings management when it comes to the female directors, provides sufficient statistical evidence to eliminate the ambiguity regarding this topic.

This research is subject to the limitation that it is only conducted for European firms. Other research could focus on regions such as Asia, where also little research is conducted for (Sanad et al.2021).

2. Literature review

2.1 Theories

In the context of gender diversity and earnings management, there are a couple of theories that apply. Namely, the agency theory, human capital theory and the resource dependency theory.

According to the agency theory, this theory is used to understand to relationships between agents (managers) and principals (investors). Fama and Jensen (1983) introduced a solution to the problem, and suggested a better and more effective way of monitoring. Adams and Ferreira (2009) suggest women directors to be better monitoring bodies and require extra audit efforts than their male colleagues (Gul et al.,2008). Bottom line is that a gender-diversified board is more beneficial according to the agency theory.

Second, in order for firms to survive they rely heavily on external resources (Pfeffer & Salancik, 2003). This latter forms a substantial risk for firms. In light of this matter, research indicates that gender diversity among boards leads to more effective contact with outside partners and a faster approach to challenging situations (Kravitz, 2003; Broadbridge et al., 2006). Women also tend to advocate for women's rights, thus boosting the company's reputation in society according to Cox & Blake (1991). Finally, this theory also highlights the benefits of having a gender-diverse board to companies operating in the twenty-first century. This helps maintaining valuable relationships with external parties in order to obtain resources.

Furthermore, some of the ideas from resource dependency theory are enhanced by human capital theory. Human capital theory focuses on how an organization can profit from the education, experience, and abilities of its people (Carter et al., 2010). When analyzing the diversity-performance relationship, this theory is highly relevant (Terjesen et al.,2008). Board diversity will have a variety of effects on a corporate board's performance, but the direction of this effect can be both positive and negative (Carter et al., 2010).

2.2 Hypothesis development

In recent decades, there has been widespread agreement on the significance of women being included because of their recognizable qualities throughout the years. The woman is

indispensable in areas such as, sectors of the economy, on the boards of directors and audit committee of corporations. Many countries enact gender legislation in response to the trend. In November 2012, The European Commission introduced the so called, Gender Balance Directive, to boost the proportion of women on company boards. Even though women made up almost a third part of parliament members in EU nations in 2016, it is still noticeable that the number of women in corporate leadership is insufficient. The only countries that adhere to the motive of the Gender Balance Directive are France, Italy, Finland and Sweden. These countries have at least a third participation of female on company boards.

Much research has been conducted for different time periods from 2005 through 2016. A study conducted for 350 listed companies on the London Stock Exchange, investigated the association between female board directors and EM practices during 2005 through 2011. The study found that when the number of female board members is large, conservative accounting practices are adopted; nonetheless, the results show that female board directors in high debt enterprises have no effect on EM levels. Another research (Saona, et al.,2018) looked at different European countries and revealed that boards with a gender balance are more likely to remove discretionary accruals levels. A French study (Lakhal, et al., 2015) did a study and discovered that the ratio of female board directors and female board chairman is more likely to inhibit earnings management. Another study found that the female director, in this case a female CFO, engages less in earnings (Allemand, et al. 2017).

The results are varied when it comes to the influence of women on the board of directors and audit committee on earnings management practices. Individual differences in women's behavior can vary depending on their age, knowledge, experience, position, and other factors (Orazalin, 2019; Parlovic et al., 2018; Reguera et al., 2017). Furthermore, females are more likely to exercise conservative practices since they are described as being less forceful, aggressive, overconfident, worried and risk averse (Ho, et al, 2015). None of this signal a likelihood of committing fraud. But women and men have varied talents, because of their socialization (Srinidhi et al., 2011). When it comes to money and financial problems, look at the dissimilarities between men and women; women prioritize helping others, whereas males prioritize making money and climbing the corporate ladder (Betz et al., 1989). Remarkable is that Kaplan et al., (2009) and Betz et al., (1989) find that women are less likely to practice

fraudulent activities for financial gain than males. In fact, women are even more likely to disclose events of misleading financial reporting.

The ability to make decisions and take risks is definitely influenced by gender differences. When it comes to making corporate decisions, woman pays less attention to personal interests and common practices and would rather avoid any litigation. Krishnan & Parsons (2008) find the woman to be more inclined towards conservative practices, but at the same time women are less tolerant of selfish acts. Additionally, they are risk averse (Barber & Odean, 2001; Powell & Ansic, 1997).

Due to many discrepancies from prior research, it calls for the opportunity to conduct further research. Some research find that having a higher participation of women in higher positions lead to having better financial security (Krishnan & Parsons, 2008). The same conclusions are found for similar research conducted by Srinidhi et al., (2011) and Gaviious et al., (2012). Corporations with more than 50% of female and independent female directors on their boards use conservative EM practices (Arun et al., 2015). However, past research findings on the association between gender diversity and earnings management contradict this assumption. To illustrate, Sun et al., (2011) were unable to find any relation between female participation on audit committees and earnings management. The same applies for another study conducted by Peni and Vahamaa (2010) that discover no link between earnings management and the CEO's gender. Based on the information presented above, the first hypothesis is as follows:

H1: There is a negative relationship between the proportion of female board directors and earnings management.

Furthermore, prior research investigate if the female executives' age and career horizon have an impact on EM (Davidson et al., 2007). Their results imply that CEOs approaching retirement age are more likely to engage in earnings. When workers are approaching retirement, they may not be worried about their company's long-term performance. They may be more concerned with the immediate future and what their self-serving opportunities and choices are. This is the horizon problem.

A CEO nearing retirement age does not prioritize the long-term goals of the company but rather look at the opportunities available to feed its own interests. In the early stages of an executive's career, an executive is perceived as to having a cautious behavior. Career

considerations may become less significant as an executive near retirement. Executives who are nearing retirement may have a different goal than younger ones. The horizon issue provides CEOs with incentives to engage in income-increasing earnings management as they approach retirement age.

Furthermore, it is remarkable how the career horizon and age of the female director helps with creating value for the company. The age is a crucial point in determining the level of EM in companies. A study conducted for French firms, found a negative link between the female director's age and magnitude of EM (Belot & Serve, 2018). Another study conducted by Ali and Zhang (2015) supports this finding. Older directors have enough knowledge and experience and know how to manipulate in areas that are self-serving. During early years of tenure, a CEO may be more motivated to play a role in shareholder interests due to them being concerned about their careers and how they are perceived by the outside world. Gibbons and Murphy (1992) are of opinion that as the years go by, executives leave their career concerns behind and becomes picky as to what influences their behavior. The horizon problem occurs when senior executives approach retirement and the possibility for agency problems increases. Because the CEO turnover rate rises with age, it appears that the horizon problem is linked to age (Ocasio 1994; Buchholtz et al. 2003).

H2: The negative association between the presence of a female director on the board and earnings management is more pronounced with the age of the female on the board.

The market frequently has doubts regarding the competence of freshly hired CEOs (Gibbons & Murphy, 1992). They point out that because successful CEOs need distinct capabilities than those needed at lower-level positions, the market may still be skeptical of the CEO's abilities even if he or she is promoted from inside the company. Additionally, they demonstrate that CEOs hardly switch companies. Therefore, in most circumstances, the market is not aware of a CEO's prior performance as a CEO. Thus, the market frequently looks at new CEOs' recent performance to judge their capability. To avoid being branded as having little talent, which might have detrimental effects, CEOs have substantial motivations to declare positive performance in the early years of their employment since it may affect their future pay and autonomy and result in their termination (Fama, 1980; Holmstrom, 1982, 1999). According to Holmstrom (1982), these incentives will force managers to put in more effort during their first

few years of employment to produce strong performance. I also believe that CEOs are more inclined to exaggerate profits in the first few years of their careers. According to Oyer (2008) and Axelson and Bond (2009), there is enough adverse selection when a CEO first assumes their position. A CEO with great managing skills, is inclined to conceal bad performance in the early years to avoid being labeled as less capable throughout its whole career, even if the undesirable outcome was not the result of insufficient managerial skill (Ali & Zhang, 2015).

To highlight the presence of female CEOs, according to earlier research, female managers tend to be risk averse. For the study conducted by Khan and Vieito (2013), they find a positive association between the female CEO and firm performance and a negative association between the female CEO and risk. This result is in line with Niessen and Ruenzi (2006) and Liu et al., (2014) indicating that female CEOs tend to avoid risk more compared to male CEOs. In short, these studies highlight that the presence of a female CEO reduces earnings management. Peni and Vahamaa (2010), on the other hand, did not discover any proof of a relation between earnings management and the female CEO. Jiang et al. (2010) discovered that the CEO of a company has less of an impact on the expense of earnings practices. Though, according to the research conducted by Gaviious et al., (2012) the findings show that earnings management is considerably lower using the discretionary accrual measure when it comes to both the female CEO as the female CFO. Additionally, Fahlevi et al., (2020) discovered that CEOs with lengthy tenure report earnings less aggressively than CEOs with a short tenure.

On the other hand, long-tenured CEOs that are more concerned with maintaining their reputation as highly competent leaders, are hence less inclined to act opportunistically (Ali & Zhang, 2015).

H3: The negative relation between the presence of a female CEO and earnings management is more pronounced during early years of tenure.

3. Methodology

For the purpose of verifying the hypotheses, a quantitative study will be carried out. An OLS regression was used to explain the relationships between variables. As previously mentioned, the dependent variable in this research is earnings management. The independent variables are gender proportion, age and CEO tenure, which are referred to as demographic characteristics. To create more accurate results, control variables such as firm size, firm leverage, return on assets, cash from operations, board size and loss, will be used (Wahid, 2016). Table 1 provides an overview of the variables and measurements used. In this section, the methodology is explained, and the outcomes of the data are explained in the next chapter.

[TABLE 1]

3.1 Data collection and sample design

The data will be collected from the CompStat on Wharton Research Data Services. To access gender, age and role of directors based on Europe, the BoardEx for Europe, will be used for the independent variables. The sample consists of 11,045 observations. Throughout this study, financial institutions and utilities were excluded because, according to Burgstahler and Eames (2003), CEOs in these regulated industries have different motivations to manage earnings. This research includes data from 2011 to 2020. I added fixed effects for year and industry and winsorized the data on 0.05-0.95.

[TABLE 2 & 3]

3.2 Dependent variable, independent variable, and control variables

3.2.1 Dependent variable

The Modified Jones Model is used to measure earnings management, the dependent variable. The Modified Jones Model uses abnormal accruals as a proxy for earnings management.

Discretionary accruals were estimated using both the cross-sectional variations of the Jones model (1991) and the cross-sectional variation of the modified Jones model proposed by

Dechow, Sloan, and Sweeney (1995), which are commonly used in most earnings management research (Bergstresser & Phillipon, 2006; Klein, 2002; Alves, 2012).

The Modified Jones model consists of regressing total accruals ($TACC$) on two variables: the change revenues (ΔRev) adjusted for change in receivables (ΔRec), and the level of gross property, plant, and equipment (PPE), included to account for the non-discretionary component of depreciation and amortization expenses, which illustrates the effect of the long-term accruals.

Both variables and the intercept were divided by lagged total assets to avoid a variance error (heterogeneity).

The discretionary accruals were calculated by deducting the non-discretionary accruals from the total accruals in the Modified Jones model.

The discretionary accruals were calculated as follows:

$$DACC_t = TACC_t - NDACC_t \quad (1)$$

$DACC_t$ stands for the total discretionary accruals in year t, $TACC_t$ for the total accruals in year t and $NDACC_t$ for the total non-discretionary accruals in year t.

$$TACC_t = NI_t - OCF_t \quad (2)$$

NI_t is the net income before extraordinary items in year t. OCF_t stands for cash flows from operations in year t.

Next, the $TACC$ from the MJM was scaled by the lagged total assets:

$$\frac{TACC_t}{A_{t-1}} = \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} + \alpha_3 \frac{PPE_t}{A_{t-1}} + \varepsilon_t \quad (3)$$

$TACC_t$ stands for the total accruals in year t, A_{t-1} for the total assets in year t - 1, ΔREV_t for the change in revenues in year t, ΔREC_t for the change in net receivables in year t, and PPE_t for the gross property, plant, and equipment in year t. The parameters α_1 , α_2 and α_3 were estimated according to a pooled approach. The error term, ε_t , is the residual for the firm in its industry in year t. The parameters were estimated using an ordinary least squares regression. Once the parameters were estimated, the discretionary accruals were calculated as previously noted (1). The error term, ε_t , is the discretionary accrual estimate.

The non-discretionary accruals were calculated with the following formula:

$$\frac{NDACC_t}{A_{t-1}} = \hat{\alpha}_1 \frac{1}{A_{t-1}} + \hat{\alpha}_2 \frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} + \hat{\alpha}_3 \frac{PPE_t}{A_{t-1}} \quad (4)$$

NDACC_t stands for the total non-discretionary accruals in year t, A_{t-1} for the total assets in year t - 1, ΔREV_t for the change in revenues in year t, ΔREC_t for the change in net receivables in year t, and PPE_t for the gross property, plant, and equipment in year t. The parameters α₁, α₂, and α₃ are the estimated parameter values based on the ordinary least squares' regression in the equation.

3.2.3 Independent variables

The independent variables are the gender proportion, age, and the female CEO tenure. Previously noted in the literature and introduction, the gender proportion (GENDERPROPORTION) illustrates whether the proportion of female directors in the board mitigates the earnings management that could occur in a company. When it comes to corporate decisions, women are less tolerant of fraudulent acts and place less emphasis on self-serving acts (Krishnan & Parsons, 2008). The age (AGE) of a female director shows if a younger or older director is more likely to engage in earnings. Prior research shows that older CEOs, specifically the ones nearing retirement age, are more likely to engage in earnings (Davidson et al., 2007). When workers are approaching retirement, they may not be worried about their company's long-term performance. They may be more concerned with the immediate future. The role (ROLE) of the female board director as a CEO, gives clarity on the experience a female director has and its likelihood to manage earnings based on her role he/she occupies on the board. Connelly and Van Slyke (2012) and some other studies (Fama & Jensen, 1983; Vafeas, 1999) are of opinion that this latter enhances the monitoring efficiency of directors. Shu, Yeh, Chiu, and Yang (2015) recently proposed that the role the directors hold in the corporate organization develop financial skills as a result, allowing them to minimize the amount of earnings management. Additionally, I investigate the role of a female CEO during early years of tenure on earnings management.

3.2.4 Control variables

Firm-specific elements that might impact accruals and gender diversity are explored in this research. In this part, I present the control variables included in the model testing the hypotheses 1, 2 and 3. The factor being controlled for is in *italics*, after which the predicted sign is presented in parenthesis.

Board Size (?). The number of directors on a board (B_SIZE) is the size of the board. The influence of board size on profits management is a subject of debate in the literature. According to Xie, Davidson, and DaDalt (2003), board size (B_SIZE) and earnings management have a negative relationship. Rahman and Ali (2006), on the other hand, show a favorable link between the two.

Leverage (-). Leverage is an indicator of a company's financial health. Leverage is strongly negative, in line with Becker et al. findings (1998) and Ali & Zhang (2015). They claim that highly leveraged enterprises frequently have difficult business situations and are undergoing contract renegotiations, giving them an incentive to lower earnings.

Firm size (-). According to Peni & Vahamaa (2010) and Shu et al., (2015) the firm size is negatively correlation with EM. The firm size is calculated by the natural logarithm of total assets.

Operational Cash Flow (-). According to Gul et al. (2009), organizations with larger operational cash flows are less prone to participate in earnings management (OCF).

ROA (+). Consistent with prior literature, I account for other business characteristics such as return on assets (ROA), as measured by the ratio of sales to total assets (Wahid, A., 2018). The ROA coefficient is significantly positive, which is consistent with the findings of Kothari et al (2005). Kothari et al., argues that there is evidence indicating organizations with remarkable success have higher discretionary accruals.

LOSS (-). Loss is a considered proxy for the financial condition of a firm. I suggest a negative relation between the LOSS variable and earnings management. Prior research found that struggling businesses might practice earnings management to reduce income. But, on the contrary, accrual models could inflate accruals for underperforming companies as well (DeAngelo et al., 1994).

3.3. Models

To test hypotheses 1, 2 and 3, I use linear probability models, which are also used in recent gender diversity studies (e.g. Lakhal et al., 2015, Davidson et al.,2007, Ali & Zhang, 2015). Since company fixed effects are difficult to incorporate into non-linear models, I avoided

the problem of leaving unobservable firm features that causes omitted variable bias by adopting a linear probability model (Guo & Masulis, 2015). By adding industry and firm year fixed effects, I control for different time trends and industries. This is also in line with Peni & Vahamaa (2010), that recommends controlling for industry and time given the earnings management level may vary.

The first regression (hypothesis 1) measures the negative relation between the proportion of female board directors and earnings management.

Gender Proportion (-). The proportion of women on the board is a ratio indicating the number of women on the board compared to the total number of people on the board. I intend to regress the gender proportion on earnings management. Along with the Gender Proportion, I control for the variables that are most applicable for this hypothesis according to prior research, mentioned in section 3.2.4 as well. The regression is as follows:

$$EM = \alpha_0 + \alpha_1 \text{Genderproportion} + \alpha_2 B_SIZE_{i,t-1} + \alpha_3 F_Size_{i,t-1} + \alpha_4 LEV_{i,t} + \sum_{k=1}^9 \beta_{ki} INDUSTRY_FE + \sum_{y=2011}^{2020} \omega_y YEAR_FE$$

The second regression (hypothesis 2) tests if the impact of a female BOD on earnings management is more pronounced due to the age of the female BOD. This hypothesis includes a moderator, AGE. Prior literature gives indication of a negative relation between the age of female board directors and earnings management.

*FemaleBOD*AGE (-)*. The age indicates the age of the female board director. Along with the AGE, I control for the variables that are most applicable for this hypothesis and prior research, mentioned in section 3.2.4 as well. The regression is as follows:

$$EM = \alpha_0 + \alpha_1 \text{FemaleBOD} + \alpha_2 \text{AGE} + \alpha_3 \text{FemaleBOD} * \text{AGE} + \alpha_4 B_SIZE_{i,t-1} + \alpha_5 F_Size_{i,t-1} + \alpha_6 LEV_{i,t} + \alpha_7 \text{LOSS}_{i,t} + \sum_{k=1}^9 \beta_{ki} INDUSTRY_FE + \sum_{y=2011}^{2020} \omega_y YEAR_FE$$

The third regression (hypothesis 3) tests if the impact of a female CEO (role) on earnings management is more pronounced during early years of tenure. This hypothesis includes a moderator because I found out that a female with the role of CEO is more inclined to manage earnings during its early years of tenure (Ali & Zhang, 2015). The early years of tenure is what makes the relation stronger.

*FemaleCEO*TenureEarlyYears* (+): This independent variable indicates a female with the role of the CEO and its time in the role (Tenure). The ‘*FemaleCEO*’ is a dummy variable. All “CEOs” will get a 1 and 0 otherwise. The *Tenure* will be applicable to ‘early years of tenure’, which will also be a dummy variable. ‘Early years’ is an indicator variable that equals one for firm-years that correspond to the first three years of CEO’s service, and is zero otherwise (Ali & Zhang, 2015). Along with the *FemaleCEO*Tenure*, I control for the variables mentioned in section 3.2.4 as well. The regression is as follows:

$$EM = \alpha_0 + \alpha_1 FemaleCEO + \alpha_2 Tenure(EarlyYears) + \alpha_3 FemaleCEO * Tenure(EarlyYears) + \alpha_4 B_SIZE_{i,t-1} + \alpha_5 F_Size_{i,t-1} + \alpha_6 ROA_{i,t} + \alpha_7 OCF_{i,t} + \alpha_8 LEV_{i,t} + \alpha_9 LOSS_{i,t} + \sum_{k=1}^9 \beta_{ki} INDUSTRY_FE + \sum_{y=2011}^{2020} \omega_y YEAR_FE$$

I use dummy variables to account for the possibility that industry and time may vary in the degree of earnings management. Standard industry classification (SIC) codes are used to create the dummy variable SIC and YEAR, which represent fiscal years t.

4. Results

4.1 Descriptive Statistics

Table 4 shows the descriptive statistics of the variables used in this study. In the sample the absolute discretionary accruals have a minimum of 0 and a maximum of 9.465. The absolute value of discretionary accruals is bounded by zero (Klein, 2002). The absolute discretionary accrual has a mean of 1.13. This value is slightly higher than other studies in this field. According to Kalbuana et al., (2021) managers of firms with a high ROA tend to increase earnings to maintain investor's confidence. If I look further, the sample for this study consists of firms with a high ROA. The average ROA, is 0.025, suggesting that for each dollar asset, this yields 2,5 cents of income. However, what is considered a high ROA can vary widely across industries. For this sample, I excluded the utilities, and this industry specifically is known for having high amount of assets, which may lead to a lower ROA. This could be a reason for the high ROA discovered. For this sample, the average age of the female director is 59. This is in accordance with Davidson et al. (2007). Furthermore, the ratio of females on a board for our sample is on average 31%. This means that on average a board consists for 31% of females. This is in line with Abdou et al., (2020). To what is considered early years of tenure, the female CEO serves on the board for an average period of 3.8 years. This is in line with Ali & Zhang (2015). The board consists of 11 people on average. The average firm size is 7.75. The minimum (-2.996) and maximum (16.204) values, show that there is a significant variation in the size of the sample firms. Both, the operating cash flow and leverage average are in line with Arun et al., (2015). These firms have 56% of debt compared to their assets. It is safe to say that this is a good ratio, because they are able to cover their debts. Finally, 18% of firms, report incident of financial losses in their financial statements.

[TABLE 4]

4.2 Regression analysis

This section describes the research outcome to answer the formulated hypotheses and research question.

Hypothesis 1 stated that there is a negative relationship between the proportion of female board directors and earnings management. In Table 5, the variables explained 28.5% of the variance in earnings management. In addition, it shows that the proportion of female directors on the board is insignificantly related to earnings management ($\beta = 0.256$; $p > 0.05$). Deriving from these results, I cannot draw any inferences. Hence, the results do not support Hypothesis 1. While my evidence is in line with Sun et al., (2011), it differs from prior research that has observed similar relations. Such as, Gul et al., (2018) that found a negative relation between female board participation and earnings management. Even though women tend to be more ethical than men, Sun et al., (2011) argues that they might not be able to influence EM practices. From another perspective, the proportion of women on board committees is higher than that of woman on boards and this could have different impact on earnings management as well according to Adams and Ferreira (2009).

[TABLE 5]

Hypothesis 2 stated that age moderates the negative relationship between the female director and earnings management in such a way that the relationship between the female director and earnings management is stronger with the age of the female director. The results of the multiple regression are presented in Table 6. In table 6, Model 3 shows at first that there is a positive relation between the presence of a female on the board and earnings management. Though, the addition of both the age and the interaction term, did bring a significant change: this suggest that the negative association between the presence of a female director and earnings management is stronger for older female directors compared to younger ones. Thus, older female directors manage earnings to a lesser extent than the younger ones. In line with Ali & Zhang (2015) who also found the same, this may indicate that older female directors may encounter higher obstacles and opposition to their influence, or that younger female directors are more innovative and better able to question accepted norms and practices. Concludingly, the results indicate a negative relation between the presence of a female director on the board and earnings management, and the age of the female director moderates this association. This result supports hypothesis 2.

[TABLE 6]

Hypothesis 3 stated that the negative relation between the presence of a female CEO and earnings management is stronger during early years of tenure. Thus, the female CEO is less likely to engage in earnings during early years of tenure. The results are presented in Table 6. Table 7, Model 3 shows at first that there is a positive and significant relation between the presence of a female CEO and earnings management ($\beta = 0.78$; $p < 0.01$). However, the addition of the early years of tenure and the interaction term, did result in the relation between the presence of the female CEO and earnings management to be significantly less pronounced during early years of tenure. In other words, the female CEO is less likely to engage in earnings during its early years of tenure; she is still capable but to a lesser extent. There is a negative effect between the presence of a female CEO and earnings management during early years of tenure. The early years of tenure, moderates this association. This result does confirm hypothesis 3.

[TABLE 7]

4.3 Analysis on the control variables

I predicted firm size to be negatively associated with earnings management. In line with my predictions, firm size has a negative and significant relation on earnings management. As well as for the leverage. In line with my predictions, leverage has a negative and significant relation on earnings management. According to Shu et al., (2015) this negative relation is because large firms and high-levered firms are observed very carefully by the outside world and therefore are left with limited space to manage earnings.

I did not have a prediction regarding the board size, because of mixed evidence, but the latter is in line with Rao et al., (2012) who also found a positive relation between board size and earnings management. Rao et al., argues that a larger board could lead to more agency problems because of lack of unity and lack of coordination.

From the findings, as expected, cash flow from operations is negative and significant. The cash flow from operations was included to account for the effects of economic activity and corporate performance disparities across enterprises operating in various industries. Firms with high operational cash flow are less likely to engage in earnings since they are already performing well (Gul et al., 2009). Return on assets is positive and significant, which is consistent with the findings of Kothari et al (2005). Kothari et al., argues that there is evidence indicating

organizations with remarkable success have higher discretionary accruals. Finally, contrary to what was expected, there is a positive and significant relation between companies that report a loss and earnings management. According to Burgstahler & Dichev (1997), firms that report losses exercise discretion to report earnings increases. It can also be concluded that if the current result is a loss, the company tends to manage earnings the next year, in order to reflect a better financial position for the company (Heidarpoor et al., 2014).

For the Models 2 and 3, I added the control variables LOSS, ROA and OCF respectively to the regressions since these variables were of importance in prior research when it comes to the age of the female director and the early years of tenure for a female CEO. In line with Peni & Vahamaa (2010), directors nearing retirement age, in other words, older directors, tend to manage earnings when they signal a LOSS is on the rise for the company. As well as for the ROA, they start managing earnings by using conservative techniques two years prior to their retirement considering their compensation and bonus to secure the bag for the future.

For the cash flow from operations (OCF), a higher cash flow from operations could indicate a greater financial stability and a stronger financial position for the company. This may decrease the incentive for earnings management as the company may not need to manipulate earnings to meet financial targets or avoid financial distress. Research (Davidson et al., 2007; Zhang, 2009) has shown that CEOs who have been in their position for a short period, is less likely to engage in earnings, as they may feel more pressure to meet financial targets and maintain their position. Therefore, tenure could potentially moderate the relationship between cash flow from operations, the presence of a female CEO and earnings management.

[TABLE 5-6-7]

5 Conclusion

5.1 Conclusion

This research examines whether gender diversity has an impact on earnings management. Even though the effect of gender diversity on earnings management has been examined in many ways and many times, this topic remains hot. The presence of female on the board or within a corporation yields mixed results when it comes to corporate governance of an entity. Many theories suggest that the presence of a female on the board or having a female CEO is beneficial for the entity in terms of taking decisions, having external parties but not to mention earnings management and fraud. Meanwhile, some papers suggest that having a female CEO mitigates the income-increasing and income-decreasing discretionary accruals, other papers indicate the contrary. Having too many females on the board, leads to more decisions being made emotionally rather than radically, as the male director or CEO would.

This research tends to extend the body of research done on gender diversity and earnings management. According to prior studies, having a dummy variable to indicate the presence of a female and its effect on earnings management, led to major limitation among the studies. I examined the relation between the female proportion on the board and earnings management. Even though the results were not in line with the hypothesis, I found some prominent results. I expected the relation between the female proportion on the board and earnings management to be negative. Thus, a higher proportion of females on the board leads to less earnings management within the firms. According to the results, the relation is insignificant for this study; highlighting that no specific conclusion can be drawn from the relation between the proportion of females on the board and earnings management.

Furthermore, this study introduces another aspect to the gender diversity and earnings management studies. This study contributes to extending the research on gender diversity further by not only looking at the presence of a female director or CEO but introduces moderating variables such as age and early years of tenure to examine if it makes the effect of the presence of a female on the board related to earnings management, stronger. This varies from other research conducted that only focuses on the usual.

The introduction of the moderating variables, age and early years of tenure, yielded prominent results. Initially I found a positive relation between the presence of a female director and earnings management. But age moderates the relation between the presence of a female director on the board earnings management. Through the interaction term, I found that the relation between the presence of a female director on the board and earnings management is weaker for older female directors compared to younger ones. This implies that for this research, the older female director nearing retirement age is less likely to engage in earnings compared to younger ones.

Finally, there is endless debate as to whether the CEO tenure has impact on earnings management due to prior research giving mixed results. I hypothesized for a relation between the female occupying the role of a CEO, that is in her early years of tenure, three years to be specific, and earnings management. The findings implicate that the female CEO is more inclined to manage earnings with the focus to make an impact of her capability but, when taking into consideration the early years of tenure, it is less likely to do so. The female CEO tends to be more careful at the start of her career, thus less likely to engage in earnings.

5.2 Contribution, recommendation, and limitations

As mentioned priorly, the findings of this study contribute to diversity and its impact on businesses from an analytical framework. In fact, it has also introduced something new to the research on gender diversity and earnings management. Namely, age and early years of tenure as moderating variable. This contributes to the gender diversity literature, by looking at demographic aspects that could make the relation between the presence of a female on the board and earnings management, stronger. I can conclude that based on my findings, the presence of a female director considering her age and female CEO with three years of tenure has a significant impact on earnings management. I fail to recognize any association between the female participation on the board and earnings management. Reasons for non-findings is that observable demographic indicators cannot accurately represent a person's character. People need to be researched in a more clinical way because they are more complex than that. A limitation I encountered, is the lack of information on specifically the female CEO, because of little research conducted. However, this research has helped clear the mixed results in some way and seek some clarification on some demographic aspects based on Europe. Future research could focus

on understanding and analyzing the behavior of female directors and CEOs based on other demographic aspects such as nationality or (job) qualification, during a period to find more prominent results. Considering the sample size and methodology, future research could examine the impact of accounting policy on gender diversity and earnings management for listed companies. Ultimately, future research could also examine demographic aspects based on other continents such as Asia, because of little research conducted in this area up until now.

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Appendix

Table 1. Definition and measurement of variables for the accruals model

Variable	Description	Measurement
EM	Earnings Management	Modified Jones Model using absolute discretionary accruals. Absolute value of the difference of total accruals and estimated scaled non-discretionary accruals
Gender proportion	Gender Proportion	Proportion of female on the board
Age	Age of the female director	Age of the female on the board
Female BOD	Female director	Dummy variable: if there is a female director on the board,1. Otherwise, 0.
Female CEO	Female CEO	Dummy variable: If there is a female CEO present, 1. Otherwise, 0.
CEO EYT	The female CEO's early years of tenure	Time in role. Three years or less, 1 and 0 otherwise
B_Size	Board size	Number of directors on the board
F_Size	Firm size	Natural log of assets
ROA	Return on Assets	Ratio of net income on assets
LEV	Leverage	Total liabilities scaled by total assets
OCF	Operating Cash Flow	Cash-flow from operations, scaled by total assets
LOSS	Loss	Dummy variable equal to 1 if firm reports loss and 0 otherwise.

Table 2. Sample Selection

Criteria	Unique firms
Firms (CompuStat Global firms)	335,932
Less: Non-European firms	(252,288)
Less: Financial institutions and utilities	(30,212)
Less: Firms with information on male directors	(31,168)
Less: Firms that do not have data over the whole event period	(11,219)
Additional Sample	11,045

Table 3: Industry codes

Industry	Frequency	Percentage
1	Agriculture, Forestry, Fishing	0.5%
	50	
2	Mining	8.6%
3	Construction	27.2%
4	Manufacturing	30.6%
5	Transportation (& Utilities)	1.9%
6	Wholesale Trade	10.1%
7	Retail Trade	14.1%
8	Finance, Insurance, Real Estate	-
9	Services	4.6%
10	Public Administration	2.4%
Total Sample	10.954	

Table 4. Descriptive Statistics for variables used in regression

Variable	N	Mean	Min	Max
ABSDAC	11,045	1.134	0.005	9.465
Gender Proportion	11,045	0.314	0.037	0.800
Age Female CEO	11,045	59	27	94
Tenure Early Years	11,045	3.8	0	44.5
B_SIZE	11,045	11	2	30
F_SIZE	11,045	7.748	-2.996	16.204
ROA	11,045	0.025	0	4.302
OCF	11,045	0.064	-2.698	0.824
LEV	11,045	0.560	0	4.798
LOSS	11,045	0.183	0	1

Notes: **ABSDAC**=Absolute discretionary accruals according to the Modified Jones Model is used as proxy to measure earnings management; **Gender Proportion** is a ratio indicating the amount of woman on the board divided by total people on the board; **Age Female CEO** is the age of the female CEO; **Tenure Early Years** is a dummy variable indicating 1, for the first 3 years of tenure for the female CEO and 0 otherwise; **Board size** is the number of directors on the board; **Firm size** is the log of assets; **ROA** is the net income scaled by total assets; **OCF** is cash flow from operations divided by total assets; **LEV** is total debt divided by total assets; **LOSS** is a dummy variable that is equal to 1 if the income of the company is negative, and 0 if otherwise.

Table 5. Regression results for the relation between the proportion of female board directors and earnings management

Dependent Variable: Absolute Discretionary Accruals	
Model 1	
Intercept	5.78***
Female Proportion	0.26
Control variables	
B_SIZE	0.01*
F_SIZE	-0.58***
LEV	-0.39***
INDUSTRY F.E.	YES
YEAR F.E.	YES
Adjusted R ²	0.285

This table reports the OLS regression analysis. This table presents the results using the absolute discretionary accruals as a proxy for earnings management to estimate the relation between the proportion of female board directors and earnings management.
 ***, **, * indicate significance at the 1%, 2% and 5% levels, respectively.

Table 6. Regression results for the relation between the female board director, age, the interaction term, and earnings management

Dependent Variable: Absolute Discretionary Accruals			
	Model 1	Model 2	Model 3
Intercept	5.49***	5.42***	4.79***
Female BOD	0.26	0.26	2.27*
Age		-0.00	0.01*
Female BOD x Age			-0.03*
Control variables			
B_SIZE	0.01**	0.02**	0.01**
F_SIZE	-0.55***	-0.55***	-0.55***
LEV	-0.47***	-0.46***	-0.47***
LOSS	0.65***	0.65***	0.65***
INDUSTRY F.E.	YES	YES	YES
YEAR F.E.	YES	YES	YES
Adjusted R-squared	0.296	0.295	0.307

This table presents the results using the absolute discretionary accruals as a proxy for earnings management to estimate the relation between the presence of a female board director and earnings management, with age as the moderating variable. Model 1 shows the results of earnings management regressed on the presence of the female director. Model 2 shows the results of earnings management regressed on the presence of the female director and age. Model 3 shows the results of earnings management regressed on the presence of the female director, age and the interaction term.

***, **, * indicate significance at the 1%, 2% and 5% levels, respectively.

Table 7. Regression results for the relation between the female CEO, tenure, the interaction term, and earnings management

Dependent Variable: Absolute Discretionary Accruals			
	Model 1	Model 2	Model 3
Intercept	5.53***	5.47***	5.03***
Female CEO	0.78***	0.78***	2.14***
Early Years		0.15***	0.15***
Female CEO x Early Years			-2.12***
Control variables			
B_SIZE	0.01*	0.01*	0.01*
F_SIZE	-0.52***	-0.52***	-0.52***
ROA	0.94***	0.95***	0.93***
OCF	-3.13***	-3.13***	-3.10***
LEV	-0.45***	-0.46***	-0.45***
LOSS	0.43***	0.42***	0.42***
INDUSTRY F.E.	YES	YES	YES
YEAR F.E.	YES	YES	YES
Adjusted R-squared	0.307	0.307	0.309

This table presents the results using the absolute discretionary accruals as a proxy for earnings management to estimate the relation between the presence of a female CEO and earnings management, with early years of tenure as the moderating variable. Model 1 shows the results of earnings management regressed on the presence of the female CEO. Model 2 shows the results of earnings management regressed on the presence of the female CEO and early years of tenure. Model 3 shows the results of earnings management regressed on the presence of the female CEO, early years of tenure and the interaction term.

***, **, * indicate significance at the 1%, 2% and 5% levels, respectively.