# What is the effect of female directors on financial reporting monitoring quality?

A study of the effect of gender diversity on monitoring quality

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## Abstract

In an attempt to overcome the lack of diversity in the board of directors, recent research has focused on understanding the effect of female directors on board and firm outcomes. Despite observing a low representation of women in board positions, board composition in regards to gender has changed and will continue to do so. This thesis studies the effect of female directors on the monitoring quality of the board and the audit committee throughout the reporting process. I examine this relationship by testing the effect that female directors have on the likelihood of a firm issuing a financial restatement. The findings show that increasing the number of female directors improves the monitoring quality of the board. Results don't find significant effect between the presence of women in the audit committee and monitoring quality. The findings provide further evidence on the value that women bring to the board of directors and suggest that gender diversity at the board can lead to more effective monitoring.

**Keywords:** Monitoring quality, gender diversity, restatements

# Declaration & Acknowledgements

## Declaration

I declare that this thesis represents my own work and has not been previously included in a thesis or dissertation submitted to this or any other institution for a degree, diploma or other qualifications. Further, I have acknowledged all sources used and have cited these in the bibliography section

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# Contents

# 1. Introduction

Diversity in the board of directors and its effect on firm outcomes has received a lot of attention recently; however, most of research in this field has focused on the effects on firm performance. Even though studies provide mixed evidence on this relationship; they show that characteristics associated with diversity can impact firm outcomes (Comi et al., 2020; Atinc et al., 2021; Magnanelli & Pirolo, 2021). Unlike the effects on firm performance, the effect of diversity on the monitoring role of the board has received less attention. According to agency theory, the board of directors plays an important role as a monitor of management and is responsible for the oversight and quality of financial reporting (Fama & Jensen, 1983). Given that studies show that board composition can affect how effectively the board performs its duties, this thesis studies the effect of gender diversity in the board on financial reporting quality and examines the following research question:

**What is the effect of female directors on financial reporting monitoring quality?**

This thesis focuses on the effects of gender diversity for several reasons. First of all, evidence on how female directors can add value to the board can help address the existing problem of gender inequality at the board level. According to Deloitte's Women at the Boardroom Report, as of 2021, only 19.7% of the worldwide board seats were held by women; and in the United States the figure has increased from 12.2% in 2012 to 23.9% in 2021. This shows that women are under represented in director level positions and that boards are still dominated by men.

Secondly, gender inequality continues to receive strong attention by policymakers and stakeholders; and board composition in regards to gender seems likely to continue to change. The 23.9% of board seats held by woman, despite being low in terms of overall representation, has increased almost twofold since 2014 when it was 12.2%. Unlike several European countries that enacted mandated gender quotas to address this problem, this is not the case in the United States. Nonetheless the desire to increase representation of women at the board level is a pressing issue and several states have been discussing the possibility of introducing such policies. The most relevant example is California which passed bill SB 826 in 2018; a bill that placed mandated gender quotas for companies with their headquarters in the state. Despite being later revoked in 2022, the introduction of the bill shows that there is a desire from policymakers to address the issue of gender inequality in the boardroom. In addition to the possibility of a mandated policy, pressure from stakeholders is also driving the change in the representation of women in the boardroom. Research on campaigns from 2017 aimed at increasing diversity in the boardroom from the three largest institutional investors in the United States (BlackRock, State Street, and Vanguard) shows that about 50% of the increase in female held board positions can be attributed to pressure from these institutions (Gormley et al., 2021). Institutional investors value gender diversity because they believe such boards to be more independent from management and thus contribute to good governance practices (Carleton et al., 1998; Gormley et al., 2021). This indicates that board gender composition will most likely continue to change and I expect higher representation of women at the board level.

Lastly, proponents of gender diversity argue that gender diversity can lead to good governance practices. These studies have found that females differ from males in certain characteristics such as having a lower risk tolerance, being less likely to be overconfident of their abilities, and being more likely to process more of the available information when making decisions (Chung & Monroe, 2001; Hardies et al., 2013; Bandyopadhyay et al., 2021). Those differing characteristics, suggest that female directors could have a positive impact on the monitoring quality of the board of directors and audit committee.

This study focuses on understanding if increasing the proportion of female directors has a positive effect on the monitoring quality of the reporting process. Better monitoring quality would lead to a lower likelihood of issuing a restatement. To test this relationship, a logistic regression will be used with restatements as the dependent variable and the percentage of female directors as the independent variable. The methodology employed is based on (Li & Li, 2020) which studied the effect of gender diversity on fraud instances for Chinese firms. A second regression will be used to test the effect of female directors in the audit committee on the likelihood of issuing a restatement. The audit committee has a closer role in the reporting process and the effect from female directors could be observed at the committee level rather than at overall board. Lastly, the interaction between percentage of female directors with financial expertise on the likelihood of restatement will be tested. According to the resource dependence theory, diverse individuals increase the pool of resources available for a firm and results will show whether an effect on monitoring quality from female directors is due to financial knowledge.

In addition to focusing on the effects of female directors on monitoring quality this thesis will also explore the moderating effect of financial expertise on monitoring quality. After the implementation of Sarbanes-Oxley Act of 2002 (SOX) audit committees are required to disclose if they have at least one member who possesses financial expertise; and if not, must provide an explanation why there isn't one. This was done as a measure to prevent accounting scandals of the extent of Enron and Worldcom; with the assumption that financial expertise can decrease the likelihood of financial fraud and irregularities. Research shows a positive relationship between financial expertise and monitoring quality, (Carcello et al., 2006; Chen et al., 2018), which suggests that if female directors strengthen monitor quality, the effect will be stronger if they possess financial expertise.

My findings suggest that women have a positive impact on the monitoring quality of the board of directors. The results show that an increase in the percentage of female directors leads to a decrease in the likelihood of issuing a restatement. This indicates that women strengthen the monitoring efforts of the board which can benefit firms. I find no significant results for the percentage of female directors in the audit committee or for the percentage of female directors with financial expertise on the board and in the audit committee. This suggests that women can impact the likelihood of restatements but financial expertise is not a way through which they achieve this. Future research should focus on studying through which skills or characteristics do female directors impact monitoring quality.

The results and implications of this thesis contribute to the research on gender diversity in different ways. First, results show that gender diversity at the board level can enhance the monitoring quality of the board. Secondly, most of the literature studying the effect of gender diversity on the board has not focused on finding the effect on the committees; so findings contribute to the understanding of how female directors can affect the outcome of the overall board and of the audit committee. Lastly, prior research on the effect of diversity on monitoring quality has focused on studying how diversity can prevent instances of fraud; by using restatements as the proxy for monitoring quality this thesis contributes to those studies by understanding how diversity can prevent a less extreme case but that still has severe consequences for firms. This provides further insights of the effect of diversity on monitoring through a different perspective not only for fraud prevention but also on how the board can monitor the financial reporting process. Overall this study contributes to our understanding of how gender diversity can strengthen governance and results are relevant for policymakers, regulators, shareholders and for proponents of more gender diverse and equitable boards.

Following the introduction, the structure of the thesis is as follows: Section 2 will present the theoretical background. This section will define the theoretical concepts discussed in this thesis such as gender diversity, the responsibilities of the board, and the different theories that explain what type of effect we could expect to find. It will relate the different concepts and develop a theoretical framework. This section will also review the prior literature in this subject and will lead into the hypotheses tested. Section 3 will discuss the data and methodology employed. It will provide more detail as to how the data was collected and which method of analysis was chosen and why. Section 4 will present and discuss the results. Lastly, the conclusion in section 5 will include the overall findings, potential limitations of this study and areas of further research.

# 2. Theoretical Background

This thesis focuses on studying if gender differences at the board level have an effect on the board's duty as a monitor to prevent restatements. The Theoretical Concepts section will first define and relate the different theoretical concepts that are discussed throughout this thesis. This section will provide the theoretical framework that links gender differences, the board of directors, monitoring quality, and financial restatements. It will first provide background on gender differences and how these can affect the behaviour of directors. It will then discuss the monitoring related duties of the board and audit committee and how they can affect monitoring quality. Lastly, the link between the board of directors and financial restatements will be discussed. A literature review of relevant prior studies on the effect of board composition on monitoring duties will follow the Theoretical Concepts. After reviewing prior studies and developing expectations of the relationship that I expect to find, the Theoretical Background will conclude with the hypotheses being tested.

## 2.1 *Theoretical Concepts*

### 2.1.1 *Gender Differences*

This study relies on the assumption that male and female directors possess different characteristics which will be discussed in this section. In regards to gender behavioral differences, studies have found that women tend to be more risk averse than men, especially when presented settings with high potential losses (Eckel & Grossman, 2008; Hardies et al., 2013; Dohmen et al., 2005).The differences in risk attitudes influence how men and women make decisions and in the board level this can have significant consequences for a firm. Additionally, in regards to confidence in their abilities, research shows that women tend to be less overconfident than men (Hardies et al., 2013; Cho, 2017). It is important to mention that women are not necessarily less confident in their abilities but rather are less likely to exaggerate or feel overconfident about them. Lastly, research also shows that when making decisions women tend to consider all the information available and uphold values such as honesty and integrity higher than men (Magnanelli & Pirolo, 2021; Glover et al., 2002). This suggests that women, unlike men who tend to focus on the information that supports their initial belief, are less likely to suffer from confirmation bias and are more concerned about the risks involved when making a decision. These differences indicate that female directors can affect the performance of the board because they have different behavioral traits.

### 2.1.2 *Board of Directors*

The main duties of the board of directors are to advise and monitor management. These tasks include but are not limited to - monitoring and controlling managers, providing information and counsel to managers, monitoring compliance with applicable laws and regulations, and linking the corporation to the external environment (Carter et al., 2010). These responsibilities highlight the important role of the board of directors as a governance mechanism. The board must monitor management so to protect the interest of shareholders and to resolve agency problems (Davies, 2000; Fama & Jensen, 1983). A specific task related to the monitoring role of the board is the approval of the financial statements. Diversity in the board has been linked to an increase in board independence as diverse directors are considered to be more of "outsiders" to the firm; which can be beneficial for monitoring purposes (Guest, 2019).Directors who possess accounting and financial expertise would enhance the financial reporting process; however, given that this is not a requirement for board members, financial reporting quality can be enhanced with active participation from directors who pose scrutiny and question the process (Lanfranconi & Robertson, 2002). Since the board has to approve the financial statements, it is their responsibility to ensure that they are free from errors. A board that is better at monitoring would then lead to higher quality of financial reporting, or a lower likelihood of issuing financial statements. It is therefore important to examine how gender differences in the composition of the board can affect how effectively the board monitors management.

### 2.1.3 *The Audit Committee*

The audit committee has a monitoring role that is much more involved in the financial reporting process, than that of the board of directors. The responsibilities of the audit committee include providing oversight and monitoring of the financial reporting process, firm internal controls, the internal audit, risk, and interactions between management and the board. Research shows that composition of the audit committee can have an effect on financial reporting quality, for example committees that have more independent directors, higher financial expertise and who meet more often are associated with higher financial reporting quality (Salloum et al., 2014; Othman et al., 2014). Additionally, studies have found that the audit committee can behave as an effective governance mechanism and that characteristics such as independence and size have a significant effect on earnings management (Mardessi, 2021). This suggests that composition of the audit committee can have a significant impact on its ability to monitor management and to ensure high financial reporting quality. The effect of diversity at committee level as opposed to the board as a whole, has been studied to a lesser extent. Results will show whether female directors have an impact on the ability to prevent restatements and compare whether this influence comes from the board or more specifically from their involvement in the audit committee. An effective audit committee will be able to detect errors and fraud from financial statements before these are released.

### 2.1.4 *Restatements*

The Financial Accounting Standards Board (FASB) defines a financial restatement as "a revision of a previously issued financial statement to correct an error". A financial restatement indicates a failure of internal controls which was caused by either a mistake or intentional, and in some cases fraudulent, behavior (Arthaud-Day et al., 2006). The consequences of restatements can vary with the magnitude and the type of issue; however, firms are generally negatively affected when issuing a restatement. The most immediate impact can be observed in the reaction from the market, as the announcement of a restatement is usually followed by negative abnormal returns that results in a loss of firm value (Anderson & Yohn, 2002). In addition, studies have found that firms cost of capital increases after issuing a restatement and that the earnings response coefficient decreases after a restatement (Hribar & Jenkins, 2004; Wilson, 2008). Moreover, the negative effects are compounded if the public perception of the firm is affected such that it experiences a loss of legitimacy. The loss of legitimacy makes it harder for the involved firms to access resources due to different stakeholders desire to remove and distance themselves from the firm (Suchman, 1995). Since firms face serious consequences from issuing a restatement, they will want to avoid this. How restatements relate to monitoring quality will be discussed in the theoretical framework section, but they were chosen as the proxy because they provide a situation during which firms publicly accept they made mistakes in their financial statements and are easily observable.

### 2.1.5 *Monitoring Quality*

There is no single definition of monitoring quality, as the board's monitoring functions include a broad set of duties. Broadly speaking though, monitoring quality can be measured by how effectively the board is able to protect the firm, and more specifically the shareholders since they are the owners of the firm, from managements' own interests. Per agency theory, managers and shareholders will have conflicting interests and since managers are in charge of conducting day to day operations of the firm, directors are responsible for monitoring and controlling them (Fama & Jensen, 1983). The board and the audit committee then are not only responsible for setting up appropriate internal controls but themselves act as a control mechanism that prevents managerial opportunism at the expense of shareholders (Walsh & Seward, 1990). In the financial reporting setting, studies have found certain characteristics such as financial expertise and independence to strengthen monitoring quality as directors are more prepared and willing to exercise their power as monitors if needed (Cohen et al., 2014; Salloum et al., 2014; Adams & Ferreira, 2009). The effectiveness of the monitoring efforts can also be measured by the instances of negative outcomes such as fraud, accounting irregularities, earnings management, and restatements. The relationship between monitoring quality and restatements will be further developed in the theoretical framework but the idea is that stronger monitoring will lead to a lower likelihood of experiencing a restatement as they are undesirable events.

## 2.2 *Theoretical Framework*

Figure 1: Theoretical Framework

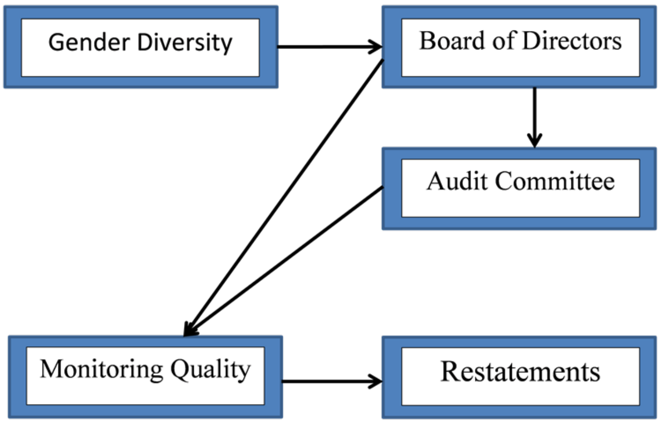


Figure 1 provides a visual representation of the theoretical framework through which I expect gender diversity at the board and audit committee level to affect monitoring quality. In the Theoretical Concepts section, the different concepts were explained and discussed individually. This section discusses how these concepts relate to each other and provides theories that in conjunction with the gender differences explained in the theoretical concepts suggest how diversity can influence monitoring quality. It first shows how changes in gender composition of directors can influence board and audit committee outcomes. It then discusses theories that explain how changes in board composition through gender diversity can affect monitoring quality. Lastly, it relates monitoring quality and restatements and discusses why restatements are an appropriate proxy for monitoring quality.

### 2.2.1 *Gender Diversity and Board Outcomes*

The Theoretical Concepts section discussed certain gender differences that suggest that female and male directors might function differently. Research on how these gender differences appear in the board level has shown that female directors can have a positive impact on different monitoring related outcomes. In regards to gender effects on risk, studies have found that women in leadership positions improve the risk management efforts of firms by lowering RD investment risk and financial fraud risk, (Chen et al., 2016a; Wang et al., 2022) . The lower tolerance for risk influences their behavior by having a stronger consideration for the risks involved when making decisions. In regards to how women can impact board behavior, research shows that female directors have higher meeting attendance and that by increasing the number of female directors the attendance of male directors also improves (Adams & Ferreira, 2009). Female directors have been associated with a reduction in over-investment and corporate risk taking behaviors (Lee-Hwei Khaw & Liao, 2018; Mirza et al., 2020). Additionally, research shows that female directors are less likely to engage in accounting manipulations and focus strongly on transparency during the reporting process (Abdullah & Ku Ismail, 2017). These effects and traits indicate that female directors can impact monitoring quality positively and given that female representation in the board will likely increase, the monitoring quality of the board could improve.

Despite the general consensus on the differing gender characteristics, some have been found to not be significant when controlling for job position and tenure. When performing audit work for example, there is no significant difference between men and women regarding risk tolerance and overconfidence when taking into account job tittle, experience and tenure (Hardies et al., 2013). This could signal that the observed gender differences might not manifest in positions such as the board of directors. This idea is reinforced by (Lara et al., 2017) as they found that gender differences are not observed in females who take leadership positions. This could mean that despite generally having these differences, once women reach leadership positions such as the board of directors they operate similarly as male directors. It could be the case that all directors regardless of their gender are chosen based on similar characteristics and in terms of thinking the board might remain more homogeneous.

### 2.2.2 *Gender Diversity and Monitoring Quality*

In addition to the different characteristics associated with women that might affect how they perform as monitors, other widely studied theories help explain potential effects of diversity on corporate boards. Research on perspective diversity has found that diverse individuals engage in more efficient communication because they are more likely to question each other and engage in discussions; which allows diverse groups to reach better outcomes than homogeneous groups that don't question each other (Wahid, 2021). In addition to that, diversity in the board room can lead to greater independence which has been linked to better governance practices (Carter et al., 2003). A more independent board will be less likely to agree with management when the outcome of a decision is not in the best interest of shareholders or the firm. According to agency theory, higher independence allows the board to express more freely opposing opinions to management and thus it improves their ability to control and monitor managers (Panda & Leepsa, 2017). It is desirable to have greater independence in the board as this will prevent management from controlling and influencing the decision making process of the board; and from a monitoring perspective, higher independence means that the board will be less likely to agree with management policies when they are not in the best interest of the firm, thus resolving the agency problem (Fama & Jensen, 1983). Additionally, more independent and gender diverse boards are more likely to dismiss the CEO during periods of poor financial performance (Adams & Ferreira, 2009). This provides evidence that gender diversity improves the ability of the board to monitor and discipline managers based on firm performance and I explore if the same results hold when firms face a different form of crisis, a restatement.

The effect of diversity on board and firm performance has also been studied based on the resource dependence theory. According to this theory, the firm depends on resources that are part of the external environment in which the firm operates and the primary benefits from these connections to the external environment are: (1) provision of resources such as information and expertise; (2) creation of channels of communication with constituents of importance to the firm; (3) provision of commitments of support from important organizations or groups in the external environment; and (4) creation of legitimacy for the firm in the external environment (Pfeffer & Salancik, 2003). As mentioned previously, one of the roles of the board is to link the firm with the external environment and diversity is believed to enhance this ability. According to this theory women can enlarge the resources available to the firm because they bring talents and resources that are different from those of male directors. The different characteristics discussed in the gender differences section suggest that women directors might be more focused on managing risk and preventing potential crises or negative outcomes. A more diverse board will increase the pool of resources the firm has at its disposal which can lead to better decision making (Carter et al., 2010). The differences in characteristics between male and female directors indicate that women will bring additional talents and resources and this thesis tests whether that has an effect on monitoring quality.

On the other hand, the downside of having a diverse board is that as more perspectives are considered this can lead to inefficient decision making. More diversity means a greater difference in the underlying preconceptions and beliefs that individuals within a group have which can create coordination issues and problems reaching agreements (Milliken & Martins, 1996). Studies that examine this relationship found that high levels of board diversity can affect firm performance negatively due to strong differences that lead to communication barriers (Adams & Ferreira, 2009; Khan & Abdul Subhan, 2019). In the worst case possible, inefficiency or inability to reach agreements can lead to a deadlocked board. For example when contemplating the dismissal of the CEO the board might agree that the incumbent CEO is not the best person for the job but might decide to keep him because of not being able to agree on the replacement (Donaldson et al., 2020). In this case, diversity creates coordination issues that make it very hard to reach an agreement; which reduces the effectiveness of the board.This suggests that diversity in the board can lead to inefficient monitoring, contrary to other evidence that shows that diversity can improve the functionality of the board.

#### *Moderating Variable - Financial Expertise*

In addition to the theories and gender characteristics through which I expect female directors to influence monitoring quality, a specific characteristic that will be tested is financial expertise. The definition of someone who possesses financial expertise is no straightforward and can be subjective; however, based on the SEC's description its basically someone who through experience or education has acquired knowledge and understanding of accounting and financial related matters relevant to the audit process. Additionally, it is someone who understands GAAP, financial statements, and the duties and role of the audit committee (Trautman, 2012). Based on the definition one would assume that financial expertise would enhance the monitoring abilities of the director who possesses such expertise. According to the resource dependence theory diverse individuals can contribute different skills that end up increasing the resources available for the firm as a whole (Carter et al., 2010). Prior studies have found that financial expertise improves the quality of financial statements and can strengthen the monitoring quality of the audit committee. These studies have found that financial expertise can lower the instances of earnings management, can increase financial reporting quality and also that the market values the announcement of directors with financial expertise (Carcello et al., 2006; Chen et al., 2018; DeFond et al., 2005). This suggests that if female directors have a positive impact on monitoring quality, the effect would be stronger for those who possess financial expertise.

It is important to study this moderating effect because it will provide more information on the ways through which female directors can impact monitoring quality. Additionally, results will provide more information on the effect of directors with financial expertise on the board as a whole, because most literature has focused on the effect of financial expertise on the audit committee.

### 2.2.3 *Monitoring Quality and Restatements*

As mentioned previously, monitoring quality is abstract and not straightforward to measure; so this thesis will operationalize monitoring quality with the instances of financial restatements. The underlying assumption is that if the characteristics associated with women make them better monitors, the instances of issuing restatements will decrease as more female directors are included in the board and in the audit committee. Restatements are undesirable as they represent a form of financial reporting failure; which is indicative that internal controls and directors failed to prevent this (Srinivasan, 2005). Restatements have a lot of potential negative effects for firms but also for directors, especially those in the audit committee, as they are more likely to lose their board seats following a restatement because this signals poor oversight from them through the reporting process (Street & Hermanson, 2019; Arthaud-Day et al., 2006). This shows that directors are held accountable for a restatement which provides evidence that the quality of the monitoring efforts performed by directors has an effect on the likelihood of restatement. Basically, this means that better monitoring will lead to a lower likelihood of issuing a restatement. This link between monitoring quality and restatements shows that likelihood of restatements is a good proxy for monitoring quality.

Additionally, restatements was chosen as the proxy for monitoring quality based on prior research which used restatements as a proxy for monitoring and financial reporting quality. These studies focus on the effect of changes in board composition and executive positions on monitoring and financial reporting quality and their findings support the idea that better monitoring from the board leads to financial reporting quality of a higher degree which is observed by lower instances of restatements (Guest, 2019; Wang et al., 2022; Liao et al., 2019). This suggests that one way to measure monitoring quality of the board and audit committee is by how effective they are at lowering the likelihood of issuing a restatement. In conclusion, restatements are indicative of poor monitoring as they should not happen and this setting will allow to test the effect of gender differences on preventing restatements.

## 2.3 *Literature Review*

The board of directors is one of the most significant governance mechanisms that is in place to align management behavior with the interest of shareholders (Fama & Jensen, 1983; Merino & Manzaneque, 2016). Proponents of gender diversity as a way to enhance corporate governance argue that characteristics associated with women such as being more risk averse, less overconfident, and less likely to engage in unethical behavior indicate that gender diversity can strengthen the governance of firms. Extensive research has been done on gender diversity; however, it has mostly focused on finding the effects on firm performance rather than on the board's monitoring functions. Given the abundance of literature regarding the effect on firm performance this section will discuss prior studies related to the effect of diversity on firm performance and on monitoring quality of the board.

### 2.3.1 *Diversity and Firm Performance*

Even though this thesis is not focused on the effect of diversity on firm performance, it is useful to revisit the literature in this topic as it might suggest what kind of effect we can expect. Additionally, the board's role as a monitor will ultimately have an effect on performance so it's important to understand how diversity affects performance. The relationship between diversity in the boardroom and firm performance is not clear as prior studies provide mixed results. Regarding a positive effect from diversity, studies have found that firms with more females on the board of directors are valued higher by the market than those with less female directors (Atinc et al., 2021). Additionally, firms with greater gender diversity in the board have been found to have higher performance measured both by market and accounting measures (Terjesen et al., 2016; Ahmed & Ali, 2017).On the other hand, research also suggests that firm performance is negatively affected by diversity in the boardroom (Adams & Ferreira, 2009; Haslam et al., 2010). Lastly, studies have also found that there is no significant relationship between gender diversity in the board and firm performance (Khan & Abdul Subhan, 2019; Fernández-Temprano & Tejerina-Gaite, 2020). There is no consensus regarding the effect of diversity on firm performance, as results show that in can have a negative, positive or no impact at all. The problem is that both diversity and firm performance can be measured in so many ways and are affected by so many factors that it's hard to attribute the effect of board composition of firm performance. Additionally, results should be taken with caution since it is very complex to measure the impact of the board on firm performance as there is potential for endogeneity and inverse correlated variables (Magnanelli & Pirolo, 2021). The results do suggest that diversity, in this case gender diversity in the board of directors should be studied further as the effects are still unclear.

### 2.3.2 *Diversity and Monitoring*

The monitoring duties of the board are not only related to the financial reporting process but encompass much broader responsibilities, anything related to the monitoring and controlling of managers. This section will first present prior studies that have examined different features of monitoring and will then discuss literature that focuses on monitoring tasks related to financial reporting.

Research exploring the relationship between diversity and monitoring quality has found that gender diversity has a positive impact on the monitoring abilities of the board. In regards to the effect of diversity on CEO compensation for example, research shows that female directors have a significant negative impact on the fixed salary component and that boards with a higher proportion of female directors make more swift and significant changes to CEO compensation following a restatement (Benkraiem et al., 2017; Cheng & Farber, 2008). Related to CEO monitoring, diverse boards are more likely to hold the CEO accountable by dismissing them during periods of poor performance; which is explained by diversity increasing the level of independence in the board (Adams & Ferreira, 2009; Guest, 2019). Additionally, the inclusion of female directors has been found to overall reduce the likelihood of having internal control weaknesses (Chen et al., 2016b). The author's attribute the reduction in internal control weaknesses to female director characteristics such as being more active, more willing to question and scrutinize, and being less tolerant of opportunistic actions, which makes them better monitors. These results suggest that female directors are strong monitors and gender diversity at the board level can enhance the abilities of the board to act as a governance mechanism.

Research on the board's monitoring duties related to financial reporting quality show that diversity, and gender diversity especially have a positive impact on the quality of financial reporting. An aspect of financial reporting quality that has been studied extensively is the effect of female directors and executives on earnings management. Results show that increasing the number of independent directors and female directors leads to a reduction in earnings management (Lara et al., 2017; Peasnell et al., 2005). Earnings management is seen as a practice that reduces reporting quality and a reduction in earnings management can be interpreted as effective monitoring from the board that has a positive impact on financial reporting quality. The observed effect on earnings management suggests that female directors could have a similar impact on instances of restatements. Related studies that focused on Chinese firms found that female directors at board and CFO positions increase the likelihood of detecting fraud and decrease the likelihood that either the firm and the CEO will commit fraud (Wang et al., 2022; Liao et al., 2019). These results suggest that the features associated with women and diversity can enhance the monitoring quality of directors and overall impact reporting quality in a positive way. If gender diversity has a similar effect in the United States setting, it will show that gender diversity adds value to firms and that it behaves as an effective governance mechanism.

## 2.4 *Hypotheses*

The literature on the effect of diversity on board functionality and firm performance has found contrasting results. However in regards to the effect of diversity on monitoring quality, it seems that gender diversity can enhance the monitoring ability of the board through the reporting process. A restatement is synonymous with wrongdoing either intentional or not; and in this setting we are exploring whether gender diversity can improve monitoring quality and thus reduce the likelihood of issuing a restatement.

Despite having mixed results, most of prior studies discussed provide evidence that shows that diversity can improve the functionality of the board and the firm in general. My expectation is that gender diversity improves the monitoring abilities of the board. I expect that female directors will have a negative effect on the likelihood of a restatement. I expect to find that as the percentage of female directors increases, the likelihood of issuing a restatement will decrease; which will suggest that monitoring quality is strengthened. The opposite effect or no difference in outcomes would suggest that diversity harms or has no effect on the functionality of the board. The following hypotheses will be tested:

H1a: Female directors in the board are associated with a lower likelihood of restatement.

H1b: Female directors in the audit committee are associated with a lower likelihood of restatement.

Furthermore, in line with the resource dependency theory, I expect that female directors increase the resources and skills of the firm. An observable director skill in my data set is financial expertise and I expect stronger effect between the interaction of female directors with financial expertise to reduce the likelihood of a financial restatement.

H2a: Female directors in the board with financial expertise are associated with a lower likelihood of restatement.

H2b: Female directors in the audit committee with financial expertise are associated with a lower likelihood of restatement.

# 3. Research Design

This section provides background on the research design which includes the methodology, variables, and the sample and data collected. It first explains the methodology employed and the regressions used to test the hypotheses. It then defines and provides more information on the variables. Lastly, it discusses how data was collected to construct the sample for analysis.

## 3.1 *Methodology*

To test the effect of gender diversity at the board and audit committee level, a panel logistic regression is used. The methodology employed is similar to that used in, (Li & Li, 2020), in which they examined the effect of gender diversity in the board on financial irregularities for Chinese firms. This model has been chosen because it allows to test the effect of the independent variable of interest on a binary outcome. The results of the regression will show if the percentage of women in the board and audit committee has an effect on the odds of a firm issuing a restatement.
Hypothesis 1a and 1b will be tested using the following regression:

$$\begin{aligned} Restatement_{t+1} &= \alpha + \beta_1 FemaleonBoard(AuditCommittee)_t \\ &+\beta_2 BoardSize_t+\beta_3 Age_t+\beta_4 Tenure_t+\beta_5 Independence_t+\beta_6 NumberofotherBoardSeats_t \\ &+ \beta_7 FinancialExpertise_t + \beta_8 Leverage_t + \beta_9 ROA_t + \beta_{10} FirmSize_t + \beta_{11} Big4_t \\ &+ \beta_{12} NonAuditFees_t + \epsilon \end{aligned} \quad (1)$$

Hypothesis 2a and 2b will be tested using the following regression:

$$\begin{aligned} Restatement_{t+1} &= \alpha+\beta_1 FemalewithFinancialExpertiseonBoard(AuditCommittee)_t \\ &+ \beta_2 BoardSize_t + \beta_3 Age_t + \beta_4 Tenure_t + \beta_5 Independence_t \\ &+\beta_6 NumberofotherBoardSeats_t+\beta_7 FinancialExpertise_t+\beta_8 Leverage_t+\beta_9 ROA_t \\ &+ \beta_{10} FirmSize_t + \beta_{11} Big4_t + \beta_{12} NonAuditFees_t + \epsilon \end{aligned} \quad (2)$$

## 3.2 *Variables*

### *Dependent Variable*

This thesis is interested in studying the effect of gender diversity at the board level on monitoring quality. Since monitoring quality is a theoretical construct it has been operationalized with instances of restatements. The dependent variable is a binary outcome that takes the value of 1 if a firm issued a financial restatement during that year and a 0 otherwise. Financial restatements were chosen to proxy for monitoring quality because they represent a crisis for firms and signals poor oversight from the board and audit committee (Arthaud-Day et al., 2006). Strengthening of monitoring quality would lead to a lower likelihood of issuing a restatement. Additionally, prior research on the effect of other characteristics of diversity such as ethnicity, nationality and independence on monitoring quality, used restatements to proxy for financial fraud and financial reporting quality (Liao et al., 2019; Guest, 2019; Adams & Ferreira, 2009). Lastly, restatements provide instances of wrongdoing, either intentional or not, by firms and given that they have to disclose this it provides a good setting to study how other variables can affect the likelihood of having one.

### *Independent Variables*

The independent variable of interest is gender diversity in the board and audit committee. To test this, the independent variable for hypothesis 1a is the percentage of female directors in the board and for hypothesis 1b the percentage of female directors in the audit committee. Each variable is obtained by dividing the number of female directors by the total number of directors in the board and in the audit committee. According to the conceptual framework female directors can contribute to the monitoring quality due to differing gender characteristics. To examine if female directors add value to the monitoring quality through their financial expertise, an additional independent variable will be tested which is the percentage of female directors with financial expertise. The percentage of female directors with financial expertise in the board and in the audit committee is the independent variable of interest for hypotheses 2a and 2b. The Institutional Shareholder Service (ISS) database provides data on financial expertise per director, which can take the value of 1 (possess financial expertise) and 0. The percentage of female directors with financial expertise in the board and audit committee is obtained from dividing the number of female directors with financial expertise by board size and audit committee size respectively.

## *Control Variables*

Consistent with prior studies, I will use control variables that have been found to be associated with monitoring qualities and can affect the likelihood of restatement. First, firm control variables for firm size, leverage, and ROA are included. These variables can have an effect on the issuance of restatement as bigger firms are more visible and potential consequence of a restatement may be more severe; also financial distress can motivate firms to engage in more aggressive accounting policies (Guest, 2019; Liao et al., 2019). Board level controls include board size, audit committee size, tenure, age, and number of other board seats held. According to, (Lara et al., 2017), monitoring quality can suffer as board and audit committee size becomes too large. Characteristics such as tenure, age, and number of other board seats held are included as they have been shown to have an impact on the participation of directors on the monitoring process and can have an impact on the likelihood of the dependent variable (Adams & Ferreira, 2009).

According to prior research financial expertise and independence at the board level have been negatively associated with restatements and earnings management (Abbott et al., 2004; Chen et al., 2018). Controls for those variables are included as I expect them to reduce the likelihood of restatement. Lastly, controls for audit quality such as non audit fees and Big4 auditor are included. Audits from the Big 4 auditing firms (Deloitte, PWC, EY, KPMG) are considered to be of higher quality while on the other hand abnormal non audit fees can impair auditor independence and lead to a greater chance of misreporting instances (Blankley et al., 2012). Lastly, since the sample covers 10 years, year and firm fixed effects will be used to control for any unobserved differences that might affect the independent and or the dependent variable over that time. Fixed effects are chosen based on prior research with similar methodology and sample selection (Li & Li, 2020; Guest, 2019). Additionally, the Hausman test shows that fixed effects should be used to avoid having the error term be correlated with other variables in the model. The following section provides Definitions of all the variables included in the regressions.

## *Variables Definitions*

Dependent Variable:
Restatement - dummy variable that takes the value of 1 if the firm issued a restatement and 0 otherwise.

Independent Variables:
FemaleinBoard - This is the percentage of female directors in the board per firm. It is calculated by dividing the number of female directors by that of total directors in

the board.
FemaleinAuditCommittee - Percentage of female directors in the audit committee per firm. It is calculated by dividing the number of female directors in the audit committee by that of total directors in the audit committee.
FemaleFinExponBoard - Percentage of female directors with Financial Expertise on the board. It is calculated by dividing the number of female directors with financial expertise according to ISS in the board by that of total directors in the board.
FemaleFinExpinAudit - Percentage of female directors with Financial Expertise on the audit committee. It is calculated by dividing the number of female directors with financial expertise in the audit committee by that of total directors in the audit committee.

Firm Controls:
Firm Size – The natural logarithm of total assets.
ROA - Net income divided by total assets.
Leverage - Total liabilities divided by total assets.
BIG4 - Dummy variable that takes the value of 1 if the firm is audited by one of the Big 4 Auditing firms (EY, KPMG, PWC, Deloitte).
LNnonauditfees - The natural logarithm of non audit fees.

Board Level controls:
Board Size – The number of directors in the board.
Audit committee size - The number of directors in the audit committee.
DirectorIndependence - Percentage of independent directors in the board.
DirectorAge - Mean age of directors in each board.
DirectorTenure - Mean director tenure in each board.
OtherNoardSeatsHeld- Mean of other board positions held by each director per firm.
DirectorFinancialExp- Percentage of directors with financial expertise in the board.

## 3.3 *Sample and Data Collection*

The sample is constructed from data on US firms from 2010 until 2019. A setting in the United States is chosen due to the following reasons. First of all, the percentage of board seats held by women in my sample increased from 12.4% in 2010 to 23.4% in 2019, which shows that board composition in terms of gender has changed and as mentioned in the introduction, it will most likely continue to change. Secondly, positive effects of diversity can be more pronounced and significant in settings with strong shareholder rights and capital markets efficiency; so the United States provides a good setting to test this (Ahmed & Ali, 2017). Lastly, the United States was chosen for the high availability of data and because this topic has not been examined in a US setting. Board level data is obtained from the Institutional Shareholder Service (ISS) database and is complemented with financial data from Compustat. Lastly, data on restatements is obtained from Audit Analytics and merged with board and financial data based on firm and year observations. Following the research design of (Li & Li, 2020), to reduce potential endogeneity issues, data on board gender composition from year t is matched with restatement data from year t+1. This is also done because the effect from changes in board composition might not be observed immediately but rather on the following year. Data sets from ISS and Compustat were merged based on CUSIP codes and year which resulted in an initial data set of 15,022 observations. This was complemented with a restatement data set from AuditAnalytics which was merged based on CIK codes and year. After matching the two data sets, the data set was reduced to 13,176 due to missing data on restatements. Lastly, the data set was reduced to 11,473 firm-year observations after dropping 1,706 observations due to missing values of the control variables. The complete data set contains 11,470 firm-year observations.

# 4. Results

The Results section first provides descriptive statistics of the sample and then discusses the main results of the regressions. The descriptive statistics section provides a summary of certain characteristics of the sample and shows the changes in gender composition of the board throughout the time period of the sample. The main results section will discuss the results obtained from the two regressions being tested and will accept or reject the hypotheses.

## 4.1 *Descriptive Statistics*

Table 1: Descriptive Statistics

| Variables | N | mean | sd | min | max |
|---|---|---|---|---|---|
| Restatement | 11,470 | 0.0820 | 0.274 | 0 | 1 |
| FemaleinBoard | 11,470 | 0.165 | 0.110 | 0 | 0.750 |
| FemaleinAuditCom | 11,470 | 0.179 | 0.188 | 0 | 1 |
| FemaleFinExponBoard | 11,470 | 0.0386 | 0.0616 | 0 | 0.375 |
| FemaleFinExpinAudit | 11,470 | 0.0942 | 0.153 | 0 | 1 |
| DirectorAge | 11,470 | 62.79 | 3.635 | 47.88 | 79.25 |
| DirectorTenure | 11,470 | 9.133 | 3.842 | 0 | 31 |
| DirectorIndependence | 11,470 | 0.804 | 0.105 | 0.308 | 1 |
| DirectorFinancialExp | 11,470 | 0.237 | 0.133 | 0 | 0.875 |
| OtherBoardSeatsHeld | 11,470 | 0.783 | 0.463 | 0 | 3.400 |
| BoardSize | 11,470 | 9.516 | 2.282 | 4 | 34 |
| AuditComSize | 11,470 | 3.918 | 1.076 | 1 | 11 |
| Leverage | 11,470 | 0.577 | 0.241 | 0.0317 | 4.350 |
| ROA | 11,470 | 0.0512 | 0.0767 | -1.703 | 0.783 |
| FirmSize | 11,470 | 8.396 | 1.704 | 3.762 | 14.80 |
| BIG4 | 11,470 | 0.929 | 0.257 | 0 | 1 |
| LNnonauditfees | 11,470 | 12.75 | 1.782 | 6.001 | 18.03 |

Table 1 presents the descriptive statistics of the variables included in the regressions. The variable Restatement has a mean of 0.0820 which means that in my sample 8.20% firms issued restatements. The independent variables of interest are those that capture the percentage of female directors in the board and in the

Table 2: Female Board and Audit Committee Composition

| Variables | mean | sd |
|---|---|---|
| FemaleinBoard 2010 | 0.124 | 0.00318 |
| FemaleinBoard 2011 | 0.126 | 0.00295 |
| FemaleinBoard 2012 | 0.132 | 0.00297 |
| FemaleinBoard 2013 | 0.140 | 0.00301 |
| FemaleinBoard 2014 | 0.152 | 0.00304 |
| FemaleinBoard 2015 | 0.162 | 0.00312 |
| FemaleinBoard 2016 | 0.174 | 0.00311 |
| FemaleinBoard 2017 | 0.187 | 0.00315 |
| FemaleinBoard 2018 | 0.209 | 0.00310 |
| FemaleinBoard 2019 | 0.234 | 0.00319 |
| | | |
| FemaleinAuditCom 2010 | 0.130 | 0.00517 |
| FemaleinAuditCom 2011 | 0.137 | 0.00504 |
| FemaleinAuditCom 2012 | 0.147 | 0.00519 |
| FemaleinAuditCom 2013 | 0.158 | 0.00517 |
| FemaleinAuditCom 2014 | 0.166 | 0.00538 |
| FemaleinAuditCom 2015 | 0.177 | 0.00555 |
| FemaleinAuditCom 2016 | 0.183 | 0.00542 |
| FemaleinAuditCom 2017 | 0.202 | 0.00564 |
| FemaleinAuditCom 2018 | 0.224 | 0.00565 |
| FemaleinAuditCom 2019 | 0.255 | 0.00594 |

audit committee as well as the percentage of female directors who possess financial expertise. In my sample, from 2010-2019 16.5% of the board seats were held by women; while 17.9% of the audit committee positions were held by women. Those figures show that female directors are a minority in the board and audit committee; however, Table 2 provides more information as it shows the mean per year. Table 2 shows that the average board seats held by women increased from 12.4% in 2010 to 23.4% in 2019; which represents an 89% increase in 10 years. Similarly Table 2 shows that the composition of the audit committee also changed during the sample period as female directors represented only 13% of audit committee directors in 2010 but increased to 25.5% in 2019. This shows that despite having an overall low representation, female director representation increased during the 10 years in my sample. The minimum value for percentage of female directors is 0 which shows that there were firms with no female directors during this period. On the other hand there were no all female boards, as the maximum value for female representation in board was 75%.

Table 1 shows that the percentage of female directors with financial expertise in the board and audit committee is 3.86% and 9.42% respectively. Overall this seems like a low number but Table 3 shows that throughout the sample period the per-

Table 3: Female Financial Expertise in Board and Audit Committee

| Variables | mean | sd |
|---|---|---|
| Board 2010 | 0.0248 | 0.00159 |
| Board 2011 | 0.0277 | 0.00158 |
| Board 2012 | 0.0289 | 0.00161 |
| Board 2013 | 0.0315 | 0.00167 |
| Board 2014 | 0.0341 | 0.00171 |
| Board 2015 | 0.0376 | 0.00180 |
| Board 2016 | 0.0410 | 0.00181 |
| Board 2017 | 0.0457 | 0.00188 |
| Board 2018 | 0.0525 | 0.00199 |
| Board 2019 | 0.0605 | 0.00213 |
| | | |
| AuditCommittee 2010 | 0.0602 | 0.00386 |
| AuditCommittee 2011 | 0.0689 | 0.00396 |
| AuditCommittee 2012 | 0.0729 | 0.00414 |
| AuditCommittee 2013 | 0.0763 | 0.00407 |
| AuditCommittee 2014 | 0.0834 | 0.00432 |
| AuditCommittee 2015 | 0.0923 | 0.00451 |
| AuditCommittee 2016 | 0.0998 | 0.00452 |
| AuditCommittee 2017 | 0.110 | 0.00468 |
| AuditCommittee 2018 | 0.127 | 0.00489 |
| AuditCommittee 2019 | 0.146 | 0.00523 |

centage of female directors with financial expertise also increased. The descriptive statistics in regards to restatements and percentage of female directors suggests that the sample is representative of the reality since the data is consistent with restatement and board gender composition data. The 2020 Financial Restatements report by Audit Analytics shows that from 2010 to 2020 between 10% to 5% of firms issued restatements and Deloitte's Women at the Boardroom Report shows that female directors have increased from 12.2% in 2012 to 23.9% in 2021. This indicates that the sample captures the changes observed in these variables.

One of the assumptions of the logistic regression is no multicollinearity among the explanatory variables. The correlation matrix shows that the independent variables are not highly correlated with each other. Certain variables are expected to be correlated for example, the percentage of female directors in the board with the percentage in the audit committee, and percentage of female directors with financial expertise.

Table 4: Regression Output Female Directors on Restatement

| Variables | (1)<br>Restatement | (2)<br>Restatement |
|---|---|---|
| FemaleinBoard | -1.999*** | |
| | (0.721) | |
| BoardSize | 0.0611 | |
| | (0.0426) | |
| FemaleinAuditCom | | -0.262 |
| | | (0.358) |
| AuditComSize | | 0.193*** |
| | | (0.0644) |
| DirectorFinancialExp | -0.961* | -1.600*** |
| | (0.571) | (0.574) |
| DirectorAge | -0.0723** | -0.0607* |
| | (0.0332) | (0.0329) |
| DirectorTenure | 0.0609* | 0.0547* |
| | (0.0317) | (0.0311) |
| DirectorIndependence | -1.115 | -1.876** |
| | (0.782) | (0.792) |
| OtherBoardSeatsHeld | 0.233 | 0.253 |
| | (0.203) | (0.202) |
| Leverage | -0.0914 | -0.176 |
| | (0.440) | (0.440) |
| ROA | -0.663 | -0.743 |
| | (0.718) | (0.719) |
| FirmSize | -0.368** | -0.442*** |
| | (0.148) | (0.144) |
| BIG4 | 0.155 | 0.207 |
| | (0.406) | (0.403) |
| LNnonauditfees | -0.0422 | -0.0396 |
| | (0.0459) | (0.0457) |
| Observations | 4,351 | 4,351 |
| Number of CIK | 531 | 531 |
| Firm FE | YES | YES |
| Year FE | YES | YES |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

## 4.2 *Results*

### *Regression of Percentage of Female Directors on Restatements*

Table 4 shows the results for hypotheses 1a and 1b. The independent variables of interest are FemaleinBoard and FemaleinAuditCom, as their respective coefficients show the effect of these variables on the odds ratio of issuing a restatement. The results for the first regression show a significant negative effect between FemaleinBoard and restatement. FemalinBoard has a coefficient of -1.999 which represents an odds ratio of 0.1355. To have a clearer and more intuitive interpretation of how changes in female directors can affect restatements, the odds ratio is converted from fraction to percentage changes; which gives an odds ratio of 0.9802. I interpret this odds ratio as a one percentage increase in female directors in the board leads to a 0.9802 change in the predicted odds of issuing a restatement. This means that all else being equal, an increase in the percentage of female directors leads to a decrease in the likelihood of issuing a restatement. Unlike results from female directors in the board, the effect of female directors in the audit committee has no significant effect on restatement. The negative sign of FemaleinAuditCom shows that an increase in female directors in the audit committee has a negative effect on the issuance of restatement; however, this effect is not significant. Hypothesis 1a is accepted but I fail to find evidence that supports hypothesis 1b.

Other results from Table 4 show that director financial expertise has a significant negative effect on restatements. This suggests that having a higher percentage of directors with financial expertise leads to a lower likelihood of restatements. I can interpret this as higher financial expertise leads to stronger monitoring, but this can also be a focus of future studies. The effect is more pronounced in the audit committee which indicates that financial expertise is more valuable in the audit committee which is consistent with the findings in Chen et al. (2018).

### *Regression of Percentage of Female Directors with Financial Expertise on Restatements*

Table 5 provides the results for hypotheses 2a and 2b. These results show that the percentage of female directors with financial expertise in the board and in the audit committee has no significant effect on restatements. The results are not significant which means I have no sufficient evidence to accept the hypotheses and based on the evidence it is not possible to make inferences on how these variables affect restatements. Both coefficients are negative though, which suggests that an increase

Table 5: Regression Output Female Directors with Financial Expertise on Restatement

| Variables | (1) Restatement | (2) Restatement |
|---|---|---|
| FemalewFinExponBoard | -1.167 | |
| | (1.249) | |
| BoardSize | 0.0588 | |
| | (0.0425) | |
| FemalewFinExpinAudit | | -0.450 |
| | | (0.482) |
| AuditComSize | | 0.186*** |
| | | (0.0643) |
| DirectorFinancialExp | -0.943 | -1.465** |
| | (0.606) | (0.595) |
| DirectorAge | -0.0635* | -0.0612* |
| | (0.0331) | (0.0329) |
| DirectorTenure | 0.0638** | 0.0547* |
| | (0.0316) | (0.0311) |
| DirectorIndependence | -1.416* | -1.866** |
| | (0.772) | (0.791) |
| OtherBoardSeatsHeld | 0.257 | 0.260 |
| | (0.202) | (0.202) |
| Leverage | -0.173 | -0.183 |
| | (0.439) | (0.439) |
| ROA | -0.678 | -0.745 |
| | (0.719) | (0.719) |
| FirmSize | -0.464*** | -0.442*** |
| | (0.144) | (0.143) |
| BIG4 | 0.211 | 0.216 |
| | (0.402) | (0.403) |
| LNnonauditfees | -0.0386 | -0.0386 |
| | (0.0457) | (0.0457) |
| Observations | 4,351 | 4,351 |
| Number of CIK | 531 | 531 |
| Firm FE | YES | YES |
| Year FE | YES | YES |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

in female directors who possess financial expertise has a negative effect on the issuance of restatements; however, the effect is not significant so no conclusions can be drawn.

Despite the independent variable of interest not being significant, the results provide additional insight into the relationship between other variables and restatements. Based on prior studies I expected firm size to have a positive sign and increase the likelihood of restatement but in both regressions firm size has a negative significant effect on restatement, which contradicts the findings of Guest (2019); Li & Li (2020). A possible explanation for this is that bigger firms are more likely to have stronger internal controls and since they are more exposed to the public the consequences from restatements can be more severe. Additionally, in both regressions director age and tenure are significant but have the opposite effect on restatement. This provides interesting findings because in the regression an increase in age leads to a lower likelihood of restatement which suggests that older directors with potentially more experience strengthen monitoring efforts of the board and audit committee. On the other hand, as tenure increases the likelihood of restatement increases which is contradictory to the effect from director age. A possible explanation for this is that as directors spend more time in the board they can become complacent and as a result the likelihood of restatement increases.

Consistent with prior research on the effect of director independence on monitoring quality the results suggest that independence in the board and in audit committee strengthen monitoring quality. In both regressions, director independence is negatively and significantly associated with a decrease in likelihood of restatement. This supports prior research that provides evidence that independence amongst directors can lead to lower instances of financial restatements due to more stringent monitoring Salloum et al. (2014); Guest (2019); Mardessi (2021). The effect is more significant in the audit committee which suggests that the audit committee is more involved in the reporting process; and also that more independent directors will be stronger monitors and as a result the likelihood of issuing restatement decreases.

Overall results provide evidence that supports hypothesis 1a and suggest that female directors add value to the monitoring quality of the board. For the remaining hypotheses, results fail to provide evidence that supports them but still provide insightful information regarding the effect of certain variables on restatements.

# 5. Conclusion

## 5.1 *Conclusion*

This thesis focuses on examining what is the effect of female directors on monitoring quality of the board of directors and audit committee. The results show that gender composition of the board can have an impact on monitoring quality. More specifically, the findings show that an increase in female directors in the board leads to stronger monitoring quality. Hypothesis 1a is accepted as results show that an increase in female directors in the board has a negative effect on the likelihood of restatement. On the other hand hypothesis 1b is not accepted as no significant effect was found. Additionally, hypothesis 2a and 2b tested whether female directors with financial expertise have an effect on monitoring quality. Hypotheses 2a and 2b can not be accepted as no significant effect was found between the proportion of female directors with financial expertise on the likelihood of restatement.

Despite only obtaining significant results in one of the regressions, those results provide evidence that female directors can enhance the monitoring quality of the board of directors. Results are relevant for firms, policymakers, regulators, shareholders and stakeholders that advocate for more equal gender representation in the board of directors. Despite there not being a mandated gender quota in the United States, my results in one way validate the introduction of such mandates as they show that female directors can strengthen monitoring quality of the board. For policymakers and stakeholders that advocate for gender equality this is relevant because this shows that such policies and pressures are not only driven by the desire to reach a more equal outcome in regards to gender representation but that by doing so, firms and shareholders can benefit from the value that female directors add to the board. This contributes to the push for the inclusion of more women to board positions not based on gender equality arguments but rather based on the benefits that women can bring to the board in terms of monitoring qualities.

For shareholders, results are relevant as firms can benefit from female directors. This shows that gender diversity in the board and committee level can act as a governance mechanism and for shareholders this could be an indication of how effectively the board can monitor the reporting process. Given that board gender composition has changed in the last years and will most likely continue to change, shareholders can become aware of the benefits from more female directors and put pressure on firms to reach more gender diverse boards.

## 5.2 *Limitations and Future Research*

Even though the likelihood of issuing a restatement is an adequate way to measure the monitoring quality of the board, it doesn't capture all the effects of monitoring. As mentioned in the Theoretical Concepts section, monitoring quality can be a quite abstract term and in this study I used the likelihood of issuing a restatement to proxy for monitoring quality; but as most proxies, it doesn't perfectly represent monitoring quality. From a monitoring perspective its valuable to understand if gender diversity has an effect on the issuance of restatements, but the monitoring efforts of the board are not solely focused on preventing restatements.

Additionally, given that I focused on firms in the United States the results might not apply to other countries/settings. There are no mandated gender quotas in the United States but the threat of such policies might have influenced the decision to appoint female directors. Additionally, the role of the board in the United States differs slightly from other countries; mainly due to having a one tier and not a two tier structure.

Lastly, the logistic regression with fixed effects employed in my research design has certain limitations. Due to having unbalanced panel data and using fixed effects, observations were dropped in the analysis due to not having variation in the outcome; meaning that throughout the sample period those firms reported always the same outcome. Regardless, the logistic regression was chosen based on prior studies and because the dependent variable is a binary outcome.

Further research can focus on understanding through which mechanisms do female directors enhance the monitoring quality of the board. Given that results for the interaction between female directors and financial expertise didn't provide significant results; it would be interesting for future research to study through which ways female directors affect monitoring quality. Future research can focus on specific gender characteristics that affect certain board outcomes and as a result we can have a better understanding of which characteristics are desired in the board of directors.

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