

Title: The moderating role of firms' litigation environment on the association between gender diversity and financial reporting quality.

ABSTRACT

Purpose

This paper examines the moderating role of firms' litigation environment on the association between gender diversity and financial reporting quality.

Design/methodology/approach

This study draws on a sample of U.S. firms to examine the moderating role of firms' litigation environment on the association between gender diversity and financial reporting quality. Firm-specific financial data come from Compustat. To measure the firms' litigation environment, we use state-level datasets from the Lawsuit Climate Survey conducted for the U.S. Chamber Institute for Legal Reform by the Harris Poll.

Findings

Findings suggest that firm litigation environment moderates gender diversity, as defined by female members on the board to subdue our first proxy for financial reporting quality (accruals-based earnings management) but our second proxy for financial reporting quality (real-activities manipulations) increases in a firm's litigation environment. To the extent that our results hold after controlling for firms' reputation indicates that female members on the board are sensitive to reputational loss and protect firms' reputation in a litigation environment.

Research limitations/implications

The study is based on a specific country, limiting the generalizability of the findings.

Practical Implications

The findings provide support for promoters and advocates of gender diversity in corporate boards. Specifically, it shows the importance of gender diversity policies in business and society.

Originality/value

This study is the first to examine the moderating role of firms' litigation environment on the association between gender diversity and financial reporting quality. The study provides novel evidence and shows that the litigation environment moderates gender diversity to improve financial reporting quality in the short-term (by decreasing accruals manipulation). In firms' litigation environment, when female members on the board are restrained from engaging in accruals earnings management, they shift to value-destroying and costly real activities to maintain reputation and firm performance. To the extent that we control for the potential effects of firms' reputation and financial performance, our findings suggest that ethical concerns are likely to drive female members on the board to produce high-quality financial reports.

Keywords: Gender Diversity; Litigation Environment; Firms' Reputation; Financial Reporting Quality; U.S. firms

JEL: G3, M41, K42, Z12

1. Introduction

This study examines the moderating role of firms' litigation environment on the association between gender diversity and financial reporting quality. The debate to maintain gender equality on boards has drawn significant attention from practitioners, policymakers, and researchers (Gull et al. 2018; Wang, Yu, and Gao, 2022). Around the world, women face considerable barriers in advancing into strategic management positions and boardrooms, despite their remarkable progress in attaining higher education degrees, improving corporate outcomes, and joining or moving up in the labour markets (Adams and Kirchmaier, 2015; Gabaldon et al., 2016). Prior research indicates that female members on the board tend to have a positive influence on several corporate outcomes, such as earnings management, superior governance quality and firm performance (Srinidhi et al. 2011; Kirsch 2018; Nguyen et al., 2020). Relatedly, prior studies observe that the presence of female members on the board reduces environmental litigation (Liu (2018) and decreases operating lawsuits in U.S. firms (Adhikari et al., 2019). Consequently, regulators are calling for more females in top leadership roles to improve corporate outcomes (Liu, 2018; Wang et al., 2022).

The aim of this study is to examine whether the quality of the firms' litigation environment can increase or decrease the potential effects that female members on the board have on financial reporting quality. We focus on gender diversity and its managerial implications, analysing the impact of gender diversity on financial reporting practices adopted by firms, with particular attention given to the firms' litigation environment. The extant literature has highlighted the role of gender diversity on financial reporting quality (Dobija, Hryckiewicz, Zaman, and Pulawska, 2022; Wang et al., 2022). However, the documented differential effect between gender diversity and firm litigation environment on financial reporting quality is insufficient or not known. Therefore, an understanding of the changes in financial reporting quality caused by the moderating role (or influence) of firms' litigation environment on the association between gender diversity and financial reporting quality is worth investigation. In line with the idea that female members on the board behave differently than men do (Zalata et al., 2022), are sensitive to reputational loss (Srinidhi et al., 2011), are risk averse (Guest, 2019; Zalata et al., 2019), and are more ethical than men (Ho et al., 2015; Usman et al., 2022), a litigation environment that imposes higher litigation risk on firms' boards can thus present a natural monitoring mechanism that may limit managerial incentives to engage in improper financial reporting practices.

Again, Tinaikar (2012) observes that a country-level litigation environment can act as a substitute to firm-level governance structures, such as the gender diversity or proportion of female members on the board, to monitor firm's unethical behaviour. A fundamental argument here is that although the literature that considers the effect of female members on the board on firms' corporate outcomes is widening, this perspective is undervalued, and the link between litigation environment and gender diversity on financial reporting quality deserves more attention. While the existing gender diversity studies underline women positive influence and an increase in the participation of women in top management positions and on firm boards (Klettner, Clarke, and Boersma 2016), the question remains of whether and how much litigation environment moderates the association between gender diversity and financial reporting quality.

Despite the increasing interest in the role of gender diversity on corporate outcomes, the precise channels through which female members on the board can improve financial reporting quality are not clear to date (Adams & Ferreira 2009; Nguyen et al., 2020; Wang et al., 2022). Female members on the board serve as firms' internal monitoring mechanisms and litigation environment serves as firms' external governance mechanism (Adhikari et al., 2019; Laux, 2010). Therefore, we seek to examine and fill a gap in the financial reporting literature by answering the following research question: (i) What is the moderating role (or influence) of litigation environment on the association between gender diversity and financial reporting quality? There is a link between the litigation environment and gender diversity that makes this study interesting.

First, gender diversity and the litigation environment play an important role together in protecting shareholders' interests against managerial misdeeds and fraudulent practices (Adhikari et al. 2019; Habib et al., 2014). For example, Adhikari et al., (2019) observe that a litigation environment could serve as a monitoring mechanism between shareholders and members of the firm's board due to the classic agency problems. From a financial reporting perspective, female members on the board would ensure superior governance quality and promote more ethical financial reporting (Usman et al. 2022; Zalata et al., 2022). Similarly, a litigation environment ensures that conflicts between managers and shareholders are resolved in an orderly fashion (Habib et al., 2014). Shareholders demand protection from the law when self-serving managers manipulate earnings and provide misleading and biased information to maximize their personal gains (Aharony et al., 2015; Owen & Temesvary, 2018).

Second, a litigation environment exposes female members on the board to direct financial penalties, while a lost reputation impairs female members on the board's career progression and ability to create value for shareholders (Seebeck & Vetter, 2021). There are large financial and reputational penalties often associated with a litigation environment (e.g. legal suits) which can discipline female members on the board and deter them from future wrongdoing (Habib et al., 2014). For example, Habib et al., (2014) indicate that corporate litigation is increasingly costly and board gender diversity may offer a costless solution. In a litigation environment, female members on the board will be less inclined to engage in activities that will be detrimental to shareholders' value and financial reporting quality.

Third, prior studies indicate that female members on the board are sensitive to reputational loss (Srinidhi et al., 2011) and value reputation (Kim et al., 2012). Therefore, female members on the board would avoid socially unacceptable activities to protect their reputation (Linthicum et al., 2010). Litigation entails other costs such as loss of reputation, loss of time, and the stress associated with being a defendant in a lawsuit (Black et al, 2022). The litigation environment is an important external governance mechanism to protect a firm's reputation (Laux, 2010). Female members on the board could face costly litigation if they provide substandard and fraudulent financial reports (Afzali et al., 2022; Chada and Varadharajan, 2023). In the end, the firm has to spend significant time and resources to settle frivolous litigation costs to maintain its reputation.

Fourth, research indicates that female members on the board are risk-averse (Guest, 2019, Zalata et al., 2019) and more ethical than men (Ho et al., 2015, Usman et al, 2022). Therefore, female members on the board are more likely to avoid fraudulent practices and financial misreporting to reduce the threat of litigation. Relatedly, Zheng and Wang, (2023) indicate that it is virtually impossible to separate the impact of litigation risk on the firm, and personal litigation risk on the board of directors, since in almost all litigations, the board of directors or chief executive officers (CEOs) are sued jointly with the firm. In a nutshell, the above suggests that female members on the board are part of the internal governance mechanism and litigation environment is an important external governance mechanism (Laux, 2010) and their moderation role could affect financial reporting quality. Therefore, we predict that the moderating role (or influence) of litigation environment on the association between gender diversity and financial reporting would improve corporate outcomes, specifically financial reporting quality.

Huang et al., (2020) indicate that financial reporting quality is a multidimensional concept. Our empirical proxies for financial reporting quality are drawn from prior literature. Consistent with prior studies, we use accruals-based and real activities earnings management as our proxies for financial reporting quality (Habib et al., 2014; Wang et al., 2022). It is interesting to note that accruals-based earnings management is illegal and has a higher risk of litigation. However, research indicates that real activities earnings management has a lower risk of litigation but is deemed to be value-destroying, costly, difficult to detect, decreases long-term cash flow and firms' future competitiveness (Cohen et al. 2008, Roychowdhury, 2006, Sun et al. 2019, Zalata et al. 2018). We argue that female members on the board might substitute one earnings management strategy for another to maintain firms' reputations as well as improve their underlying performance in a perceived litigation environment. For example, to maintain financial reporting quality or maintain a firm's reputation, female members on the board are more likely to select and engage in real activities earnings management, even though, real activities manipulation has a further damaging effect on shareholder value, long-term cash flows and future firms' competitiveness.

On the other hand, female members on the board might avoid illegal accruals manipulation to protect firms' reputation in the short-run and possible litigation risk to maintain financial reporting quality. For example, Graham et al. (2005) find that accruals manipulation does not affect firms' long-term value but Cohen and Zarwin (2010) observe that firms' future performance is negatively related to real activities. Relatedly, Huang et al, (2020) observe that firms with fewer earnings management practices or high-quality financial reporting are less prone to litigation risk. However, firms are also likely to supply superior accounting information because of the potential litigation threat (Dobija et al., 2022; Donelson et al., 2013; Wang et al., 2022). The underlying premise of our study is built on the notion that the moderating role (or influence) of litigation environment on the association between gender diversity and financial reporting quality could improve financial reporting quality. We argue that large financial and reputational penalties are often associated with successful litigation which can discipline female members on the board and deter them from future wrongdoing. However, the moderating effect of litigation environment on the association between female members on the board and our proxies for financial reporting quality remains unexplored.

To test the hypotheses, we collect financial data from the Compustat database for the period 2002-2018. To measure firms' litigation environment, we use state-level datasets from

the Lawsuit Climate Survey conducted for the U.S. Chamber Institute for Legal Reform by the Harris Poll between 2002 and 2018. We find that the moderation role between firms' litigation environment and gender diversity is negatively related to our first proxy for financial reporting quality (accruals earnings management), suggesting that female members on the board move away from detectable accruals earnings management to avoid litigation costs. We find that the negative effect on financial reporting quality is pronounced when firms' litigation environment moderates gender diversity. On the contrary, we find that real activities manipulation is positively related to the moderation role between firms' litigation environment and gender diversity, suggesting that female members on the board engage more in real activities to avoid litigation and build firms' reputation in the short-term because real activities are not fraudulent, or subject to the scrutiny of regulators and external auditors.

To summarize, our study makes several important contributions to the literature on corporate governance and financial reporting quality. First, the study explicitly examines the moderating role (or influence) of firms' litigation environment on the association between gender diversity and financial reporting quality. Prior research has exclusively focused on either the impact of female/male auditors, female board members, or corporate litigation on financial performance/financial reporting quality (Owusu et al., 2020; Dobija et al., 2022; Donelson et al., 2013; Wang et al., 2022, Yarram & Adapa, 2023). In a litigation environment, we provide evidence and show that while the presence of female members on the board constrains our first proxy for financial reporting quality (accrual-based earnings management); it does lead to a higher level of our second proxy for financial reporting quality (real activities manipulation) suggesting that female members on the board are sensitive to reputational loss but not necessarily ethical, risk averse and would avoid possible litigation costs.

Second, this study provides evidence that firm-level mechanisms such as gender diversity and country-level mechanisms such as the litigation environment act as governance substitutes or complements in shaping financial reporting quality. We show that the firm's litigation environment serves as an external corporate governance mechanism to complement internal governance mechanism (gender diversity) to improve the quality of financial reporting. Third, to the extent that our results hold after controlling for firms' reputation also indicates that female members on the board are sensitive to reputational loss. Therefore, female members on the board avoid accruals earnings management but select value-

destroying and costly real activities to build short-term reputation and improve financial reporting quality in a litigation environment. Fourth, prior research indicates that an increase in real activities manipulation has a further damaging effect on shareholder value, long-term cashflows, and firms' future competitiveness (Cohen et al. 2008, Roychowdhury, 2006, Sun et al. 2019, Zalata et al. 2018). Our study finds that the moderating role of litigation environment on gender diversity increases real activities manipulation. Consistent with the prior studies, we can infer that the moderating role of litigation environment on gender diversity could also have negative effect on firm's future cashflows, shareholder value, and firms' future competitiveness in the long term as real activities manipulation increases.

Finally, our study revisits the effect of legal regime on financial reporting quality and corporate outcomes. However, our study is different from prior studies on financial reporting quality (Chada & Varadharajan, 2023; Dobija et al., 2022; Wang et al., 2022) because apart from examining the the moderating role of firms' litigation environment on the association between gender diversity and financial reporting quality, we also proceed with robustness analysis that shows variability of results between rural vs urban areas, high vs low litigation states and between high vs low gender diversity firms. Overall, we show the moderating role of firm's litigation environment on the association between gender diversity and financial reporting quality. Collectively, our evidence is important because it shows that the presence of female members on the board is associated with increase in real earnings management activities when accrual-based earnings management is constrained in a litigation environment. This evidence adds to the growing empirical evidence on litigation environment as an external corporate governance mechanism.

The paper proceeds as follows. Section 2 presents the related literature and hypotheses; section 3 describes the sample selection and identification; and section 4 explains the descriptive statistics and discusses the empirical results, while section 5 presents sensitivity analysis and section 6 present results of corporate governance. Last section 7 provides conclusions.

2.0 Related literature and hypotheses development

2.1. Gender Diversity and Financial Reporting

The issue of whether female representation on firms' board has changed corporate behaviour and attributes continues to gain prominence because women representation in senior management positions continues to be relatively low (Francis et al 2015; Zalata et al. 2019). Abbott et al. (2012) observe that there are different theoretical underpinnings and motivations as to why women and men demonstrate distinct business behaviours. Therefore, researchers (Croson & Gneezy, 2009, Nekhili et al., 2022, Palvia et al. 2015, Zalata et al., 2019) trace the business behaviour of women and men to attributes relating to their ethical stands and risk preferences. Ho et al. (2015) and Francis et al. (2015) observe that ethical attributes are noted to be central for women leadership. Even though, there is no theoretical framework that can clarify why women are more ethically sensitive than men (Collins, 2000, Lee, 2022). The extant literature suggests that women are ethically sensitive than men (Guest, 2019, Ho et al. 2015, Ibrahim & Angelidis, 2009, Koese, 2022, Owhoso, 2002, Palvia et al. 2020, Lund, 2008, Simga-Mugan et al. 2005). For example, Lund (2008) posits that the ethical nature of women translates into a more ethical work culture and ethical leadership, which can promote quality of financial reporting and discourage earnings management.

Previous studies (Khlif & Achek, 2017, Sargent et al., 2022, Zalata et al. 2019, Xing et al. 2021,) show that in the U.S. and other developed countries, women's participation in the workplace has been influenced by the introduction of several gender-focussed equal opportunities laws, such as the 1963 Equal Pay Act of the U.S. Again, around the world and in the U.S., women continue to be overrepresented in low-paying jobs and underrepresented in high-level, highly paid positions and senior management positions (Francis et al. 2015; Ho et al., 2015; Srinidhi et al. 2011; Zalata et. al., 2019). Consequently, to increase women's presence on corporate boards, the North America (U.S. and Canada), the EU (France, Norway and Italy) and the UK have employed either "*soft*" or "*hard*" gender-based quotas for large corporate board memberships (Adams & Ferreira 2009; Srinidhi et al. 2011; Adams 2016).

A stream of research also examines the impact of gender diversity on risk aversion (Martin et al. 2009, Francis et al. 2015, Faccio et al. 2016, Zalata et al. 2019) and indicates

that women in senior management positions are more risk-averse than men in senior management positions. For instance, Faccio et al. (2016) find that male CEOs have less chance of survival, higher leverage, and more volatile earnings relative to firms with female CEOs. Again, Huang and Kisgen (2013) indicate that females in senior management positions are more cautious in making financial decisions and less likely to issue debt, suggesting that women in senior management positions tend to avoid making risky decisions. Recently, Zalata et al. (2019) examined the impact of the gender of CEOs on classification shifting and found that female CEOs are more risk-averse, but not necessarily ethically sensitive than their male counterparts in financial reporting decisions. However, Atkinson et al. (2003) observe no meaningful differences between women and men in senior management positions in terms of risk-taking.

We begin by considering the effect of gender diversity on financial reporting quality. There is extant literature that examines the impact of gender diversity on corporate fraud and wrongdoing (Sun et al. 2019; Zalata et al. 2018). These studies observe that female board members enhance earnings quality (Zalata et al., 2019), mitigate financial statements restatements (Abbott et al. 2012) and reduce the probability of corporate fraud (Cumming et al. 2015). Recent evidence indicates that lower earnings quality due to earnings management is beneficial to controlling shareholders (Purayil & Lukose, 2019). Relatedly, Ho et al. (2015) and Sun et al. (2019) show that gender diversity is associated with more conservative financial reporting and reduces fraudulent financial reporting. However, Owen and Temesvary (2018) find that the impact of board gender diversity on financial performance depends on the degree of board diversity and the effectiveness of firm management. Relatedly, Francis et al. (2015) find a positive relationship between accounting conservatism and an increase in more female presence on the board. Similarly, Gupta et al., (2020) observe a negative association between female members on the board and earnings management practices/financial statement irregularities. Recently, Yarram and Adapa (2023) find no evidence of board gender diversity impacting financial reporting and business performance. From the above, it is obvious that firms do not operate in a vacuum of social norms. Therefore, gender diversity could influence financial reporting quality, and on this we turn our attention. We argue that gender diversity strengthens the governance mechanism, reduces information asymmetry and mitigates agency problems. Therefore, given these findings and the evidence that women are more risk-averse and more inclined to accounting conservatism, a high gender diversity board could lead to high financial reporting quality. On balance, we argue that effective governance mechanism (gender diversity), as measured by the proportion

of female members on the board, would be associated with high financial reporting quality, and that this association should be stronger in high gender diversity boards. Consistent with this assertion, we hypothesize the following:

H1: Increased gender diversity improves financial reporting quality by reducing accrual-based and real activities earnings management practices.

2.2. Gender Diversity, Litigation Environment and Financial Reporting

Female representation on the board could affect the efficiency of the corporate board and may enhance the functioning of board committees as well as managerial behaviour (Adams, 2016; Adams & Ferreira, 2009, Gull et al., 2018, Owen & Temesvary, 2018, Zalata et al, 2022). Recent studies highlight the extent to which individuals' attitudes, perceptions, and views about the litigation environment vary with time and from person to person depending on their social class, educational backgrounds, race, ethnicity, gender, class, and political views (Young & Billings, 2023). The litigation environment plays a pivotal role in shaping the success of businesses and the quality of financial information disclosure around the globe (Chung & Wynn, 2008). A firm litigation environment requires attention because it influences business decisions, financial reporting, and where to conduct/expand/constrict business operations or sales. Khurana et al. (2006) observe that the U.S. litigation environment is cumbersome and characterised by high levels of litigation.

Therefore, resorting to lawsuits in a litigation environment could influence financial reporting. The litigation environment serves as an external governance mechanism against managerial misdeeds and wrongdoing (Habib et al., 2014, Huang et al., 2020). For example, Haung et al. (2020) observe that litigation deters real activities by constraining managers' ability to issue optimistic and misleading disclosures that can conceal the myopic and opportunistic motives underlying real activities manipulation. Therefore, the litigation environment should be able to curb illegal activities, resolve disputes and agency problems caused by information asymmetry between shareholders and managers (Adhikari et al., 2019). Prior studies observed that financial reporting quality could be compromised in a weak litigation environment, especially when the internal governance mechanism is also weak (Aharony et al., 2015; Huang et al., 2020). For example, Aharony et al. (2015) report that a weak litigation environment would give managers an incentive to manipulate earnings and

engage in fraudulent practices. As far as we are aware, the moderation role (or influence) of firms' litigation environment on the association between gender diversity and financial reporting quality has been scantily examined in the financial reporting literature. Therefore, we empirically explore this missing link in the literature to assess the extent to which the firms' litigation environment moderates the association between gender diversity and financial reporting quality.

Herein, we extend previous literature by examining the moderating role of the firms' litigation environment on the association between gender diversity and financial reporting quality. Our first proxy for financial reporting quality is accruals-based earnings management. The Sarbanes-Oxley Act (2002) made accruals earnings management costly and risky for directors, with potentially large personal financial penalties and lengthy prison terms (Zalata et al, 2019; Zang, 2012). Firms value reputation (Kim et al. 2012) and female members on the board would subdue illegality and anything that would harm the reputation of the firm (Francis et al 2015, Ho et al. 2015, Zalata et al., 2018). Again, Srinidhi et al., (2011) indicate that female members are sensitive to reputational loss and litigation risk. However, we do not know the extent to which the litigation environment will strengthen gender diversity to mitigate accruals manipulation.

To the extent that female members on the board are sensitive to reputational loss, risk-averse and might have the desire to protect firms' reputation from socially unacceptable activities, we conjecture that the litigation environment might moderate female members on the board to improve financial reporting quality and maintain firms' reputation. The litigation environment as an external governance mechanism and could strengthen female members on the board which is an internal governance mechanism. We postulate that the link between gender diversity and the litigation environment could provide a direct monitoring channel to negatively affect accrual-based earnings management and improve financial reporting quality. Therefore, we control for firms' reputation and test whether the firms' litigation environment can increase or decrease the potential effects that female members on the board have on financial reporting quality. We posit that the moderating role of litigation environment on the association between gender diversity and financial reporting quality could be negative or positive. Evidence is yet to be reported. To this end, we test for the following hypothesis:

H2: The firm's litigation environment would amplify the moderating impact of gender diversity on accrual-based earnings management.

Our second proxy for financial reporting quality is real activities manipulation. The expectation is that given the negative relationship in Hypothesis 1, female board members would shift to real activities earnings management in a litigation environment. Prior research indicates that when firms are restricted from engaging in accruals-based earnings management, they shift to real activities (Järvinen & Myllymäki, 2016; Owusu et al., 2020). In a litigation environment, we argue that female members on the board would resort to real activities manipulation to meet short-term earnings targets because real activities earnings manipulation is not fraudulent, has less detection cost, less litigation risk and limited scrutiny from external auditors and regulators. Kim et al (2012) observe that female members on the board are sensitive to their reputation and work to maintain firms' reputation. Therefore, we control for firms' reputation and conjecture that female members on the board would increase real activities earnings management in a litigation environment to improve financial reporting quality. The following hypothesis is therefore presented for testing:

H3: The firm's litigation environment would amplify the moderating impact of gender diversity on real activities manipulation.

3. Data and Methodology

3.1 Sample Selection

Firm-specific financial data come from Compustat. To this end, we collect financial data from firms in the U.S. on the Compustat database between 2002 and 2018 which are identified as having the required datasets. Most of the data for the sample firms to estimate discretionary accruals and real activities earnings management measures were available from 2002. Therefore, the study limited all analysis from 2002 to 2018. There are differences in financial reporting requirements between financial and non-financial sectors, we exclude financial firms from our sample in line with prior studies. Firms with missing data and those with fewer than eight firm-year observations are excluded in line with prior studies (Cohen and Zarowin, 2010; Francis and Yu, 2009). Also, we exclude firms with missing financial data required to run our expectation models and calculate other control variables. In addition, to avoid bias resulting from the inclusion of insignificant firms in the sample, we exclude any firm-year observation with revenue of less than \$1,000,000 (Ball and Shivakumar, 2008).

After obtaining the measure of discretionary accruals and real activities, we merge our financial data with the gender diversity data obtained from BoardEx database and litigation environment data obtained from state-level datasets by the Lawsuit Climate Survey. Thereafter, we exclude firms with missing gender diversity data and all firms which do not have data for the full sample period. Our sample includes all the necessary variables and comprises of 1,416 numbers of firms and 8,231 firm-year observations. The final sample with adequate observations is used to estimate discretionary accruals and real activities earnings management measures.

3.2 Measuring Gender Diversity

In relation to gender diversity measure, we employ data from BoardEx. We do so to employ the widely used Blau Index (Blau, 1977; Bear et al., 2010) of gender diversity, defined as follows:

$$\text{GEN} = [1 - \sum_{g=1}^G P_g^2], \quad (1)$$

where P counts for the proportion of women and men on firm's boards, while g is an index for man or a woman (see Table 1). This simple measure of gender diversity would be equal to 0.5 if there is gender equality on boards. Values that are less than 0.5 would imply deviations from gender equality. Similar measures of gender diversity have recently been employed by Owen and Temesvary (2018; 2019) and Zalata et al. (2019).

There are certain advantages of using the above gender diversity index. Most importantly, these terms encompass two dimensions: gender and diversity. The gender dimension could be measured by, for example, the participation of females on the management team. However, the degree of diversity on the board would have been missed in this case. Of course, gender is a key dimension of economic and social research alike and has been particularly studied in terms of labour market compensation (Owen and Temesvary 2018; 2019). The gender diversity index, on the other hand, offers a non-linear approach which encompasses underlying gender procedures, and it is not just relying on counting, for example, how many CEOs are female within a market. In addition, it is worth noting that counting number of females on the board would further restrict the sample size. For those reasons, in the study, we employ the gender diversity index approach. Also, note that gender diversity is addressing possible concerns of endogeneity due to its sophistication and non-linearity structure.

3.3 Measuring Litigation Environment

To measure the firms' litigation environment, we use state-level datasets from the Lawsuit Climate Survey conducted for the U.S. Chamber Institute for Legal Reform by the Harris Poll between 2002 and 2018. The Lawsuit Climate Survey datasets measure the perceived effectiveness of the litigation environment or state-level legal system. The aim is to determine how firms perceive the litigation environment and how litigation affects important business decisions and financial reporting.¹ These perceptions matter because they affect financial reporting and can be influential in business decisions about where to conduct/expand/constrict business operations or sales. There is a possibility of litigation risk arising from overall treatment of tort and contract litigation, enforcing meaningful requirements, treatment of class action suits as well as mass consolidation suits.

We matched the state-level litigation index scores to their respective U.S. states where firms are headquartered, by merging them year by year using the state code identifiers from Compustat company location code where firms were headquartered to derive the state-level litigation dataset. Admittedly, courts and localities within states vary in fairness and reasonableness; notwithstanding, respondents were asked to examine the state. Indeed, the results of sample surveys are often associated with sampling variation or error. The limitation of this survey is the fact that respondents were not asked extensive questions about each state. Again, survey studies are susceptible to errors such as refusal to be interviewed, question wording and order, interviewer error, and weighting by demographic control data (Moore et al., 2021). Therefore, it is probable that some states received low grades because of sampling errors, or because of the bad reputation of one or more of their counties or jurisdictions. Notwithstanding, the procedures followed by the Harris Poll ensured that errors were kept to a minimum.

¹ The respondents in each state were tasked to grade (A through to F) several key elements. These are; having and enforcing meaningful venue requirements; overall treatment of tort and contract litigation; treatment of class action and mass consolidation suits; damages; timeliness of summary judgement or dismissal; discovery, scientific and technical evidence; judges' and juries' impartiality and competence.

3.4 Measuring Financial Reporting Quality

We use two proxies for financial reporting quality. To measure our first proxy for financial reporting quality, we employ the modified Jones model to estimate discretionary accruals, as in previous studies (Gerakos & Kovrijnykh, 2013; Cohen and Zarowin, 2010; Dechow et al., 2012; Defond and Jiambalvo, 1994). First, the model allows researchers to decompose discretionary accruals from non-discretionary accruals by adjusting change in sales for the change in receivables. We estimate the model for each firm year and industry, classified by its two-digit SIC code. This procedure partially enables us to regulate the changes in economic conditions that affect industries and total accruals so that the coefficients differ across time. where $TAC_{it} = EBXI-CASFO$; EBXI is the earnings before extraordinary items and discontinued operations; CASFO is the cash flow from operational activities scaled by TA_{it-1} , (lagged total assets). $\Delta SALES_{it}$ (change in sales) is scaled by TA_{it-1} and ΔREC_{it} is the change in accounts receivables. PPE_{it} is the net property, plant, and equipment, scaled by TA_{it-1} , whilst ε_{it} is the residual representing the measure of earnings management.² We estimate abnormal accruals (ABNOR_ACC) in model 3 as follows:

$$ABNOR_ACC_{it} = \frac{TAC_{it}}{TA_{it-1}} - \left[\widehat{\beta}_0 + \widehat{\beta}_1 \left(\frac{\Delta SALES_{it} - \Delta REC_{it}}{TA_{it-1}} \right) + \widehat{\beta}_2 \left(\frac{PPE_{it}}{TA_{it-1}} \right) \right] \quad (2)$$

where $\widehat{\beta}_0, \widehat{\beta}_1, \widehat{\beta}_2$ are the estimated coefficients from Jones model equation, while $\Delta SALES_{it}$ is change in sales) is scaled by TA_{it-1} (total assets) and ΔREC_{it} is the change in accounts receivables. PPE_{it} is the net property, plant and equipment, scaled by TA_{it-1} ,

As measurement issues have been attracting criticism, we also estimate abnormal discretionary accruals using alternative definition of accruals in the robustness test. Moreover, we replace total accruals with working capital accruals (WC_ACRUALS), defined as income before extraordinary items, plus depreciation and amortisation, minus cash flows from operating activities (Dechow et al., 2012). The revised modified Jones model is, thus, as follows:

² In line with previous studies (Kothari et al., 2005), assets are used as a deflator to mitigate heteroskedasticity in residuals, but not to eliminate it, and a constant in the model estimation is also included in order (i) to manage heteroskedasticity not dealt with by using assets as a deflator, and (ii) to minimise the effect of omitted variables.

$$(WC_ACCRUALS) = \beta_0 + \beta_1 \left(\frac{\Delta SALES_{it} - \Delta REC_{it}}{TA_{it-1}} \right) + \beta_2 \left(\frac{PPE_{it}}{TA_{it-1}} \right) + \varepsilon_{it} \quad (3)$$

where $WC_ACCRUALS_{it} = IB + DP - OANCF$; IB is the earnings before extraordinary items; DP are depreciation and amortisation; and OANCF is cash flow from operational activities. Also, in line with previous studies (Kothari et al., 2005; Dechow et al. 2012).

The second proxy for financial reporting quality is real activities earnings management. We employ two measures as proxies for real activities earnings management. The first proxy for real activities management is REALMGMT1 and the second proxy is REALMGMT2. Initially, we compute the abnormal cash flows (ABNOR_CASH), abnormal discretionary expenses (ABNOR_DEXP) and abnormal production costs (ABNOR_PCOST) for each firm and industry classified by its two-digit SIC code (see also Dechow et al. 1996). Abnormal cash flows (ABNOR_CASH) is computed as the deviations from the predicted values from the industry-year regression. We run the following panel model for each industry and year:

$$\frac{CASFO_{it}}{TA_{it-1}} = \beta_0 + \beta_1 \left(\frac{SALES_{it}}{TA_{it-1}} \right) + \beta_2 \left(\frac{\Delta SALES_{it}}{TA_{it-1}} \right) + \varepsilon_{it} \quad (4)$$

where CASFO is the cash flow from operational activities. $SALES_{it}$ represents annual sales revenue and TA total assets is the aggregate of both non-current and current assets, whilst $\Delta SALES_{it}$ is change in sales. The figure for (ABNOR_CASH) is multiplied by negative one (-1), in line with previous studies (Zang, 2012; Roychowdhury, 2006). Second, we estimate abnormal production costs (ABNOR_PCOST) as deviations from predicted values from the industry-year regression. We follow Cohen and Zarowin (2010) to estimate abnormal production costs using the following regression model:

$$\frac{PCOST_{it}}{TA_{it-1}} = \beta_0 + \beta_1 \left(\frac{SALES_{it-1}}{TA_{it-1}} \right) + \beta_2 \left(\frac{\Delta SALES_{it}}{TA_{it-1}} \right) + \left(\frac{\Delta SALES_{it-1}}{TA_{it-1}} \right) + \varepsilon_{it} \quad (5)$$

where PCOST is the aggregate of cost of sales and change in inventory during the year. Third, we model discretionary expenses as a function of lagged sales to avoid the problem of significantly lower residuals from running regression using current sales. Subsequently, abnormal discretionary expenses (ABNOR_DEXP) are computed from the predicted values from the industry-year regression. We follow Cohen and Zarowin (2010) and Roychowdhury (2006) to estimate the abnormal discretionary expenses using the following regression model:

$$\frac{D_EXP_{it}}{TA_{it-1}} = \beta_0 + \beta_1 \left(\frac{SALES_{it-1}}{TA_{it-1}} \right) + \varepsilon_{it} \quad (6)$$

where D_EXP is the sum of advertising expenses, research and development (R& D) expenses and selling, general and administration expenses.³ Sales equal annual sales revenue and assets (TA) is the aggregate of both non-current and current assets. Also, consistent with previous studies, the figure for (ABNOR_DEXP) is multiplied by negative one (-1). As noted by Cohen and Zarowin (2010), firms that manipulate earnings upwards are characterised by unusually low cash flows from operations, low discretionary expenses, and high production costs.

To estimate our proxy, real activities earnings management (REALMGMT1), we multiply abnormal discretionary expenses (ABNOR_DEXP) by negative one (-1) and the results added to abnormal production costs (ABNOR_PCOST). The higher the REALMGMT1, the stronger the evidence that the firm is cutting expenses. A higher REALMGMT1 is an indication that firms might engage in driving earnings upwards.

Again, we multiply both abnormal cash flows (ABNOR_CASH) and abnormal discretionary expenses (ABNOR_DEXP) by negative one (-1) before computing the aggregate of their residuals to obtain REALMGMT2. This measure is multiplied by negative one (-1) to assess the extent of manipulation in sales and discretionary expenses. The higher the REALMGMT2, the more likely the firm is engaged in managing earnings upwards. Cohen and Zarowin (2010) indicate that the individual variables have varying impacts and therefore can change or provide misleading results when aggregated. In the robustness test, we examine and report on both aggregated measures and individual proxies for real activities to assess the moderating effect of gender diversity and litigation environment on real activities.

3.5 Panel Regression Analysis

We employ a panel data analysis to examine the moderating role (or influence) on the association between gender diversity (GEN thereafter) and financial reporting quality (real activities and accruals-based earnings management). The panel models take the form:

³ Following previous studies (Zang, 2012; Cohen and Zarowin, 2010), where selling and general expenses are available, but advertising and R&D expenses are not available, the value of zero is given.

$$EARNSMGMT = \beta_0 + \beta_1 GEN + \beta_2 BODSIZE + \beta_3 BODIND + \beta_4 AUCOM + \beta_5 SIZE + \beta_6 ANALYST_FOL + \beta_7 ROA + \beta_8 LEV + \beta_9 BIG4 + \beta_{10} BMV + \beta_{11} LOSS + \beta_{12} OP_RISK + \beta_{13} RURAL + \beta_{14} BENCHMARK + \beta_{15} TENURE + \beta_{16} RCHANGE_GDP + \beta_{17} INVESTMENT + \beta_{18} NOA + \beta_{19} POPN + \beta_{20} INCOME + \beta_{21} EDUC + \beta_{22} ADMIREDD + \beta_{23} IndustryIndicators + \varepsilon \quad (7)$$

$$EARNSMGMT = \beta_0 + \beta_1 GEN + \beta_2 LEGAL + \beta_3 GEN \times LEGAL + \beta_4 BODSIZE + \beta_5 BODIND + \beta_6 AUCOM + \beta_7 SIZE + \beta_8 ANALYST_FOL + \beta_9 ROA + \beta_{10} LEV + \beta_{11} BIG4 + \beta_{12} BMV + \beta_{13} LOSS + \beta_{14} OP_RISK + \beta_{15} RURAL + \beta_{16} BENCHMARK + \beta_{17} TENURE + \beta_{18} RCHANGE_GDP + \beta_{19} INVESTMENT + \beta_{20} NOA + \beta_{21} POPN + \beta_{22} INCOME + \beta_{23} EDUC + \beta_{24} ADMIREDD + \beta_{25} IndustryIndicators + \varepsilon \quad (8)$$

Please note that we drop *it* subscripts for simplicity, though the above is a panel model. *EARNSMGMT* is used to proxy for financial reporting quality (accrual-based or real activities earnings management). To test our hypotheses, we examine the coefficient of the gender diversity, litigation environment and interactive term between gender diversity and litigation environment (*GEN*, *LEGAL* and *GEN* × *LEGAL*). Note that to test the moderating effect, the interaction term must be examined together with the coefficient of the independent variable and the result will be $\beta_1 + \beta_3$. As a first stage, we provide panel estimation results of the direct impact of gender diversity on financial reporting quality. The dependent variables denote different measures of our proxies for financial reporting quality practised by firm managers.

In addition to the variable of interest, additional firm-level and county-level demographic control variables are included. In particular, we control for the presence of the Big4 auditors (*BIG4*), Board size (*BODSIZE*), board independence (*BODIND*), audit committee (*AUCOM*), analyst following (*ANALYST_FOL*), auditor tenure (*TENURE*) and growth opportunities. For example, Xie et al., (2003) observe that board size is negatively related to earnings management. However, Rahman and Ali (2006) find a positive relationship between the board size and earnings management. Beasley (1996) and Klein (2002) indicate that board independence (*BODIND*) reduces earnings management. Audit committee is also noted to decrease the level of earnings management (Cohen and Zarowin, 2010). We also control for firms located in rural areas (*RURAL*) because Urcan, (2007) observes that higher earnings quality is associated with firms located in rural areas. Using the percentage change in gross domestic product (*CHANGE_GDP*) as a proxy for changes in economic activities, we control for differences in economic activities between years, as changes in economic conditions can impact on the real activities of firms (Cohen and Zarowin, 2010).

We include return on assets (ROA) to control for performance (Kothari et al., 2005; Mamatzakis et al. 2015). In line with Kim et al. (2012), we control for reputation as firms value their reputation and would protect its managers from engaging in socially unacceptable activities. We include (ADMIRE) as a proxy for firms' reputation. We include firm size (SIZE) to control for the variations in accruals behaviour between large and small firms. Ashbaugh et al. (2003) indicate that small firms are more likely to engage in earnings management than large firms. We control for leverage (LEV), estimated as the ratio of long-term debt to total assets, as earlier studies indicate that manipulating earnings upwards allows firms to meet debts covenants (Zang, 2012; Badertscher, 2011). Furthermore, we control for firms reporting operational loss (LOSS) in the current year or previous two years because Francis and Yu (2009) observe that there is a positive relationship between earnings management and prior year losses, but a negative one between firms reporting profits in the previous years and earnings management. [Appendix A provides the variable definition.](#)

4. Multivariate Analysis and Discussion

4.1 Descriptive statistics

[Table 1](#) shows the measure of gender diversity and would be equal to 0.5 if there is gender equality on boards. Values that are less than 0.5 would imply deviations from gender equality. Similar measures of gender diversity have been recently employed by Owen and Temesvary (2018; 2019) and Zalata et al. (2019). [Table 1](#) also provides descriptive statistics for the dependent variables which are proxies for accrual (ABNOR_ACC) and real-activities earnings management (REALMGMT1 and REALMGMT2 respectively) as in Omer et al., (2015). The mean and median of ABNOR_ACC, REALMGMT1 and REALMGMT2 are approximately equal to zero, in line with earlier studies (Cohen and Zarowin, 2010; Roychowdhury, 2006). In addition, the demographic control variables are also in line with previous studies (Zang, 2012; McGuire et al., 2012). For example, the average age is approximately 40 years and 85% of the population has college education. In addition, the average minority population is roughly 31%. To resolve issues with scale effects, we take the natural log of each county's income and population in line with previous studies (McGuire et al., 2012). The original data shows that on average each county has a population of 3.8 million and an average household income is \$91,800 per year.

(INSERT TABLE 1)

[Table 1](#) presents the univariate statistics for the firm-level control variables (*SIZE*, *ANALYST_FOL*, *ROA*, *LEV*, *BIG4*, *MBV*, *LOSS*, *OP_RISK*, *RURAL*, *BENCHMARK*, *TENURE*, *CHANGE_GDP*, *INVESTMENT*, *NOA*, *ADMIRE*). The univariate results are similar to distributions in previous research (Zalata et al. 2019; Kim et al. 2012; Callen et al., 2011). Approximately, 68% of the Big 4 auditors examine the financial records of the firms, 13% of the firms in our sample are listed in the Fortune’s “America’s Most Admired Companies” and 4.1% of the firms reported a loss in the previous two years or the current financial year. In addition, an average of approximately three analysts follows the firms, and 2.8% of the firm-year observations are from rural counties. The results for the control variables are generally consistent with the findings of previous research.

[Appendix B](#) presents the twenty highest and lowest litigation scores in the U.S. for the same study period. In addition, for robustness we use the state-level litigation index scores for the twenty highest and lowest litigation environments compiled by the Harris Poll between 2002 and 2018 for the U.S. Chamber Institute for Legal Reform. Based on the ten criteria, Delaware emerged as the state with the strongest litigation environment, whilst West Virginia was the state with the weakest environment across the ten measures of state liability systems in the U.S. The scores range from as high as 76 to as low as 36 index scores of the state liability system.

The firm-level control variables are associated with *ABNOR_ACC*, *REALMGMT1* and *REALMGMT2*. For example, *SIZE* is negatively correlated with *GEN* and demonstrates the risk appetite of firm managers who work in highly gender diversity firm. In addition, *SIZE*, *ROA* and *BIG4* are negatively and significantly correlated with *ABNOR_ACC*. This indicates that large firms which are audited by *BIG4* with high *ROA* are less likely to manage earnings through accruals management. The negative/positive correlations coefficients range from significant to less significant to insignificant.

We conduct further tests to ensure that there are no multi-collinearity problems among the independent variables. We follow Greene (2012) and compute the variance inflation factor (VIF). We observe that the VIF values are all less than 10, consistent with prior studies (Greene, 2012; Kennedy, 2008; Mamatzakis & Remoundos, 2011), suggesting that there are non-multicollinearity problems. [Appendix C](#) provides the correlation coefficients and supports the validity of the model and the multivariate regression results will further confirm

the relationship. The multivariate analysis will help explain the extent of the relationships and highlight the importance of including these control variables. There is a negative correlation between gender diversity (GEN) and accrual-based earnings management (ABNOR_ACC), but a positive one between gender diversity (GEN) and the proxies for real earnings management (REALMGMT1 and REALMGMT2). We also find a negative correlation between litigation environment (LEGAL) and accrual-based earnings management. For ethical and moral reasons, female members on the board might frown on the manipulation of accounting information to improve financial reporting quality. Therefore, a negative correlation between gender diversity and accrual earnings management is expected. Again, because of litigation threat and possible loss of reputation, a negative correlation between firms' litigation environment and accruals earnings management is expected.

4.2. Impact of Gender Diversity on Financial Reporting Quality

In addition to investigating whether firms' litigation environment moderates the effect of gender diversity on financial reporting quality, we use the current sample to confirm the findings of extant literature regarding the impact of gender diversity on our proxies for financial reporting quality (real activities and accruals earnings management). Therefore, we run three alternative regressions with two proxies for real activities manipulations (REALMGMT1 and results for REALMGMT2) and one measure for accruals earnings management ((ABNOR_ACC).

First, we test hypothesis 1. Table 1a shows the regression results of the relationship between gender diversity (GEN) and our proxies for financial reporting quality. These results are reported in columns (1) to (3). The estimated coefficient on GEN, as presented in Table 1a under column 1, is negative and significant at 10%, thus supporting the proposition that firms with female members on the board are more likely to decrease accruals earnings management to report higher financial reporting quality. This result is consistent with Gull et al. (2018) and Zalata et al. (2019) and indicates that female board members are sensitive to reputational loss and are risk-averse, especially when they perceive a potential litigation risk. Interestingly, as reported under columns 2 and 3 of the Table 1a, while the coefficient of GEN is negative and significant at 10% for ABNOR_ACC, there is 5% or 10% positive and significant relationship between GEN and our proxies for real activities manipulation (REALMGMT1 and REALMGMT2) respectively. This result suggests that firms with

female members on the board are associated with lower accruals earnings management but higher real activities manipulations, confirming that female members on the board are risk averse but not necessarily ethically sensitive (Zalata et al., 2019). Taken together, the results presented in Table 1a demonstrate that female members on the board play a critical role in mitigating accruals earnings management to improve financial reporting quality. Particularly, these results provide considerable evidence suggesting that female members are associated with smaller discretionary accruals but higher real activities manipulations, thereby implying that female members on the board mitigate financial reporting opportunism in their firms.

(INSERT TABLE 1a HERE)

4.3. Moderating role of Litigation Environment on Gender Diversity and Accruals Earnings Management

Second, we test hypothesis 2 to examine the moderating role of litigation environment (*LEGAL*) on the association between gender diversity (*GEN*) and accruals earnings management (*ABNOR_ACC*). Table 2 reports the results of the interactive term, (*GEN* × *LEGAL*) on *ABNOR_ACC* and indicate a significant negative coefficient, suggesting that female board members are induced by firms' litigation environment to decrease accruals earnings management to improve financial reporting quality. Again, the relationship between *GEN* × *LEGAL* and *ABNOR_ACC* is significant and negative, suggesting that female board members appear to avoid fraudulent and illegal accruals manipulation, especially, to protect firms' reputation and improve financial reporting quality in an environment where there is a potential threat of litigation. The negative coefficients on the interaction term (*GEN* × *LEGAL*) on *ABNOR_ACC*) incrementally reduces accruals earnings management. It is the first time that the moderating role of firms' litigation environment on gender diversity is tested, and this impact is revealed. The negative sign on *GEN* × *LEGAL* demonstrates that firms' litigation environment has a moderating impact on female board members behaviour towards accruals earnings management.

(INSERT TABLE 2 HERE)

This implies that firms' litigation environment improves firms' reputation and quality of financial reporting in relation to accruals manipulation. The findings have implications for

regulators, policymakers, board of directors, auditors, and investors or potential investors who are interested in firms' reputation and the quality of financial reporting. For example, our findings have implications for regulators to strengthen the law and improve the firms' litigation environment to boost investor confidence, maintain or build firms' reputation and quality of financial reporting. Similarly, for board of directors, investors, potential investors and auditors, our findings suggest that they should not only consider gender diversity, but also the firms' litigation environment as factors that can improve firms' reputation or influence, induce, or mitigate the quality of financial reporting.

Consistent with Hypothesis 2, the results indicate that firms' litigation environment complements gender diversity to decrease accruals earnings management, suggesting that female members on the board avoid illegal accruals earnings management to improve financial reporting quality and maintain firms' reputation. This is consistent with Zalata et al. (2019), who find that female CEOs are risk averse but not necessarily ethical. The negative impact on accruals earnings management is much more pronounced in a litigation environment as female members on the board move away from detectable accruals earnings management. This partly could be attributed to the fear of external scrutiny, auditor vigilance and litigation risk. Overall, we find that the negative effect on accruals management is pronounced, financial reporting quality is improved, and firms' reputation is maintained when firms' litigation environment moderates gender diversity.

4.4. Moderating role of Litigation Environment on Gender Diversity and Real Activities Earnings Management

Moving to the third step, we test hypothesis 3 to examine the moderating role of firms' litigation environment (*LEGAL*) on the association between gender diversity (*GEN*) and *REALMGMT1*, which is our first proxy for real activities earnings management. Initially, we include *GEN* and *GEN*×*LEGAL* separately in the model. Thereafter, we include both *GEN* and *GEN*×*LEGAL*. We follow the same steps to establish the moderating role of *LEGAL* on the association between *GEN* and *REALMGMT2*, which is the second proxy of real-activities earnings management. We exclude insignificant predictors with high p-values from the model (*POLITICAL*, P-value = 0.986; *TENURE*, P-value = 0.911; *POPN*, P-value = 0.602). Table 3 reports the results for *REALMGMT1* in columns 1 and 2 and results for *REALMGMT2* are reported in columns 3 and 4. The results in Table 3 show that the moderating role of firms litigation environment on the association between gender diversity

and our proxies for real activities earnings management is significantly positive, suggesting that female members on the board would shift from accruals earnings management to real activities when they are restrained by the firms' litigation environment. The results further suggest that in a litigation environment firms' might inflate their earnings using normal business decisions (real earnings manipulations), such as offering excessive price discount or lenient credits, over production or cutting their discretionary expenses, such as R&D.

The results support risk aversion theory and are consistent with Cohen and Zarowin (2010) who observe that the post-SOX era is characterized by high real activities earnings management. Overall, our results in Table 3 show that the interplay between GEN and LEGAL has positive impact on real earnings management activities indicating that real activities are not subject to regulators and external auditors' scrutiny. Again, real activities are real business decisions and constitute a significant part of monotonous business decisions. Therefore, it's difficult to distinguish real activities from normal business decisions.

In a nutshell, the results suggest that to build or maintain firms' reputation, female members on the board would engage in very costly real activities earnings management even if real activities would decrease shareholder value in the long-term and firms' future competitiveness. In the previous section, we report that litigation environment moderates gender diversity to decrease accruals earnings management. Herein, we document new evidence to show that there is no one size those fits all as gender diversity appears to increase costly and harder to detect real activities earnings management in a litigation environment. To the extent that we control for the potential effects of reputation and financial performance, our findings suggest that ethical concerns are likely to drive female members on the board to produce high-quality financial reports (Kim et al., 2012; Mamatzakis et al. 2015).

(INSERT TABLE 3 HERE)

We provide new evidence and contribute to the extant literature that firms' litigation environment moderates gender diversity to increase real activities manipulation. Prior research indicates that an increase in real activities leads to a decrease in long-term shareholder value and firms' future competitiveness (Sun et al. 2019; Järvinen, & Myllymäki, 2016; Mamatzakis & Remoundos, 2011). Therefore, our main contribution is that gender diversity and litigation environment increase real activities which could affect long-term shareholder value and firms' future competitiveness. This is because when female members

are restrained from engaging in accruals earnings management, they shift to shareholder value-destroying and costly real activities to build short-term reputation and firm performance.

5. ROBUSTNESS ANALYSIS

5.1. Treating for endogeneity, 2SLS

It is worth noting that if our variable for female board members and financial reporting quality are endogenously generated, then the results presented under the main analysis may be biased toward self-selection, and any inference made from our model may be erroneous (Larcker and Rusticus, 2010). Therefore, some of the aforementioned regression results may have an underlying endogeneity problem. In fact, endogeneity issues may provide a significant challenge to determining how gender diversity affects the quality of financial reporting. Furthermore, though it may not be as likely, it is possible that practices in earnings management contribute to gender diversity. Moreover, to further bolster the findings against potential endogeneity issues, a two-stage least squares regression is employed. Relevant instrumental variables that could have an impact on our primary independent variable (GEN) are used. As it is a frequent assumption to think that the gender diversity of the previous year may determine the gender diversity of today, in the first stage we estimate the gender diversity index by including the lagged values of the gender diversity on the left-hand side. Table 4 presents the findings of the 2SLS study. The first-stage regression shows a strong relationship between our instruments and GEN, as predicted. Furthermore, the F-Test of the omitted instruments is 14.59 and the F-statistic value is greater than the suggested value of 10.

In the second stage, the fitted values of *gender diversity* from the first stage are used in the equation 9 below. The second stage equation is as follows:

$$EARNSMGMT = \beta_0 + \beta_1 \widehat{GEN} + \beta_2 LEGAL + \beta_3 GEN \times LEGAL + \beta_4 \Sigma Z + \varepsilon \quad (9)$$

where $\widehat{GEN}_{i,t}$ is the fitted values from the first stage and we also consider control variables, Z that have been explained in equation (8), as well as time, industry, and country fixed effects. Note at the outset that the 2SLS uses robust standard errors and Sargan test of over-identified restrictions appears to be valid.

(INSERT TABLE 4 HERE)

Results are in line with panel regression results in Table 3, confirming that the firm's gender diversity moderates financial reporting quality. In detail, the coefficient of GEN is negative and significant at 5% across all specifications, suggesting that firms with female members on the board are more likely to have higher financial reporting quality.

5.2 Alternative Measures of Real Activities

In this section, we examine different measures of real earnings management activities, in line with previous studies (Kothari et al., 2016; Cohen and Zarowin, 2010). Specifically, abnormal production costs (ABNOR_PCOST), abnormal discretionary expenses (ABNOR_DEXP) and abnormal cash flows (ABNOR_CASFO) are used as dependent variables and proxies for real activities earnings management. Cohen and Zarowin (2010) observe that aggregating these three individual variables to compute REALMGMT1 and REALMGMT2 might influence earnings and weaken the results.

(INSERT TABLE 5 HERE)

Table 5 provides the results for the aggregated and individual measures of real activities earnings management. Columns 4 to 6 show the impact of litigation environment on quality of financial reporting using three proxies and also whether it would amplify the moderation impact of gender diversity. The amplifying role of legal environment is captured by GEN x LEGAL and the three proxies of real activities manipulation are: abnormal production costs (ABNOR_PCOST), abnormal discretionary expenses (ABNOR_DEXP) and abnormal cash flows (ABNOR_CASH). In addition, columns 2 and 3 report the results of aggregated measures (REALMGMT1 and REALMGMT2). Interestingly, we find evidence of a significant ($P \leq 0.003$) positive association between $GEN \times LEGAL$ and the three individual measures of real earnings management activities. These results are consistent with our baseline results and suggest that female board members in a litigation environment would engage in real activities to maintain or build firms reputation because real activities are not fraudulent. Our inferences remain the same confirming that female board members would move away from detectable accruals earnings management to engage in costlier and difficult to detect real activities, even if real activities manipulations could affect long-term cashflows, shareholder value and firms' future competitiveness. Our results support prior studies (Zalata et al. 2018; Sun et al. 2019) and indicate that the moderating role of firms' litigation

environment on the association between gender diversity and real activities could have implications for shareholder value in the long-term and affect firms' future competitiveness as real activities increase.

5.3. Alternative Measures of Discretionary Accruals

We conduct further robustness analysis and estimate discretionary abnormal accruals using the working capital accruals as defined in model (3). To compute abnormal discretionary accruals, we revise the modified Jones model and replace total accruals (TAC) by working capital accruals (WC_ACRUALS), defined as earnings before extraordinary items plus depreciation and amortisation minus cash flows from operating activities (Dechow et al., 2012). Consistent with previous research (Dechow et al., 2012; Zang 2012), we use the modified Jones model to compute discretionary accruals using working capital accruals for each firm year observation and two digits SIC code and industry. Initially, we include only GEN, followed by only LEGAL. We report a significant negative relationship between GEN and ABNOR_ACC or LEGAL and ABNOR_ACC respectively. We also include the interaction term between GEN and LEGAL. Results show that a significant negative relationship is observed between GEN x LEGAL and ABNOR_ACC.

(INSERT TABLE 6 HERE)

Results in Table 6 indicate that the relationship between GEN, LEGAL, GEN x LEGAL and ABNOR_ACC is negative and significant ($p < 0.001$), supporting the earlier findings that LEGAL complements GEN to subdue ABNOR_ACC. Previous studies (Dechow et al., 2012; Kothari et al., 2005) observe that the inclusion of past ROA eliminates misspecification. In both models with lagged ROA, we observe that the relationship between ABNOR_ACC and GEN, GEN x LEGAL is significantly negative ($p < 0.01$). The inferences remain the same. To the extent that our results hold after controlling for firms' reputation indicates that female board members avoid accruals manipulation to improve financial reporting quality and maintain firms' reputation.

5.4. High vs Low Gender Diversity Firms

We attempt further robustness analysis to test for differences in high vs. low gender diversity firms. We have two samples, comprising of high and low gender diversity firms. Firms with above the median gender diversity Blau index of 0.386 are defined in the sample

as having high gender diversity, and those below this figure are defined as low gender diversity areas. Thereafter, we interact *LEGAL* with high and low *GEN* samples. We would expect areas with high gender diversity scores to have a more significant influence on earnings management than areas with low gender diversity figures. Table 7 presents the results of the analysis of the impact of the interactive term *GEN* × *LEGAL* on earnings management.

(INSERT TABLE 7 HERE)

A significant negative association is observed between *GEN* × *LEGAL* and *ABNOR_ACC* in both high, low gender diversity samples. The impact of *GEN* × *LEGAL* on *REALMGMT1* and *REALMGMT2* is still positive and significant in both high/low samples. Results reinforce earlier findings that the effect of gender diversity on earnings management practices is pronounced in high gender diversity environment. Our inferences remain the same. Our findings support prior studies (Francis et al. 2015; Zalata et al. 2019) that female board members are risk averse. We show that female board members are motivated to increase costly, difficult to detect and value-destroying real activities earnings management in a litigation environment even though real activities could affect long-term cashflows and firms' future competitiveness.

5.5. Other Board Characteristics and Gender Diversity

While our analysis suggests that litigation environment moderates female members on the board to amplify financial reporting quality, we have so far ignored the fact that there are other board characteristics that could influence financial reporting quality in the presence of litigation environment. In particular, we focus on board characteristics such as; board size, independent directors and audit committees. We examine the impact of gender diversity and litigation environment on financial reporting quality in the presence of other board characteristics. We include the board size (*BODSIZE*), number of independent directors (*BODIND*) and audit committees (*AUCOM*) in model 8. In addition, we relate and interact governance variables with gender diversity (*GEN* × *BODSIZE*; *GEN* × *BODIND*; *GEN* × *AUCOM*). The results are presented in Table 8.

(INSERT TABLE HERE 8)

We observe a negative relationship at 5% or 10% significant level between *BODSIZE*, *BODIND* and *ABNOR_ACC*. We repeat the same process for all the interactive terms. Finally, we include all the variables in the model. We observe a negative and significant relationship

(at 1% significance level) between $GEN \times BODSIZE$, $GEN \times BODIND$, $GEN \times AUCOM$ and $ABNOR_ACC$, suggesting that the monitoring role of corporate governance is strengthened in the presence of gender diversity to mitigate accruals manipulations. This finding is consistent with previous studies (Zalata & Robert, 2016). Similarly, we observe a negative and significant relationship (at 1%) between $LEGAL \times BODSIZE$ and $ABNOR_ACC$, $LEGAL \times BODIND$ and $ABNOR_ACC$, $LEGAL \times AUCOM$ and $ABNOR_ACC$, suggesting that litigation environment induces the firm's internal governance mechanism to mitigate accruals manipulation. However, with real activities the impact becomes relatively less pronounced.

6. CONCLUSIONS

We examine whether firms' litigation environment amplifies the association between gender diversity and financial reporting quality. We control for firms' reputation and other board characteristics. We report that gender diversity and firms' litigation environment play a complementary role, or the existing internal governance mechanism complements gender diversity and firms' litigation environment to subdue accruals earnings management practices. The decrease in accruals in a litigation environment is profound and supports prior studies (Francis et al. 2015; Zalata et al. 2019), confirming that female board members frown on illegal practices, such as accruals manipulation to build or maintain firms' reputation. On the contrary, our evidence indicates that despite internal governance structures and firms' litigation environment, female members on the board engage more in real activities earnings management because real activities are not fraudulent, does not involve the scrutiny of regulators and auditors. The increase in real activities suggests that female members on the board are sensitive to reputational loss but not necessarily ethical as they select value-destroying, costly and difficult to detect real activities in a litigation environment to build firms' reputation in the short-term. In further analysis, we examine the moderation role of gender diversity and other board characteristics in a litigation environment on financial reporting.

The results suggest that in the presence of gender diversity and firms' litigation environment: large female members or board size constrains accruals manipulations, and this may be due to the expertise of the board members or board size. This is consistent with the

findings of prior studies (Zalata et al 2019; Peasnell et al. 2005; Xie et al. 2003) who observe that the optimal board size influences managerial decision and financial reporting quality. In addition, the results also imply that accruals manipulation is infrequent in firms with large number of independent directors, substantiating the arguments that independent directors on the board are able or are more likely to confront or monitor aggressive misreporting of financial information (Zalata et al., 2018). Our results show that gender diversity complements the litigation environment and other board characteristics to decrease accruals manipulation, and the impact becomes relatively more pronounced when gender diversity is moderated by firms' litigation environment. Overall, our findings are consistent with Francis et al. (2015) and Zalata et al. (2019) and confirm that female board members decrease illegal practices to increase firms' reputation and financial reporting quality.

Overall, we contribute to that literature that litigation environment moderates the association between gender diversity and financial reporting to improve firms' reputation and avoid litigation risk. We also report that in a litigation environment, gender diversity increases costlier and value-destroying but difficult to detect real activities earnings management, suggesting that in a litigation environment, when female board members are restricted from engaging in accruals manipulation, they would shift to real activities earnings management methods that are less likely to be detected, even though, real activities earnings management could be detrimental to shareholder value, long-term cash flows and firms' future competitiveness. To the extent that our results hold after controlling for reputation indicates that female members on the board, protect firms' reputation in the short-term to the detriment of long-term cash flows, shareholder value and firms' future competitiveness. Consistent with risk-aversion theory (Zalata et al., 2019), we show that in a litigation environment, female members on the board would decrease illegal accruals earnings management and resort to costly and value-destroying real activities earnings management.

In terms of future research, the application of the entropy method could be feasible once survey data at firm level becomes available, and control and treatment groups could be identified. Additionally, future research could provide data sources and variables such as competition, restatements and audit data to expand on the analysis. From a policy implications point of view, our findings are useful for auditors, boards of directors, investors, policy makers, regulators, external monitors, and stakeholders who are interested in the quality of financial reporting as they provide a road map to strengthen corporate governance

by promoting gender diversity. For instance, our evidence suggests that in a perceived litigation environment, female board members will select value destroying and costly real activities to the detriment of shareholder value. In terms of decision making, our findings have implications for boards of directors in the appointment of male and female board members. In addition, for auditors, boards of directors, investors, policy makers, regulators, and external monitors, our findings suggest that they should consider the firms' litigation environment and strengthen the corporate governance mechanism as factors that can mitigate earnings management practices. Furthermore, national governments should initiate national and international governance reforms, regulatory and legal reforms, as well as positive initiatives to strengthen the legal environment to maintain and improve investor confidence. In summary, policy makers, regulators, external monitors, and stakeholders should strengthen corporate governance mechanisms to improve the quality of financial reporting.

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Table 1 Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
GEN	0.334	0.167	0.000	0.973
LEGAL	68.09	8.26	46.3	76.5

Variable	Mean	Std. Dev.	Min	Max
ABNOR_ACC	0.0001	0.2361	-0.0247	0.0314
REALMGMT1	-0.0020	0.4038	-0.4705	0.0228
REALMGMT2	-0.2720	0.4438	-0.5360	0.0416
POP_N	2.6104	0.0783	2.4599	2.6104
INCOME	10.8631	0.0864	10.4642	10.8631
EDUC	84.5829	2.6321	84.3281	87.8529

Variable	Mean	Std. Dev.	Min	Max
SIZE	6.287	2.526	3.182	7.360
ANALYST_FOL	2.907	1.400	2.089	5.000
ROA	-0.002	0.140	-0.396	0.147
LEV	0.149	0.161	0.000	0.351
BIG4	0.681	0.311	0.000	1.000
BODSIZE	3.333	0.194	1.000	5.000
BODIND	3.284	2.255	0.000	5.000
AUCOM	0.356	0.154	0.009	1.000
MBV	2.025	1.209	1.047	4.087
LOSS	0.041	0.500	0.000	1.000
OP_RISK	0.683	16.037	0.274	0.887
RURAL	2.802	0.118	2.787	3.207
BENCHMARK	0.004	0.113	0.000	0.092
TENURE	1.312	0.575	1.420	2.303
CHANGE_GDP	1.884	1.647	0.810	2.791
INVESTMENT	0.085	0.056	0.038	0.214
NOA	0.761	1.259	0.358	0.787
ADMIRE	0.172	0.287	0.000	1.000

Notes: Source: Authors' own creation/work.: Gender is Blau index women on board. LEGAL as measured by Harris Poll for each U.S. state. SIZE is the natural log of total assets; ANALYST_FOL is the number of financial analysts following the firm in the I/B/E/S summary file; ROA is return on assets measured as net income before extraordinary items, divided by average total assets; LEV is financial leverage, measured as total liabilities scaled by total assets; BIG4 = an indicator variable equal to a value of 1 if the firm was audited by the big 4 auditors, otherwise zero; MBV is measured as total assets divided by market capitalization; LOSS = an indicator variable that equals 1 if income before extraordinary items was negative in the current or previous two fiscal years, and 0 otherwise; OP_RISK is estimated as the five year rolling standard deviation of operating cash flows estimated from both the current and previous four years; RURAL = indicator variable that equals 1 if the firm is headquartered outside the 490 largest counties in the sample, and 0 otherwise; BENCHMARK = an indicator value equal to 1 if (a) net income scaled by total assets is more than or equal to 0 and less than 0.01, or if the change in net income scaled by total assets from the previous to the current year is greater than or equal to 0 and less than 0.01, and 0 otherwise; TENURE = the natural log of the number of years the auditor has been with the firm; CHANGE_GDP = annual percentage change in gross domestic product; INVESTMENT = percentage of capital expenditure at the beginning of the year (t) to total net property, plant and equipment at the end of the year (t); and NOA is defined as the sum of shareholders' equity less cash and marketable securities, plus total debt at the beginning of the year, scaled by total assets at the beginning of the year. All variables' definitions are given in "Appendix A"

Table 1a: Impact of Gender Diversity on Financial Reporting Quality

Variables	ABNOR_ACC	REALMGMT1	REALMGMT2
CONSTANT	0.779 (0.986)	0.786 (0.899)	0.779 (1.023)
GEN	-0.094** (-2.067)	0.083* (1.823)	0.072** (2.428)
LEGAL	-0.112** (-2.354)	0.062 (1.455)	0.165** (2.239)
SIZE	-0.034** (-2.516)	-0.029** (-2.239)	-0.018** (-2.233)
ANALYST_FOL	-0.064* (-1.769)	-0.056 (-1.036)	-0.045 (-1.035)
ROA	-0.069** (-2.273)	-0.053* (-1.783)	-0.049* (-1.787)
LEV	0.029 (1.538)	0.022 (1.322)	0.019 (1.236)
BIG4	-0.068* (-1.858)	-0.008 (-1.035)	-0.007 (-1.044)
BODSIZE	-0.065** (-2.192)	-0.016 (-1.137)	-0.016 (-1.059)
BODIND	-0.039** (-2.119)	-0.012 (-1.027)	-0.009 (-1.125)
AUCOM	-0.049 (-1.119)	-0.008 (-1.026)	-0.007 (-1.023)
MBV	0.027 (1.058)	0.043* (1.857)	0.038* (1.852)
LOSS	0.081 (1.136)	0.006 (1.036)	0.007 (1.025)
OPERA_RISK	0.031*** (3.088)	0.035*** (3.084)	0.030*** (3.054)
RURAL	0.026** (2.109)	0.023** (2.104)	0.025** (2.109)
BENCHMARK	0.308* (1.794)	0.301* (1.789)	0.304* (1.768)
TENURE	-0.065 (-1.028)	-0.061 (-1.018)	-0.064 (-1.016)
CHANGE_GDP	-0.045 (-1.289)	-0.042 (-1.282)	-0.043 (-1.286)
INVESTMENT	-0.516** (-2.113)	-0.112** (-2.156)	-0.108** (-2.109)
NOA	-0.043*** (-4.018)	-0.032*** (-4.078)	-0.036*** (-4.001)
ADMIRE	-0.045 (-1.225)	0.327*** (3.381)	0.324*** (3.482)
POPEN	-0.060* (-1.821)	-0.040* (-1.820)	-0.042* (-1.826)
INCOME	-0.052** (-2.160)	-0.127* (-1.869)	-0.128* (-1.789)
EDUC	-0.101** (-2.313)	0.15** (2.037)	0.153** (2.036)
Industry FE	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	8,231	7,604	7,071
Adj. R-square	0.26	0.18	0.24

*Notes: Source: Authors' own creation/work: We use *, ** and *** in a two tailed test to respectively to indicate statistical significance at 10 percent, 5 percent and 1 percent levels; both models 1 and 2 are estimated using fixed effects regression. Under column 1, we regress accruals earnings management on gender diversity and under column 2 and 3, we regress our first and second proxies of real activities manipulations on gender diversity. All variables' definitions are given in "Appendix A"*

Table 2: Regression of Gender and Litigation on Accruals Earnings Management

VARIABLES	(1)	(2)	(3)	(4)
CONSTANT	1.152 (1.001)	1.489 (1.211)	1.268 (1.218)	1.352 (1.124)
GEN	-0.074** (-2.415)	-0.072** (-2.413)	-0.069** (-2.402)	-0.063** (-2.396)
LEGAL	-0.020** (-2.358)	-0.020** (-2.357)	-0.019** (-2.351)	-0.023*** (-2.949)
GEN x LEGAL	-0.137*** (-4.651)	-0.135*** (-4.646)	-0.132*** (-4.639)	-0.131*** (-4.632)
SIZE	-0.058*** (-8.467)	-0.056*** (-8.452)	-0.054*** (-8.438)	-0.053*** (-8.424)
ANALYST_FOL	-0.005* (-1.766)	-0.004* (-1.762)	-0.003* (-1.754)	-0.002* (-1.751)
ROA	-0.128*** (-3.197)	-0.126*** (-3.182)	-0.124*** (-3.173)	-0.123*** (-3.164)
LEV	0.028*** (3.668)	0.024*** (3.654)	0.022*** (3.538)	0.021*** (3.531)
BIG4	-0.056** (-2.376)	-0.054** (-2.371)	-0.053** (-2.366)	-0.052** (-2.257)
BODSIZE	-0.064** (-2.014)	-0.063** (-2.012)	-0.059** (-2.008)	-0.056** (-2.006)
BODIND	-0.175** (-2.018)	-0.171** (-2.014)	-0.168** (-2.009)	-0.167** (-2.004)
AUCOM	-0.024 (-1.408)	-0.022 (-1.402)	-0.021 (-1.401)	-0.020 (-1.400)
MBV	0.016*** (6.035)	0.015*** (6.034)	0.015*** (6.032)	0.014*** (6.028)
LOSS	0.084 (1.172)	0.081 (1.168)		
OPERA_RISK	0.022*** (3.573)	0.021*** (3.570)	0.020*** (3.568)	0.019*** (3.564)
RURAL	0.007 (1.456)	0.006 (1.452)	0.005 (1.450)	
BENCHMARK	0.027 (0.754)	0.025 (0.750)	0.023 (0.748)	
TENURE	-0.009 (-0.723)	-0.007 (-0.722)		
CHANGE_GDP	-0.008 (-0.705)			
INVESTMENT	-0.068** (-2.194)	-0.066** (-2.190)	-0.065** (-2.186)	-0.063** (-2.182)
NOA	0.054*** (4.562)	0.053*** (4.557)	0.050*** (4.546)	0.048*** (4.541)
ADMIRE	-0.026 (-1.509)	-0.024 (-1.505)	-0.016 (-1.438)	-0.017 (-1.462)
POPN	-0.386 (-1.414)			
INCOME	-0.142** (-2.478)	-0.140** (-2.473)	-0.138** (-2.468)	-0.134** (-2.452)
EDUC	-0.042*** (-3.478)	-0.041*** (-3.472)	-0.037*** (-3.457)	-0.034*** (-3.451)
Industry FE	YES	YES	YES	YES
State FE	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	8,231	8,231	8,231	8,231
R-squared (overall)	0.159	0.155	0.151	0.143

Notes: Source: Authors' own creation/work. We use *, ** and *** in a two tailed test to indicate statistical significance at 10 percent, 5 percent and 1 percent levels respectively. Co-efficient estimates are shown above and t-statistics below in bracket. Under columns 1 to 4, we regress accruals earnings management on gender diversity. All variables' definitions are given in "Appendix A"

Table 3: Gender Diversity and Litigation on Real Activities Earnings Management

VARIABLES	REALMGMT1	REALMGMT1	REALMGMT2	REALMGMT2
GEN	0.731** (4.187)	0.680** (4.321)	0.994*** (5.362)	0.974*** (5.361)
LEGAL	0.031* (1.823)	0.030* (1.820)	0.028*** (4.532)	0.027*** (3.530)
GEN x LEGAL	0.165** (2.387)	0.163** (2.383)	0.028*** (3.005)	0.027*** (3.002)
SIZE	-0.365*** (-5.627)	-0.363*** (-5.625)	-0.039*** (-4.003)	-0.040*** (-4.005)
ANALYST_FOL	-0.015 (-0.741)	-0.014 (-0.738)	-0.007 (-0.030)	-0.009 (-0.0303)
ROA	-0.342*** (-4.016)	-0.338*** (-4.012)	-0.193 (0.149)	-0.195 (0.149)
LEV	0.134* (1.875)	0.133* (1.870)	0.066** (2.039)	0.061** (2.031)
BIG4	0.053 (1.254)	0.052 (1.250)	-0.029** (-2.016)	-0.031** (-2.014)
BODSIZE	-0.044 (-1.339)	-0.044 (-1.339)	-0.070*** (-3.004)	-0.069*** (-4.004)
BODIND	-0.094 (-1.318)	-0.094 (-1.318)	-0.062*** (-3.011)	-0.063*** (-3.017)
AUCOM	-0.058 (-1.534)	-0.058 (-1.534)	0.017** (2.006)	0.012** (2.021)
MBV	-0.138*** (-7.036)	-0.136*** (-7.003)	-0.016 (0.010)	-0.018 (0.011)
LOSS	0.065* (1.775)	0.060* (1.771)	-0.103 (0.157)	-0.0980 (0.157)
OPERA_RISK	0.032** (2.473)	0.032** (2.471)	-0.0205 (-0.073)	-0.0223 (-0.074)
RURAL	-0.017 (-1.056)	-0.017 (-1.056)	-0.001 (0.026)	-0.436*** (-4.085)
BENCHMARK	-0.327* (-1.762)	-0.327* (-1.762)	-0.422*** (-3.085)	0.059*** (3.007)
TENURE	-0.009 (-0.593)	-0.009 (-0.593)	0.059*** (3.007)	0.178*** (3.058)
CHANGE_GDP	-0.018* (-1.854)	-0.018* (-1.853)	-0.204* (-1.917)	-0.235 (-0.171)
INVESTMENT	0.185* (1.818)	0.184* (1.814)	-0.113* (-1.874)	-0.173*** (-3.118)
NOA	0.140** (2.278)	0.139** (2.272)	-0.427** (-2.197)	-0.780 (-0.820)
ADMIRE	0.028** (2.352)	0.032** (2.058)	0.023*** (3.184)	0.25*** (3.205)
POPEN	-0.038 (-0.278)		0.574 (0.129)	
INCOME	-0.252* (-1.878)	-0.251* (-1.877)	-0.003** (-2.001)	-0.004** (-2.001)
EDUC	-0.358*** (-4.008)	-0.356*** (-4.004)	0.013** (2.474)	0.028 (0.018)
CONSTANT	0.922 (1.211)	1.239 (1.412)	1.598 (1.311)	1.612 (0.992)
Industry FE	YES	YES	YES	YES
State FE	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	7,604	7,604	7,071	7,071
R-squared (overall)	0.259	0.255	0.251	0.243

Notes: Source: Authors' own creation/work: We use *, ** and *** in a two tailed test to respectively to indicate statistical significance at 10 percent, 5 percent and 1 percent levels respectively. Co-efficient estimates are shown above and t-statistics below in bracket. Under columns 1 and 2, we regress first proxy of real activities on gender diversity and under column 3 and 4, we regress second proxy of real activities manipulations on gender diversity. All variables' definitions are given in "Appendix A"

Table 4: Regression estimates of financial reporting quality, litigation environment and gender diversity (Controlling for Endogeneity; 2SLS)

VARIABLE	First Stage		First Stage	Second Stage	
	REALMGMT 1	REALMGMT2	ABNOR_ACC		
GEN	0.282*** (3.233)	0.210*** (3.622)	-0.293*** (-2.837)	0.247* (1.897)	0.234*** (3.617)
LEGAL	0.012*** (2.312)	0.068*** (3.199)	-0.091*** (-4.241)	0.0317*** (3.086)	0.026*** (4.142)
GEN x LEGAL	0.098*** (3.787)	0.0967 (4.189)	-0.023*** (-2.916)	0.136*** (4.01251)	0.095** (4.133)
SIZE	-0.209*** (-3.861)	-0.183 (1.026)	-0.0323 (-1.291)	- 0.0628*** (-4.641)	-0.139*** (-3.122)
ROA	-0.834 (-1.026)	-0.532 (-0.254)	-0.139*** (-3.811)	-0.139*** (-3.691)	-0.078*** (-6.182)
LEV	0.151 (0.390)	0.182*** (3.478)	0.0911 (1.120)	0.0097 (0.078)	0.661*** (5.443)
MBV	-0.263*** (-3.275)	-0.044 (-0.017)	-2.342*** (-3.189)	-0.129*** (-6.029)	-0.307*** (-3.443)
CONSTANT	1.133*** (3.431)	0.194 (0.891)	0.355 (0.778)	0.545 (0.784)	0.860 (1.339)
Industry FE	YES	YES	YES	YES	YES
State FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	7,604	7,071	8,231	7,604	8,231
R-square (overall)	0.189	0.211	0.188	0.189	0.189
F-statistics	14.59	16.78	17.05	11.61	
F test of excluded instrument	18.21	20.14	19.45		

Notes: Source: Authors' own creation/work. Instruments used: lagged values. We use *, ** and *** in a two tailed test to respectively to indicate statistical significance at 10 percent, 5 percent and 1 percent levels. Co-efficient estimates are shown above and t-statistics below in brackets. Both models 1 and 2 are estimated using fixed effects regression. Columns 1 and 2 report the regressions estimates of the first stage and column 3 reports regression estimates of the second stage. All variables' definitions are given in "Appendix A"

Table 5: Gender Diversity and Litigation Environment on Real Activities Management.

VARIABLE	RAELMGMT 1	REALMGMT2	ABNOR_ PCOST	ABNOR_ DEXP	ABNOR_ CASFO
GEN	0.731*** (4.187)	0.994*** (5.362)	0.109*** (2.985)	0.240* (1.808)	0.156** (2.282)
LEGAL	0.031* (1.823)	0.028*** (4.532)	0.028* (1.841)	0.013* (1.809)	0.011** (2.428)
GEN x LEGAL	0.165** (2.387)	0.028*** (3.005)	0.210** (2.456)	0.228** (2.067)	0.151** (2.352)
SIZE	-0.365*** (-5.627)	-0.039*** (-4.003)	-0.112*** (-3.508)	-0.078*** (-4.053)	-0.181*** (-7.013)
ANALYST_FOL	-0.015 (-0.741)	-0.007 (-0.030)	-0.021** (-2.107)	-0.034** (-2.245)	-0.014** (-2.218)
ROA	-0.342*** (-4.016)	-0.193 (-0.149)	-0.028*** (-3.468)	-0.057*** (-3.336)	-0.032*** (-3.624)
LEV	0.134* (1.875)	0.066* (2.039)	0.048* (1.759)	0.004 (0.046)	0.271*** (3.191)
BIG4	0.053 (1.254)	-0.029 (-2.016)	-0.101 (-0.234)	-0.109 (-1.572)	-0.013 (-0.364)
BODSIZE	-0.044 (-1.339)	-0.070*** (-3.004)	-0.028 (-1.320)	-0.032 (-1.407)	-0.047 (-1.513)
BODIND	-0.094 (-1.318)	-0.062** (-3.011)	-0.022 (-1.316)	-0.023 (-1.411)	-0.017 (-1.061)
AUCOM	-0.058 (-1.534)	-0.017** (-2.006)	-0.015 (-1.052)	-0.016 (-1.028)	-0.018 (-0.729)
MBV	-0.138*** (-7.036)	-0.016 (-0.010)	-0.96*** (-9.490)	-0.053*** (-3.534)	-0.126*** (-6.708)
LOSS	0.065* (1.775)	0.103 (0.157)	0.013* (1.779)	0.033** (2.592)	0.025* (1.787)
OPERA_RISK	0.032** (2.473)	-0.0205 (-0.073)	0.017** (2.477)	0.007 (1.541)	0.023*** (3.382)
RURAL	-0.017 (-1.056)	-0.001 (-0.422)	-0.023 (-1.028)	-0.012 (-0.621)	-0.011 (-0.523)
BENCHMARK	-0.327* (-1.762)	-0.422* (-3.085)	0.023 (0.920)	-0.075** (-2.087)	-0.023 (-0.164)
TENURE	-0.009 (-0.593)	-0.059*** (-3.007)	-0.001 (-0.100)	-0.028 (-1.426)	-0.001 (-0.118)
CHANGE_GDP	-0.018* (-1.854)	-0.204* (-1.917)	-0.011*** (-2.592)	-0.004 (-0.743)	-0.007** (-2.067)
INVESTMENT	0.185* (1.818)	0.113* (1.814)	0.077** (1.995)	0.802*** (3.214)	-0.094*** (-3.687)
NOA	0.140** (2.278)	-0.427*** (-2.197)	0.614** (2.534)	0.226*** (4.130)	0.014** (2.590)
ADMIRE	0.028** (2.352)	0.023*** (3.184)	-0.043 (-1.582)	0.034** (2.167)	-0.056 (-1.474)
POPEN	-0.038 (-0.278)	0.574 (0.129)	0.212* (1.841)	0.032 (0.954)	0.025* (1.796)
INCOME	-0.252* (-1.878)	-0.003** (-2.001)	-0.018* (-1.868)	-0.009 (-1.207)	-0.211* (-1.854)
EDUC	-0.358*** (-4.008)	0.013* (2.474)	0.218** (2.234)	0.006*** (3.130)	0.026** (2.367)
CONSTANT	0.922 (1.211)	1.598 (1.311)	0.448 (0.711)	0.458 (0.814)	0.655 (0.539)
Industry FE	YES	YES	YES	YES	YES
State FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	7,604	7,071	7,071	6,939	6,939
R-square (overall)	0.259	0.251	0.200	0.212	0.201

*Notes: Source: Authors' own creation/work: We use *, ** and *** in a two tailed test to respectively to indicate statistical significance at 10 percent, 5 percent and 1 percent levels. Co-efficient estimates are shown above and t-statistics below in brackets. Both models 1 and 2 are estimated using fixed effects regression. Under column 1, we regress first proxy of real activities on gender diversity and under column 2, we regress second proxy of real activities manipulations on gender diversity. Columns 3 to 5 show regression estimates of three individual measures of real activities manipulation on gender diversity. All variables' definitions are given in "Appendix A"*

Table 6: Gender, Litigation and Alternative Measures of Discretionary Accruals

VARIABLE	Modified-Jones Model (Total Accruals)	Modified-Jones Model (Working Capital Accruals)
CONSTANT	0.825 (0.945)	0.952 (1.342)
GEN	-0.063** (-2.419)	-0.049** (-2.358)
LEGAL	-0.047** (-2.424)	-0.046** (-2.422)
GEN x LEGAL	-0.094*** (-3.713)	-0.068*** (-3.549)
SIZE	-0.078*** (-4.701)	-0.065*** (-3.561)
ANALYST_FOL	-0.005* (-1.670)	-0.044 (1.120)
ROA	-0.085*** (-3.364)	-0.039*** (-4.561)
LEV	0.095*** (5.930)	0.034*** (6.710)
BIG4	-0.021** (-3.191)	-0.010* (-1.770)
BODSIZE	-0.035** (-2.364)	-0.023** (-2.061)
BODIND	-0.185*** (-2.249)	-0.139*** (-2.365)
AUCOM	-0.085 (-1.036)	-0.094 (-1.563)
MBV	0.024*** (4.281)	0.034*** (5.181)
LOSS	0.006 (1.140)	0.008* (1.767)
OPERA_RISK	0.025*** (4.291)	0.015*** (3.941)
BENCHMARK	0.006 (1.531)	-0.008 (-1.110)
TENURE	-0.035 (-0.731)	-0.003 (-0.482)
CHANGE_GDP	-0.002 (-0.560)	-0.002 (-1.610)
INVESTMENT	-0.009 (-0.548)	-0.007 (-0.380)
NOA	-0.479*** (-8.831)	0.139*** (6.192)
ADMIRE	-0.069 (-1.437)	-0.084 (-1.538)
POP	-0.068 (-1.461)	-0.065 (-1.452)
INCOME	-0.072** (-2.314)	-0.068** (-2.019)
EDUC	-0.047*** (-3.147)	-0.052*** (-3.278)
Industry FE	YES	YES
Firm FE	YES	YES
Year FE	YES	YES
Observations	8,231	8,231
R-square (overall)	0.30	0.32

*Notes: Source: Authors' own creation/work: We use *, **and *** in a two tailed test to respectively to indicate statistical significance at 10 percent, 5 percent and 1 percent levels. Co-efficient estimates are shown above and t-statistics below in brackets. Both models 1 and 2 are estimated using fixed effects regression. Under column 1, we regress total accruals (Modified Jones Model) on gender diversity and under column 2, we regress working capital accruals ((Modified Jones Model) on gender diversity. All variables' definitions are given in "Appendix A"*

Table 7: High Gender Diversity vs Low Gender Diversity Firms

Variables	ABNOR_ACC		REALMGMT1		REALMGMT2	
	HIGH	LOW	HIGH	LOW	HIGH	LOW
CONSTANT	0.669 (0.891)	0.582 (0.761)	0.675 (0.888)	0.621 (1.214)	0.668 (1.012)	0.529 (1.07)
GEN	-0.083** (-2.029)	-0.037* (-1.896)	0.072** (2.319)	0.031* (1.831)	0.061** (2.317)	0.029* (1.828)
LEGAL	-0.109** (-2.315)	-0.048* (-1.806)	0.156** (2.033)	0.020* (1.872)	0.154** (2.030)	0.021* (1.868)
GEN x LEGAL	-0.594*** (-7.336)	-0.295* (-1.863)	0.434*** (4.495)	0.124* (1.878)	0.535*** (5.596)	0.225* (1.864)
SIZE	-0.051*** (-3.0106)	-0.049** (-2.106)	-0.016** (-2.123)	-0.020* (-1.789)	-0.016** (-2.122)	-0.020* (-1.787)
ANALYST_FOL	-0.061* (-1.758)	-0.006 (-1.652)	-0.045 (-1.025)	-0.009 (-1.025)	-0.044 (-1.024)	-0.007 (-1.023)
ROA	-0.058** (-2.162)	-0.041** (-2.104)	-0.150* (-1.785)	-0.129* (-1.781)	-0.149* (-1.784)	-0.126* (-1.780)
LEV	0.028 (1.525)	0.064 (1.330)	0.018 (1.202)	0.017 (1.029)	0.017 (1.201)	0.016 (1.028)
BIG4	-0.067* (-1.854)	-0.036 (-1.256)	-0.006 (-1.023)	-0.004 (-1.018)	-0.005 (-1.022)	-0.003 (-1.017)
BODSIZE	-0.064** (-2.194)	-0.043* (-1.864)	-0.016 (-1.123)	-0.020 (-1.089)	-0.016 (-1.022)	-0.012 (-1.007)
BODIND	-0.038** (-2.117)	-0.027* (-1.827)	-0.011 (-1.023)	-0.008 (-0.789)	-0.006 (-1.022)	-0.002 (-0.787)
AUCOM	-0.048 (-1.117)	-0.029 (-1.328)	-0.006 (-1.023)	-0.004 (-1.018)	-0.005 (-1.022)	-0.003 (-1.017)
MBV	0.026 (1.056)	0.009* (1.795)	0.044* (1.851)	0.036 (1.037)	0.043* (1.850)	0.035 (1.035)
LOSS	0.083 (1.134)	0.010 (1.013)	0.008 (1.006)	0.004 (1.002)	0.007 (1.005)	0.004 (1.002)
OPERA_RISK	0.031*** (3.087)	0.012*** (3.004)	0.031*** (3.087)	0.012*** (3.004)	0.030*** (3.086)	0.011*** (3.003)
RURAL	0.028** (2.108)	0.022* (1.809)	0.028** (2.108)	0.022* (1.809)	0.028** (2.106)	0.021* (1.808)
BENCHMARK	0.306* (1.769)	0.315* (1.870)	0.306* (1.769)	0.315* (1.870)	0.304* (1.758)	0.312* (1.868)
TENURE	-0.064 (-1.008)	-0.041 (-1.002)	-0.064 (-1.008)	-0.041 (-1.002)	-0.062 (-1.006)	-0.040 (-1.002)
CHANGE_GDP	-0.042 (-1.288)	-0.024 (-1.002)	-0.042 (-1.288)	-0.024 (-1.002)	-0.040 (-1.284)	-0.023 (-1.002)
INVESTMENT	-0.512** (-2.113)	-0.058* (1.815)	-0.512** (-2.113)	-0.058* (1.815)	-0.509** (-2.108)	-0.056* (1.811)
NOA	-0.041*** (-4.013)	-0.041** (2.013)	-0.039*** (-4.008)	-0.034** (2.010)	-0.037*** (-4.002)	-0.032** (2.011)
ADMIRE	-0.042 (-1.228)	-0.028 (-1.026)	0.323*** (3.384)	0.113* (1.877)	0.424*** (4.485)	0.114* (1.863)
POPEN	-0.062* (-1.828)	-0.006 (-1.652)	-0.045* (-1.825)	-0.009 (-1.025)	-0.044* (-1.824)	-0.007 (-1.023)
INCOME	-0.057** (-2.165)	-0.043** (-2.108)	-0.151* (-1.789)	-0.128* (-1.788)	-0.148* (-1.789)	-0.125* (-1.787)
EDUC	-0.108** (-2.317)	-0.046* (-1.803)	0.15** (2.030)	0.022* (1.875)	0.152** (2.033)	0.023* (1.865)
Industry FE	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	6310	1921	5837	1790	6310	1921
Adj. R-square	0.25	0.15	0.17	0.10	0.23	0.11

*Notes: Source: Authors' own creation/work: We use *, ** and *** in a two tailed test to respectively to indicate statistical significance at 10 percent, 5 percent and 1 percent levels; both models 1 and 2 are estimated using fixed effects regression. Under columns 1 and 2, we regress high and low accruals earnings management on gender diversity and under column 3 and 4, we regress our first proxy of real activities manipulations on gender diversity. Columns 5 and 6 show regression estimates of our second proxy for real activities manipulation on gender diversity. All variables' definitions are given in "Appendix A"*

Table 8: Gender Diversity, Litigation and Corporate Governance on Financial Reporting

VARIABLE	ABNOR ACC	REALMGMT1	REALMGMT2
CONSTANT	1.649 (1.825)	1.479 (1.763)	1.422 (1.512)
GEN	-0.075** (-2.351)	0.361** (2.509)	0.054** (2.442)
LEGAL	-0.014* (-1.835)	0.321* (1.876)	0.023* (1.884)
GEN x LEGAL	-0.295*** (-4.792)	0.497*** (4.471)	0.089*** (5.307)
BODSIZE	-0.042** (-2.230)	-0.046 (-1.341)	-0.096 (-1.228)
BODIND	-0.293** (-2.204)	-0.098 (-1.318)	0.086 (-1.219)
AUCOM	-0.028 (-1.620)	-0.053 (-1.543)	-0.072 (-1.548)
GEN x BODSIZE	-0.246*** (-4.381)	-0.065 (-1.241)	-0.189 (-1.359)
GEN x BODIND	-0.087*** (-4.979)	-0.182* (-1.821)	-0.127** (-2.485)
GEN x AUCOM	-0.386*** (-4.457)	-0.178 (-1.529)	-0.087* (-1.783)
SIZE	-0.045** (-2.204)	0.062* (1.866)	0.044** (2.403)
ANALYST_FOL	-0.077 (-1.591)	-0.024 (-0.921)	-0.035 (-1.572)
ROA	-0.025** (-2.170)	-0.096*** (-8.612)	-0.047*** (-7.192)
LEV	0.180 (1.460)	0.363 (1.660)	0.069 (0.644)
MBV	0.097 (1.562)	0.367 (1.221)	0.296 (1.623)
LOSS	0.024** (2.208)	0.064** (2.387)	0.084*** (3.980)
OPERA_RISK	0.007* (1.852)	0.041 (1.631)	0.026** (2.234)
BENCHMARK	0.025 (1.590)	-0.748* (-1.786)	0.051 (1.181)
CHANGE_GDP	0.046 (0.750)	-0.023 (-0.971)	-0.635 (-1.571)
INVESTMENT	-0.005 (-0.530)	0.496 (0.896)	0.013 (0.743)
NOA	0.407* (1.827)	0.104** (2.272)	0.026 (1.432)
ADMIRE	-0.023 (-1.087)	0.049*** (3.057)	0.037** (2.326)
POP	-0.041** (-2.228)	-0.043 (-1.337)	-0.094 (-1.226)
INCOME	-0.291** (-2.202)	-0.094 (-1.316)	0.086 (-1.219)
EDUC	-0.023 (-1.628)	-0.058 (-1.546)	-0.074 (-1.542)
Industry FE	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	8,231	7,604	7,071
R-square (overall)	0.29	0.08	0.13

Notes: *Source: Authors' own creation/work: We use *, ** and *** in a two tailed test to respectively to indicate statistical significance at 10 percent, 5 percent and 1 percent levels; both models 1 and 2 are estimated using fixed effects regression. Under column, we regress accruals earnings management on gender diversity and under column 2 and 3, we regress our first and second proxies of real activities manipulations on gender diversity. All variables' definitions are given in "Appendix A"*

APPENDICES:

Appendix A: Variables Definition

Variables	Proxy	Definition
Gender Diversity	<i>GEN</i>	To measure Gender diversity, we employ data from BoardEx. We do so in order to employ the widely used Blau Index (Blau, 1977; Bear et al., 2010) of gender diversity similar to Owen and Temesvary (2018; 2019) and Zalata et al. (2018).
Litigation Environment	<i>LEGAL</i>	The average index score of the overall ranking of the perceived state liability systems by Harris Poll for each U.S. state. The results of these surveys are published on the website of the U.S. Chamber Institute For Legal Reform.
Gender Diversity X Litigation Environment	<i>GEN x LEGAL</i>	Gender Diversity multiplied by litigation environment
Abnormal Accruals	<i>ABNOR_ACC</i>	Measure of abnormal accruals or residuals using the cross-sectional Modified-Jones model in equation (McGuire et al. 2012; Defond and Jambalvo, 1994; Dechow et al. 1996)
Discretionary Expenses	<i>D_EXP</i>	Measured as the aggregate of advertising expenses, R& D expenses, SG & A expenses scaled by lagged total assets
Abnormal Discretionary Expenses	<i>ABNOR_DEXP</i>	Estimated after regressing discretionary expenses on the inverse of lagged total assets and lagged sales scaled by lagged total assets. The figure for (<i>ABNOR_DEXP</i>) is multiplied by negative one (-1), consequently, a higher (<i>ABNOR_DEXP</i>) figure represents higher real earnings management.
Cash flow from operation	<i>CASFO</i>	Is the cash flow from operational activities scaled lagged total assets
Abnormal Cash flow	<i>ABNOR_CASH</i>	Estimated by regressing <i>CASFO</i> scaled by lagged total assets on the inverse of lagged total assets, sales scaled by lagged total assets, change in sales scaled by lagged total assets. The figure for (<i>ABNOR_CASH</i>) is multiplied by negative one (-1), consequently, a higher (<i>ABNOR_CASH</i>) figure represents higher real earnings management.
Production Costs	<i>PCOST</i>	Measured as the aggregate of cost of sales and change in inventory during the year scaled by lagged total assets.
Abnormal Production Costs	<i>ABNOR_PCOST</i>	Residuals estimated by regressing <i>PCOST</i> on the inverse of lagged total assets, sales scaled by lagged total assets, change in sales scaled by lagged total assets. The figure for (<i>ABNOR_PCOST</i>) is multiplied by negative one (-1), consequently, a higher (<i>ABNOR_PCOST</i>) figure represents higher real earnings management.
Real Earnings Activities 1	<i>REALMGMT1</i>	Calculated as the aggregate of abnormal discretionary expenditures (<i>ABNOR_DEXP</i>) and abnormal production costs (<i>ABNOR_PCOST</i>). The higher the value, the higher the levels of real earnings management
Real Earnings Activities 2	<i>REALMGMT2</i>	Calculated as the aggregate of abnormal discretionary expenditure (<i>ABNOR_DEXP</i>) and abnormal cash flows (<i>ABNOR_CASH</i>). The higher the value, the higher the level of real earnings management
Total Assets	<i>TA</i>	Measured as total Non-current assets plus total current assets
Size of the Firm	<i>SIZE</i>	The natural log of total assets
Analyst Following	<i>ANALYST_FOL</i>	Number of financial analysts following the firm in the I/B/E/S summary file
Return on Assets	<i>ROA</i>	Measured as net income before extraordinary items divided by average total assets
Leverage	<i>LEV</i>	Total liabilities scaled by total assets
Presence of Big 4 Auditors	<i>BIG4</i>	A value of 1 if the firm was audited by big 4 auditors, otherwise zero.
Market to Book Value	<i>MBV</i>	Measured as total assets divided by market capitalization
Reported Loss	<i>LOSS</i>	An indicator variable that equals 1 if income before extraordinary items was negative in the current or previous two fiscal years, and 0 otherwise;
Operational Risk	<i>OP_RISK</i>	Estimated as five year rolling standard deviation of operating cash flows estimated from both current and previous four years
Firm's located in rural areas	<i>RURAL</i>	Indicator variable that equals 1 if the firm is headquartered outside the 490 largest counties in the sample, and 0 otherwise
Benchmark	<i>BENCHMARK</i>	The indicator value is 1 if (a) net income scaled by total assets is more than or equal to 0 and less than 0.01. Alternatively, if the change in net income scaled by total assets from previous year to current year is greater than or equal to 0 and less than 0.01, and 0 otherwise;
Auditor Tenure	<i>TENURE</i>	Natural log of the number of years the auditor has been with the firm
Change in GDP	<i>CHANGE_GDP</i>	Annual percentage change in GDP
Firm Level of Investment	<i>INVESTMENT</i>	Percentage of capital expenditure at the beginning of the year (t) to total net property, plant and equipment at the end of the year (t)
Net Operating Assets	<i>NOA</i>	Defined as the sum of shareholders' equity less cash and marketable securities plus total debt at the beginning of the year, scaled by total assets at the beginning of the year

Population	POP_N	Natural log of the estimate of the population for each US State in millions.
Income	INCOME	Household income for each US State in ten thousands (\$) estimated by Census Bureau.
Education	EDU	A measure of adult population in each US State with college education, estimated by Gallup interviews.
Age of respondents	AGE	Average age of residents in each US State, based on the responses from Gallup interviews.
Minority	MIN	Percentage of racial minorities in each US State, from responses to the Gallup interviews.
Political	POL	Percentage of the population that are affiliated with Republican Political Party.
Audit Committee Presence	AUCOM	A dummy variable coded as 1 if the company has an audit committee, otherwise zero.
Independent Board	IND_BOARD	Calculated as the number of independent directors divided by the total number of directors on the board. Defined as non-executive directors holding less than 5% of the voting securities and having no direct or indirect interest or relationship that could reasonably influence their objective judgment and decision making
Board Size	BODSIZE	Total number of directors on the board
Firms Reputation	ADMIRER	Firms in our sample that are listed in the Fortune's "America's Most Admired Companies". A dummy variable coded as 1 if the firm is listed in the Fortune's America's Most Admired Companies list, otherwise zero.
Gender Diversity interacts Board size	GENBODSIZE	Gender Diversity multiplied by Board Size
Gender Diversity interacts Board independence	GENBODIND	Gender Diversity multiplied by Board independence
Gender Diversity interacts Audit Committee	GENAUCOM	Gender Diversity multiplied by Audit committee
Working Capital Accruals	WC_ACCRUALS	Measured as where $WC_ACCRUALS_{it} = IB+DP-OANCF$; IB is the earnings before extraordinary items; DP are depreciation and amortisation; and OANCF is cash flow from operational activities. Also, in line with previous studies (Kothari et al., 2005; Dechow et al. 2012).

Source: Authors' own creation/work:

Appendix B: Legal Environment per State.

Ten Highest Litigation Environment	Ranking Top States	Ten Lowest Litigation Environment	Ranking Bottom States
Delaware	1 st = 76.5	West Virginia	1 st = 46.3
Vermont	2 nd = 73.8	Louisiana	2 nd = 46.5
Nebraska	3 rd = 73.0	Illinois	3 rd = 48.0
Iowa	4 th = 72.2	California	4 th = 49.9
New Hampshire	5 th = 70.7	Alabama	5 th = 55.1
Idaho	6 th = 70.5	New Mexico	6 th = 55.2
North Carolina	7 th = 70.2	Florida	7 th = 56.0
Wyoming	8 th = 69.7	Mississippi	8 th = 56.3
South Dakota	9 th = 69.5	Missouri	9 th = 56.6
Utah	10 th = 69.0	Arkansas	10 th = 57.7

Notes: Source: Harris Poll for the U.S. Institute for Legal Reform (2018)

Appendix C: Correlation Matrix - Source: Authors' own creation/work:

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) GEN		-0.08	0.06	0.06	-0.05	0.01	-0.08	-0.02	0.04	-0.04	-0.01	0.04	0.09	0.02	0.02	0.01	0.01	-0.05	0.06
(2) ABNOR_ACC	-0.08		-0.43	-0.42	-0.35	-0.01	-0.08	-0.32	0.03	-0.01	0.10	0.14	0.01	-0.01	-0.29	-0.04	-0.01	-0.22	0.05
(3) REALMGMT1	0.06	-0.43		0.39	-0.11	-0.07	-0.18	-0.16	0.12	-0.06	-0.02	0.06	0.08	-0.00	-0.15	-0.02	-0.02	0.03	0.17
(4) REALMGMT2	0.06	-0.42	0.39		-0.06	-0.07	-0.16	-0.12	0.14	-0.06	-0.03	0.05	0.07	-0.00	-0.10	-0.02	-0.02	0.05	0.16
(5) LEGAL	-0.05	-0.35	-0.11	-0.06		-0.02	-0.33	-0.18	0.17	-0.11	-0.09	0.01	0.22	-0.01	-0.17	0.02	-0.01	-0.01	0.39
(6) ANALYST_FOL	0.01	-0.01	-0.07	-0.07	-0.02		0.02	-0.02	0.01	-0.01	0.02	-0.01	-0.05	-0.02	-0.02	0.00	0.02	0.00	0.02
(7) SIZE	-0.08	-0.08	-0.18	-0.16	-0.33	0.02		0.10	0.32	0.24	0.18	-0.17	-0.03	0.01	0.09	0.00	0.01	-0.07	0.28
(8) ROA	-0.02	-0.33	-0.16	-0.12	-0.18	-0.02	0.10		-0.20	0.00	0.35	-0.33	-0.05	0.04	0.31	-0.02	-0.01	0.01	0.03
(9) LEV	0.04	0.03	0.12	0.14	0.17	0.01	0.32	-0.20		0.09	0.01	0.07	0.02	-0.01	-0.20	-0.02	-0.00	-0.04	-0.38
(10) BIG4	-0.04	-0.01	-0.06	-0.06	-0.11	-0.01	0.24	0.00	0.09		0.05	-0.02	-0.03	-0.01	0.01	0.01	-0.01	-0.02	0.25
(11) MBV	-0.01	-0.10	-0.02	-0.03	-0.09	0.02	0.18	0.35	0.01	0.05		-0.24	-0.03	0.03	0.35	0.03	-0.02	-0.12	0.14
(12) LOSS	0.04	0.14	0.06	0.05	0.01	-0.01	-0.17	-0.33	0.07	-0.02	-0.24		0.03	-0.02	-0.38	-0.02	-0.02	-0.08	-0.18
(13) OP_RISK	0.09	0.01	0.08	0.07	0.22	-0.05	-0.03	-0.05	0.02	-0.03	-0.03	0.03		-0.02	-0.01	-0.01	0.02	0.04	-0.02
(14) RURAL	0.02	0.01	-0.00	-0.00	-0.01	-0.02	0.01	0.04	-0.01	-0.01	0.03	-0.02	-0.02		0.03	0.01	0.00	-0.04	-0.00
(15) BENCHMARK	0.02	-0.29	-0.15	-0.10	-0.17	-0.02	0.09	0.31	-0.20	0.01	0.35	-0.38	-0.01	0.03		0.02	0.01	-0.07	0.02
(16) TENURE	0.01	-0.04	-0.02	-0.02	0.02	0.00	0.00	-0.02	-0.02	0.01	0.03	-0.02	-0.01	0.01	0.02		-0.02	-0.01	-0.02
(17) CHANGE_GDP	0.01	-0.01	-0.02	-0.02	-0.01	0.02	0.01	-0.01	-0.00	-0.01	-0.02	-0.02	0.02	0.00	0.01	-0.03			-0.01
(18) INVESTMENT	-0.05	-0.22	0.03	0.05	-0.01	0.00	-0.09	0.01	-0.04	-0.02	-0.12	-0.08	0.04	-0.04	-0.07	-0.01	0.02		-0.13
(19) NOA	0.06	0.05	0.17	0.16	0.39	0.02	0.27	0.03	-0.38	0.25	0.14	-0.18	-0.02	-0.00	0.02	-0.02	-0.01	-0.13	