UNIVERSITY OF READING

Three Essays on REIT Board Gender Diversity

by

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September 2024

Thesis submitted in partial fulfilment of the requirements for the degree of

Doctor of Philosophy

DECLARATION

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

Rohit Lalit Bajaj September 21, 2024

ACKNOWLEDGEMENTS

First of all, I would like to express my gratitude to my supervisors: Gianluca and Masaki, for always being there when I needed them and for their unconditional support; Masaki for giving me the opportunity to pursue a PhD and always being available and going out of the way to provide guidance, and Gianluca for assisting me in one of the most difficult journeys of my life.

I wish to thank all my colleagues and friends in this incredible journey: Filippo, Ludovico, Robert, Giovanni, Esteban, Madz, Mariana, Annabelle, Loreta, Efuntomi, Emanuele, Eike, Jannis, Lambis, Mallika, Simone, Monica, Divesh, Yash, and Tom.

I wish to thank my family, for without their sacrifices and their undying support I wouldn't be here. Lastly, I would like to thank God for giving me the opportunity to make something of my life.

ABSTRACT

The literature on gender diversity posits that women can benefit organisations through a monitoring perspective by alleviating agency issues or from a resource-based perspective by bringing in unique resources. This thesis builds on these theoretical perspectives and investigates the effects of women on the board on performance, risk, and risk-management strategies of US equity real estate investment trusts (REITs).

In the first study, we find that an increase in board gender diversity increases firm performance but also increases firm risk, resulting in no risk-adjusted returns where women seem to fit the risk-return spectrum. Building on the literature where women are considered more risk-averse and less overconfident than men, we identify sources of this risk where women on board seem to make conservative investment decisions, concentrating properties by location and display a 'home-bias'. Further evidence of this conservative investment approach is presented in the second study where women on the board lower a REITs transaction activity, especially for out-of-state transactions; favouring larger properties. Additionally, women on boards lower transaction activity in bull market states where overconfident investors increase activity and lower activity for non-traditional REITs which are considered risky.

Although women on REIT boards increase overall risk, in the third study we find they lower tail-specific risk, especially for internally managed REITs where the board has more power to influence decisions. Given the superior monitoring of women, they eliminate the negative effects of risky concentration strategies which is not the case for REITs which do not have women on the board, where such strategies increase crash risk. Lastly, in this thesis we present evidence of over-monitoring, where exposure to highly religious states increases crash risk when internal monitoring mechanisms are already in place (i.e. women on the board) but lowers it for REITs which do not have these mechanisms in place.

Table of Contents

List of Tables

List of Figures

1 Introduction

1.1 Motivation

Better corporate governance has been the agenda for countries around the world. Many have identified this need with failures of existing governance mechanisms. The board of directors play a vital role in monitoring activities of the executives, with a responsibility to govern firms by hiring and firing employees (Fama and Jensen, 1983). Given the importance of the board of directors, some studies have investigated characteristics and structure of the board and their effects on firms. These studies find that boards with more outside directors, smaller board size, and where the CEO is not the Chairman of the board perform better than their counterparts (for e.g. Feng et al., 2005).

The board of directors serve the organisations by providing them with several benefits. They bring to the board legitimacy, provide counsel and advice through their knowledge and expertise, and bring in resources for the organisations (Pfeffer and Salancik, 1978; Hillman and Dalziel, 2003). Since boards serve a vital role in firms by bringing in several benefits, the type of directors could also affect what the directors bring to the table. The human capital theory states that individuals have a unique capital, which is a product of their skills, experience, and their qualifications (Becker, 1964; Terjesen et al., 2009). Since demographics influence the type of benefits an individual can bring to an organisation, academics have explored the impact of diversity on firms.

Diversity in a broad sense can be defined as the differences between individuals based on gender, ethnicity, qualities, sexual orientation, or age (Robinson and Dechant, 1997). One such concept of diversity, gender diversity, has gained considerable attention both in politics and the industry. In the political aspect, countries such as Italy, Norway, and France have passed

legislation and mandated the presence of women on corporate boards (Sila et al., 2016). In the business case for diversity, Robinson and Dechant (1997) argue that diversity brings with it several benefits such as enhanced problem solving, reduced costs through lowered turnover and absenteeism rates, and more innovation. The case for gender diversity on corporate boards is further supported by two main theories in the literature: the agency theory and the resource dependence theory. The agency theory argues that firms which have agency problems because the managers are not the risk bearers can hire outside directors to serve in a monitoring role to align the interest of managers and stakeholders (Fama and Jensen, 1983). Given that women are tougher monitors, they could benefit firms through enhanced monitoring and help align the interest of managers and stakeholders (Fama and Jensen, 1983; Adams and Ferreira, 2009). Additionally, the resource dependence theory argues that a firm depends on the external environment for resources and one way to eliminate such dependences is to appoint board members who bring with them their own set of resources (Pfeffer and Salancik, 1978; Hillman et al., 2009; Hillman and Dalziel, 2003). Women on the board could provide a firm with customer goodwill, better understanding of diverse marketplace, and enhanced problem solving through improved board functioning (Robinson and Dechant, 1997).

Given the importance of the board and the monitoring role that they play in organizations, a substantial body of literature has examined the effects of gender diversity of directors on a firm's value and performance, finding contrasting results. Studies find a positive (for e.g., Liu et al., 2014; Campbell and Minguez-Vera, 2008), a negative (for e.g, Adams and Ferreira, 2009), and no (for e.g., Carter et al., 2010; Rose, 2007) relationship between board diversity, firm value and performance, leaving the results inconclusive.

The literature on gender diversity has not been limited to performance. A large of body of literature has explored the effects of diversity of the board and top executives on corporate risk-taking. These studies are motivated by the evidence substantiated in the literature on risk-taking differences between men and women where women are viewed to be more risk-averse/less overconfident than men in their investment decisions (Croson and Gneezy, 2009).

These studies find female executives to lower leverage (Schopohl et al., 2021; Faccio et al., 2016), and lower merger propensity and increase acquisition and debt announcement returns (Huang and Kisgen, 2013). The literature on the board of directors, however, finds contrasting results, with board gender diversity increasing firm risk in banking and finance industry (for e.g., Adams and Ragunathan, 2017; Berger et al., 2014), but having no effects on risk for non-financial firms (for e.g., Sila et al., 2016). The contrasting results in these studies is argued to be a product of endogeneity which has been a concern in gender related studies.

The literature has further explored the effects of gender diverse leaders on a phenomenon known as tail-specific risk. These studies are motivated by the literature which argues that stock price crash risk is a consequence of bad news hoarding where managers are motivated by career incentives to hoard bad news. This eventually results in a stock price crash when such news is eventually disclosed in the market (Habib et al., 2018; Kothari et al., 2009).

Gender diversity is argued to lower bad news hoarding as women are found to be tougher monitors (Adams and Ferreira, 2009) and more ethical in their accounting practices (Francis et al., 2015). Furthermore, they are less likely to engage in bad news hoarding activities given their more risk-averse and less overconfident investment behaviour. Such behaviour in theory mitigates the need for bad news hoarding as women are less likely to engage in value destructive activities. Evidence of the superior monitoring role of women in presented in the literature where women CFOs and gender diverse boards are found to lower stock price crash risk (Li and Zeng, 2019; Qayyum, et al., 2021).

Despite the ample of literature on gender diversity of boards and executives on performance and risk, very little attention has been given to REITs. Schrand et al. (2018) find a positive effect of board gender diversity on performance. Similarly, Noguera (2020) find a positive effect only when there is a critical mass of women on the board. Contrary to Schrand et al. (2018) and Noguera (2020), Dimovski et al. (2014) find no significant relationship between gender diverse directors and performance. In the literature, there is only a single study which examines the effects of gender diversity on a REITs risk. Devine et al. (2024) investigate

the effects of female executives and gender diverse boards and find that REITs with female executives and more gender diverse boards lower a REITs transaction activity, and these REITs are more geographically focussed and more likely to invest in sustainable properties.

The contrasting results in the literature for the effect of women on the board on performance and risk could be driven by endogeneity and analytical limitations which this thesis addresses by leveraging the granular and localised nature of real estate data.

Given the existing body of literature on gender diversity this thesis further contributes to the literature by examining the effects of board gender diversity on a sample of US Equity REITs. Our reasons for using REITs as our sample are as follows. Firstly, a REITs primary business is the acquisition, operation, and sale of real estate. Given the location specific information of REITs (which is something lacking in other industries), we can create strong and reliable instruments to address endogeneity existent in gender studies. Secondly, given the characteristics of the properties (i.e. location, property size, property type, tenants, etc.,), we can analyse the sources of risk and the moderating role of women on the board when REITs deploy different portfolio specific strategies. Thirdly, we are able to examine the risk-taking behaviour of women on the board in a more granular setting as we are able to observe a REITs acquisition, sale, and positioning of properties (i.e., by geography, property type, etc.,) which is something we cannot observe in other industries. Lastly, our study for REITs is motivated by the lack of external monitoring mechanisms as the 5:50 ownership rule prevents the formation of external block holders which increases the need for internal monitoring (Ghosh and Sirmans, 2003), where women could be used as a relevant proxy for internal monitoring mechanisms.

Having established the motivation to study REITs, this thesis aims to address the following questions:

1. Do women on the board have an effect on performance, risk, and risk-adjusted returns and if they do influence risk, what are the sources of such risk?

2. Do women on the board lower a REITs property transactions activity and if they do, do they exhibit less overconfident behaviour in their investment strategies?

3. Do women on the board have an effect on stock price crash risk and do they act as a moderator through a monitoring role in mitigating stock price crash risk when REITs deploy different property level strategies?

1.2 Outline of the thesis and contributions

Chapter 2 of the thesis provides a thorough review of the literature on gender diversity. Section 2.1 lays the foundation for the key theoretical underpinnings of the possible effects of board gender diversity on a firm's performance and risk, through a monitoring role and by bringing in unique resources to organisations and by their less overconfident/ more risk-averse behaviour. Section 2.2 covers the empirical literature on the effects of board gender diversity on firm performance. Section 2.3 highlights the literature on overconfidence, with a focus on the risk-taking differences between men and women in investment decisions in Section 2.3.2 and Section 2.3.3 covers the literature on stock price crash risk.

The literature on gender diversity posits that women in the upper echelons can improve performance of organisations either through a monitoring role by alleviating agency issues (Fama and Jensen, 1983; Adams and Ferreira, 2009) or by bringing in resources to the firms in the form of counsel and advice or better understanding of diverse marketplaces (Pfeffer and Salancik, 1978; Hillman et al., 2009; Hillman and Dalziel, 2003; Robinson and Dechant, 1997). Additionally, in the literature women are consistently found to be more risk-averse and less

overconfident than men in the investment decisions where they lower investment activity thereby having an effect on firm specific risk (Croson and Gneezy, 2009).

In chapter 3, we exploit the suitable laboratory of US Equity REITs to examine the effects of board gender diversity on performance, risk, and risk-adjusted returns. Using location information of companies' assets, we show that a greater presence of women on boards tend to be associated with less geographically dispersed investment portfolios. As they seem to prefer investments in 'familiar' territories, companies with greater gender diversity tend to report a higher (both systematic and total) risk, which is however offset by a better performance. As a result, we also show that risk-adjusted returns are not affected. These results are robust to several measures of return and risk, different instruments, risk management strategies, and alternative model specifications.

Building on the results from chapter 3, in chapter 4 we investigate the effects of women on the board on a REITs property transaction activity. We find that board gender diversity lowers a REITs transaction activity. Moreover, this reduction is a result of less transaction activity in states where the REIT is not headquartered. Additionally, REITs with more women on the board display less overconfident behaviour by transacting large properties thereby creating a concentration effect. Furthermore, REITs with more women on the board are less likely to transact properties in bull market states and lower transaction activity for non-traditional REITs and not for traditional REITs. These results are robust to using different model specifications.

In chapter 5 of the thesis, as a first, we add to the existing body of literature on tail-specific risk and investigate the effects of board gender diversity on a REITs stock price crash risk. We find that women on the board have no effect on a REITs stock price crash risk. However, board gender diversity lowers crash risk for internally managed REITs and has no effect on externally managed REITs. Furthermore, we find that women on the board act as a moderator when REITs deploy portfolio specific strategies. We find that when REITs without women on the board increase geographic focus and acquire larger properties, they increase

stock price crash risk. However, these strategies do not affect crash risk when there are women on a REITs board. Lastly, we find that when REITs without women on the board increase their exposure to highly religious states, they lower crash risk. However, when REITs already have women on the board, they increase crash risk. These results are robust to different measures of crash risk, alternative instruments, and different model specifications.

In this thesis, we make several contributions to the literature. Firstly, endogeneity is a major concern in gender studies in the form of reverse causality and omitted variable bias. Improving on previous studies, we employ an instrumental variable approach to address endogeneity by creating novel location-specific instruments, which account for cross-section and time variant characteristics of the gender protection and/or awareness within different states. Specifically, we create a property weighted score for each REIT with exposure to a gender equality and awareness index. Following Sugarman and Straus (1988) and Noia (2002), we create a time-variant gender equality index for our sample period. This index comprises of economic (for e.g. labour force participation, median income), political (for e.g. state and senate house seats held), and legal spheres (for e.g. state level protection and discrimination laws) which indicate how women are doing relative to men in each of the 50 states of the US. The instrument used in this thesis is a property weighted gender equality score which measures the exposure of a REITs properties to the gender equality index with a higher score representing more gender friendliness. As an alternative instrument and of a similar construct, in this thesis we use a property weighted instrument on a gay rights index (Lax and Phillips, 2009) which is a proxy for gender awareness and friendliness. As a final instrument, in this thesis we use the percentage of women in a REITs sub-industry excluding the REIT itself as a proxy for peer pressure where REITs would be more inclined to follow the hiring practices of their peers. We are the first to use these instruments in a REIT setting and is a major contribution of this thesis. The instruments are significant and meet the validity and exogeneity assumptions which helps us validate our results.

Secondly, the literature on gender diversity has either focussed on performance or risk independently. In this thesis, we further contribute to the literature by examining the effects of gender diverse boards on both performance and risk, and in-turn its effects on risk-adjusted returns. Given our findings of increase in performance and risk, we make a novel contribution to the literature as women seem to fit in the risk-return profile where an increase in performance is compensated with an increase in risk which results in no risk-adjusted returns. This asset pricing perspective reveals the importance of women on boards not just for REITs but also for investors when making investment decisions. We are the first to uncover this relationship.

Furthermore, we improve the existing literature on risk-aversion and overconfidence where women are considered more risk-averse and less overconfident than men in their investment decisions. Using the uniqueness of information available for REITs (for e.g. location) which is lacking in other industries, we for the first time identify the sources of increase in risk where REITs with women on the board exhibit a home bias and concentrate their assets which supports the findings of Devine et al. (2024) but further adds to the literature by revealing an increase in firm risk as a consequence of a concentrated asset base. The more risk-averse and less overconfident investment behaviour is further re-enforced in this thesis as we find women on the board to lower a REITs property transaction activity, concentrate their portfolios by transacting large properties and seem to display a home bias by reducing property transaction activity in states where they are not headquartered. Furthermore, we make a novel contribution to the literature with evidence that REITs with more women on the board lower transaction activity in bull market states where overconfident investors are known to increase activity. Additionally, we document that women lower transaction activity for non-traditional REITs which are risker and not for traditional REITs which have stable cash flows (Newell and Peng, 2006), thereby displaying their less overconfident and more risk-averse behaviour by lowering risk for REITs which are considered risky. Overall, this thesis contributes to the literature on risk-aversion and overconfidence with evidence that women are indeed more risk-averse and less overconfident in their investment decisions. Utilizing a sample of REITs and

the granular property level information available has helped us uncover the less overconfident behaviour of women on the board, which is something unobservable in other industries which resort to firm-level activity.

This thesis has not been limited to exploring the effects of women on the board in a risk-aversion and overconfidence perspective. We also contribute to the literature on monitoring. Overall, there is a consensus in the literature where women are considered to be efficient monitors (Adams and Ferreira, 2009; Carter et al., 2003) and transparent in their investment practices (Francis et al., 2015) thereby aiding in resolving agency issues. In this thesis we find that board gender diversity lowers crash risk for internally managed REITs where women on the board have more power to monitor and influence the board decisions and not for externally managed REITs which are governed by external asset management firms with their own executives and teams (Capozza and Seguin, 2000; Nicholson and Stevens, 2022). This finding highlights an important contribution as the evidence from the study in this thesis suggests that the monitoring role of women in the REIT industry is affected by the management structure. Furthermore, we find evidence of the superior monitoring role of women on the board with evidence that women act as a moderator when REITs deploy property level strategies. When REITs with women on the board deploy risky investment strategies by concentrating by location and acquiring large assets, this increase in risk does not result in a stock price crash risk but does so for REITs without women on the board. Since concentration is considered a risky strategy, this thesis provides further evidence of the superior monitoring role of women on REIT boards in negating the effects of risky strategies. Lastly, in this thesis, we find evidence of over-monitoring. Since religion is known to mitigate bad news hoarding, it acts as a monitoring mechanism and helps mitigate stock price crash risk (Callen and Fang, 2015). We find that when REITs without women on the board increase their exposure to highly religious states, it lowers crash risk but increases crash risk when REITs already have women on the board. Our results make a novel contribution as we for the first time show evidence of the

possible negative effects of over-monitoring which adds to the body of literature which has evidenced the over-monitoring effect of women on boards (for e.g. Adams and Ferreira, 2009).

Overall, this thesis contributes to the literature on the monitoring effect of women and the more risk-averse and less overconfident behaviour of women on corporate boards. Although each chapter provides a conclusion in relation to the specific research questions addressed within the chapters, we also present a conclusion for the results obtained in the overall thesis in chapter 6.

2 Literature review

2.1 Board diversity theories

2.1.1 Firm performance theories

There are several studies in the literature which make use of existing theories to establish a motivation for the effects of board gender diversity on firm performance and value. There are theories which suggest a positive effect: resources dependence theory, agency theory, human capital theory, stakeholder theory, decision-making theory, critical mass theory; and a negative effect: social identity theory and self-categorisation theory, of board gender diversity on firm value and performance.

In the case of positive theories, the resources dependency theory by Pfeffer and Salancik (1978) is one of the most widely used theory in management and several other disciplines. According to the resource dependence theory, a firm in an open system relies on the external environment for resources. This dependence on the external environment creates uncertainty and poses a level of risk. Organisations aim to reduce such dependences on the external environment through mergers and acquisitions (M&A's), joint ventures, or through lobbying for regulations (Hillman et al., 2009).

The board of directors can effectively reduce a firms' dependencies as they provide counsel and advice, legitimacy, and unique resources (Hillman and Dalziel, 2003; Pfeffer and Salancik, 1978). The human capital theory states that organisations can benefit from an individual's skills, their experience, and their education. The board of directors require unique human capital for them to be considered for a directorship position and diversity of the director could bring with it its own unique human capital (Becker, 1964; Terjesen et al., 2009).

Firms can create legitimacy by adapting their diversity policies to societies views and expectations on diversity (Hillman et al., 2007; Cox et al., 1991) and through the goodwill obtained by consumers who value diversity. Firms can also take advantage of the superior counsel and advice of diverse directors as heterogeneous teams are known to outperform homogenous ones (Robinson and Dechant, 1997). Furthermore, given the marketplace is getting more diverse, including diverse directors on a firm's board can help with an enhanced understanding of a diverse marketplace (Robinson and Dechant, 1997). This view is further supported by the stakeholder theory and decision-making theory, where matching the firm's diversity to the external environment (Freeman, 1984) and utilizing the unique attributes women have to offer reduces issues caused by homogenous groups and results in enhanced decision making thereby giving firms a competitive advantage (Robinson and Dechant, 1997; Schrand et al., 2018).

The agency theory further makes a case for the benefits of gender diverse boards. Jensen and Meckling (1976) define relationships between agents as a contract where one-party delegates to another party certain decision-making functions in return for some form of service. Agents in open organisations generally have fixed payoffs which restricts the risk borne by them. The residual risk of uncertain net cash flows is borne by the agents who contract for them. These residual claimants in open organisations are mostly the stakeholders (Fama and Jensen, 1983).

Agency problems can often occur in organisations as the decision managers are not the residuals claimants bearing none of the risks associated with their decisions. Without effective monitoring, such decision agents may act in their own interests rather than that of the stakeholders (Jensen and Meckling, 1976). If a few agents are the residual claimants, such problems are easily dealt with by transferring decision control to them. However, most open organisations have several shareholders which makes transfer of decision control to them inefficient. One solution is for shareholders to delegate internal control to the board of directors who have the power to fire, monitor, and compensate decision agents in the firm. Boards usually

consist of outsiders whose primary goal is to monitor and are less likely to collude with internal directors against the interest of shareholders as they are motivated to build their own reputation as expert monitors (Fama and Jensen, 1983). Carter et al. (2003) argue that diversity could increase board independence as they may bring different perspectives to the table which would not come from a traditional board and since they don't belong to the 'old boys club', they could be considered as true outsiders. Adams and Ferreira (2009) provide empirical evidence that women on boards are tougher monitors as they have better attendance records, more likely to join monitoring committees, and they align the interest of directors with that of the shareholders by setting more equity-based pay for directors.

Literature on group dynamics argues that a critical mass of women would be required for any effects of diversity to be realised. Kanter (1977) draw on the literature on group dynamics and argue that there are four types of groups which are likely to form with proportions of individuals. Firstly, uniform groups which are homogenous consisting of one type of individual. Secondly, skewed groups which have a disproportionate representation of one group over the other. Thirdly, tilted groups which are less unequal than skewed groups. Lastly, balanced groups which have equal representation.

In groups which are skewed, it is likely that the underrepresented group could be tagged as a token and are often labelled after their status or demographics (such as gender), not for their skill or ability (Kanter, 1977). Konrad et al. (2008) provide evidence of group dynamics extending the case to representation of women. They argue that one woman is a token and can be stereotyped; two women are yet at risk of being labelled as token; and three or more women on the board break through the barrier of tokenism and achieve inclusiveness.

Despite the clear benefits of having diversity in firms as proposed by these theories, there are two theories: the social identity theory and the self-categorisation theory, which argue that diversity could in fact have a negative effect on organisations. A branch of literature in psychology has long investigated how individuals interact and behave in group settings where a number of experiments were conducted by academics to uncover intergroup relations.

Participants were assigned to groups in the experiments on different criteria (Tajfel et al., 1971; Billig and Tajfel, 1973) where they had no prior knowledge and no relation with one another. When asked to score their own group and other group members, they assigned more scores to themselves and to their own groups over others (Hornsey, 2008). Given these findings, Tajfel and Turner coined the social identity theory (Tajfel, 1978; Tajfel and Turner, 1979), which states that individuals when part of a group are biased and relate themselves entirely to the group rather than on personal traits or characteristics. Such distinctions result in individuals having a favourable attitude towards their own group and differentiating with other groups (Hornsey, 2008).

Another theory often used together with social identity theory is the self-categorisation theory (Turner et al., 1987), which further extends the process of categorisation used in social identity theory. Self-categorisation theory posits that people look to maximise their fit and would categorise themselves where they can minimise intra-category dissimilarities and increase inter-category differences (Hornsey, 2008). Wiley and Monllor-Tormos (2018) draw on Turner et al. (1987)'s work on self-categorisation theory to explain that individuals on boards could categorise on the basis of gender leading to a preference for the groups they belong to and a distrust to other groups. This could in turn have a detrimental impact on the boards functioning and women on the board would not contribute to the firm's performance. Rather, they may end up have a negative impact on performance. Building on these theoretical perspectives where women on the board could impact REITs positively (i.e. through a monitoring or resource-based perspective) or negatively (i.e. the social identity theory and self-categorisation theory), in chapter 3 of the thesis we examine the effects of women on the board on REIT performance by taking advantage of the unique laboratory of REITs.

2.1.2 Overconfidence and risk-aversion theory

Overconfidence as a term finds its roots in the field of psychology. While majority of the literature in psychology has a focus on calibration and probability judgement aspects of overconfidence, the emphasis of the literature in finance and economics has encompassed the better than average effect and unreal optimism of individuals (Skata, 2008). The better than average effect can be attributed to the view where individuals perceive themselves to be superior to others (Svenson, 1981; Taylor and Brown, 1988; Alicke et al., 1995; Kruger, 1999), where such individuals attribute success of outcomes to their own ability and any negative results as a product of bad luck (Miller and Ross, 1975).

In the literature, the prevalence of the better than average effect has been studied in several experimental settings. One of the earliest studies by Svenson (1981) examined the better than average effect and found that respondents considered themselves to be safer and more skilful drivers than others without having a clear definition of what safe driving was. Consequently, Alicke et al. (1995) further add to the literature with evidence that a better than average effect exists in individuals where they perceive themselves in a positive light over others and such an effect also persists when further information is provided (i.e., comparison with a real person or with personal contact). Additionally, the findings from these studies are further strengthened with a comprehensive study conducted by Miller and Ross (1975) who provide evidence on the better than average effect existing in participants in experiments, attributing success to personal attributes over external factors such as luck. Further evidence for the better than average effect is provided by Kruger et al. (1999) who conducted an experiment where they found that respondents were more likely to focus on their own skills rather than that of the comparison group, thereby seeing themselves as above average.

Alternatively, another facet of overconfidence is concerned with unrealistic optimism of individuals whereby they are overoptimistic with respect to the future (Weinstein, 1980). The term unrealistic optimism was first coined in the seminal work of Weinstein (1980) who conducted an experiment with 200 college students on their chances of experiencing several events in the future. The study found an above average response for positive events and a below

average response for negative events, thereby highlighting that individuals are more likely to have unrealistic optimism for the future as they expect to have positive outcomes and not negative ones.

Given the ample of literature in psychology justifying the presence of overconfidence in individuals, the literature in behaviour finance has examined the presence of overconfidence in investors. Odean (1998) investigate the presence of overconfidence in investors and find that these agents are overconfident in their investment decisions as they place more emphasis on their knowledge over others thereby displaying a better than average effect. Consequently, such overconfident investors are found to increase trading volume. Further evidence of the overconfident effect is provided by Gervais and Odean (2001) who find that traders display overconfidence in their investment behaviour where they are more likely to attribute success to their own ability and place less emphasis on their failures which consequently results in an increase in trading volume and volatility. Building on the existing literature on overconfidence in behaviour finance, Chuang and Lee (2006) examine the presence of overconfidence in traders. They find that overconfident investors are more sensitive to private versus public information, they increase trading activity and volatility, and are more likely to invest in riskier securities.

Given the presence of overconfidence amongst individuals and investors, Malmendier and Tate (2005) argue that top management teams are more likely to exhibit a better than average effect due to a lack of a comparison group and may land up comparing themselves to an average manager and consider their investment decisions to be superior. Additionally, top management teams are more likely to show evidence of unreal optimism given their vested interests in the companies due to the structure of their compensation packages. This view of overconfidence is supported by Roll (1986) who argue that the presence of managerial hubris where bidders assume their valuations are accurate could be a driver for mergers and acquisitions.

Besides the literature on overconfidence of individuals on the better than average effect and unreal optimism, a substantial body of literature has examined the differences in risk aversion and overconfidence between men and women. Such studies consistently find that women are more risk-averse/ less overconfident than men in their investment decisions (for e.g., Croson and Gneezy, 2009). The studies examining the risk aversion and overconfidence of men and women are either conducted using experiments and probabilities or on investment decisions and arrive at the same conclusion that women are more risk-averse and less overconfident than men.

Considering studies on experiments and probabilities, Levin et al. (1998) examine the gambling outcomes of students and find that women are more cautious and less inclined to take risks than men. These findings are further corroborated by Sarin and Wieland (2016) who examine the risk-taking behaviour of women on gambling probabilities and find than women are on average more risk-averse than men. Furthermore, Deaux and Farris (1977) conducted a series of experiments on actors' performance and found that men were more likely to positively review their performance with women more likely to attribute their performance to luck. These differences were found to be greater when the task at hand was more masculine in nature.

With respect to studies conducted on investment decisions, Watson and McNaughton (2007) examine investment decisions made by women on retirement fund preferences in Australian universities and find that women choose less risky pension funds. Arano et al. (2010) present further evidence on the risk averse investment decisions made by women where women are found to make more risk averse retirement asset allocations than men. Barber and Odean (2001) make a further contribution to the literature on gender based risk-taking differences and find that men trade stocks 45 percent more than women. Further evidence of gender-based differences in risk aversion and overconfidence is found in studies examining exam behaviours. For instance, Bengtsson et al. (2005) use exam data from Stockholm university and find that men are more overconfident in getting a higher grade than women.

Overall, the literature argues that overconfident managers have a tendency to overestimate gains and take on negative net present value projects. The literature also presents compelling evidence that women are considered to be more risk-averse and less overconfident than men. In this thesis, we build on these theoretical perspectives and investigate the less risk-taking and less overconfident behaviour of women on REIT boards in chapter 3, 4, and 5.

2.2 Gender diversity and performance

Academics have long probed if board diversity impacts firm performance. Several studies have attempted to draw a connection. What is interesting however in these studies is that results vary significantly with the methodology applied. Adams and Ferreira (2009) investigate the impact of women on the board on firm performance and governance on a sample of US firms. Their investigation into governance reveals that women on the board have better attendance than their counterparts and they improve the overall attendance of the board they are a part of. Women on the board are more likely to assign themselves or be assigned to audit, nominating, or corporate governance committees. They are less likely to be a part of compensation committees. Furthermore, firms with female directors have more equity-based pay for directors.

Adams and Ferreira (2009) identify two forms of endogeneity that affect board gender diversity and firm performance. The first one is omitted variable such as firm culture, which they deal with using firm fixed effects. The second, reverse causality which may exist between women on the board and firm performance. To deal with reverse causality, they use an instrumental variable approach with the fraction of men on the board who sit on other boards of other firms which have women on them as an instrument. Additionally, as a robustness test, they use Arellano and Bond one step model with one period lagged independent variables and two and further period lagged Tobin's Q. Their results confirm that women on the board have a negative impact on firm performance.

Campbell and Minguez-Vera (2008) analyse the relationship between female representation on the board and firm financial performance in a sample of Spanish firms. They use four variables to measure board gender diversity: a dummy variable taking on the value of one if there are one or more women on the board, the Blau index, the Shannon index and the percentage of women on the board.

With respect to methodology, they use panel data models to deal with omitted variable bias and a two-staged least square (2SLS) model to deal with reverse causality. They find evidence of a positive relationship between diversity and performance (Campbell and Minguez-Vera, 2008).

Carter et al. (2003) use a 2SLS model to estimate the board diversity and firm performance relationship and they find that the number of women and the percentage of women on the board have a positive relationship with firm performance.

Contrary to their previous findings, Carter et al. (2010) investigate the impact of gender and ethnicity of directors on firm performance of US firms. They use ordinary least squares (OLS) and three-staged least square (3SLS) models, both with firm and year fixed effects to address the relationship. 3SLS helps deal with reverse causality and cross correlation and Carter et al. claim that it is superior to using a 2SLS approach. Using lagged values of Tobin's Q and return on assets (ROA) as instruments in their 3SLS model, they find no relationship between their diversity measures and firm performance.

Liu et al. (2014) analyse the relationship between female board representation and firm performance of firms in China. They use OLS regression analysis, 2SLS method with the percentage of female directors and females employed in their own industry as their instruments, and Arellano and Bond one step estimation method with lagged independent and dependent variables. They find strong statistical significance that women on the board in executive positions have a positive impact on firm performance.

Rose (2007) examine the relationship between women on the board and firm performance on Danish firms. They use a cross-sectional regression to analyse this relationship

and find that gender diversity, which is, the number of women on the board and the percentage of women on the board, have no significant relationship with firm performance.

Wiley and Monllor-Tormos (2018) probe the relationship between representation on women in the boardroom and firm performance for firms in Science, Technology, Engineering, Mathematics, and Finance (STEM&F) sectors. They apply a dynamic panel GMM estimator model to address three forms of endogeneity: omitted variable bias, reverse causality, and dynamic endogeneity. They find women on the board to have a significant impact on firm performance only when three or more women are present on the board, indicating a U-shaped relationship.

In the context of REITs, there are two studies which have probed the boardroom gender diversity and firm performance relationship. Dimovski et al. (2014) explore the relationship between board gender diversity and performance in Australia. Using an OLS, fixed effects, and random effects model, they find no relationship with women on the board and firm performance.

Schrand et al. (2018) examine the impact of board gender diversity on a firms operating and market performance. They use fund from operations per share a measure of operating performance and price to net asset value as a measure of market performance. They use a Heckman two-stage selection model with fixed effects to address endogeneity in the form of omitted variable bias, reverse causality and sample selection bias. The size of the board is used as the exclusion variable in their Heckman model. They find women on the board to positively impact market performance and not operating performance.

It is evident from empirical studies that the relationship between board gender diversity and firm performance is not clear. The results seem to vary significantly with the methodology applied. This indicates the presence of endogeneity, which is known to affect the relationship, has not been properly addressed. In this thesis, we address the endogeneity concerns existent in gender studies by utilising the unique information of REITs (i.e. location) and create property weighted indices for each REIT which captures a REITs exposure to gender

equality/friendliness.[1] Taking advantage of this unique asset level information, we explore the effects of female boardroom representation on REIT performance in chapter 3 of the thesis.

2.3 Gender diversity and risk

2.3.1 Gender diversity, firm risk, and M&A's

Building on the existent literature on risk-aversion and overconfidence where women are considered more risk-averse and less overconfident than men in their investment decisions, studies have investigated the effects of gender diversity of the board and executives on various corporate actions and outcomes. However, much of the literature examining overconfidence of directors and executives have largely focussed on special situations such as M&A's or firm level risk. For instance, Huang and Kisgen (2013) test the gender based overconfident theory where women are considered to be more risk-averse and less overconfident than men in their investment decisions. Using a sample of all firms listed on NYSE, NASDAQ, and AMEX with an asset base greater than 500 million dollars, they examine the effects of female CEO's and CFOs on various corporate actions and outcomes. They find that female executives undertake fewer acquisitions than their male counterparts and are associated with higher acquisition announcement returns. They further contribute to the gender-based overconfidence literature with evidence that male executives in their sample have lower debt announcement returns with female executives exercising stock options earlier and having wider bounds on earnings estimates than their male counterparts. Their findings are robust to using a difference in differences and instrumental variable approach. Li and Zheng (2014) further contribute to the findings of Huang and Kisgen (2013) by examining the effects gender diverse boards on firm-level mergers and acquisitions. Using a sample of US firms listed on S&P 500, S&P MidCap

[1] A detailed description of the instruments is provided in chapter 3 section 3.3.2 of the thesis.

400, and S&P Small Cap 600 indices over the period of 1997 to 2009, they find that firms with more women on the board lower acquisition propensity and the acquisitions on average have a lower bid premium. Their findings are robust to using a negative binomial regression, instrumental variable approach, and additional control variables. Additionally, Ahmed et al. (2022) examine the effects of female boardroom representation on the M&A decisions of US listed companies over the period of 2012 to 2018. Using a probit and logit model, they find that women on the board lower the likelihood of acquisitions, with an increased likelihood of acquiring familiar (i.e. domestic) versus unfamiliar (i.e. foreign) targets. Further evidence is presented by Chen et al. (2016), who examine the effects of board gender diversity on M&A's for S&P 1500 firms from the year 1998 to 2010. Using an OLS estimation, they find that an increase in board gender diversity lowers acquisition propensity, and these results are robust to using a difference in differences approach. Dowling and Aribi (2013) further contribute to the literature by examining the effects of gender diversity of the board on firm-level acquisitions for a sample of FTSE 100 firms over the period of 2000 to 2011. Using a Poisson regression, they find that an increase in proportion of women on the board lowers firm-level acquisitions and these results are robust to using a logit model and alternative measures of acquisition and gender diversity. Contrary to studies, Tiveron et al. (2023) examine the effects of gender diverse boards on M&A deal initiations for 250 companies in Europe over the period of 2009 to 2018. Using a negative binomial regression, they find that in increase in board gender diversity increases bid initiations with differing effects for different European countries. These findings are in contrast to the literature which generally finds that women on board and female executives lower acquisition propensity.

Besides the literature on M&A's which investigates the effects of gender diversity on acquisition propensity and announcement returns, a few studies in the literature have examined the effects of gender diversity of the board on firm level risk and find contrasting results. For instance, Bernile et al. (2018), Lenard et al. (2014), and Perryman et al. (2016) find that an increase in board gender diversity lowers firm level risk. On the contrary, Berger et al. (2014)

and Adams and Ragunathan (2017) find that board diversity to have a positive impact on firm risk, with Sila et al. (2016) finding no effect on firm risk.

Studies on board gender diversity often cite concerns of endogeneity in the form of reverse causality and omitted variable bias and often try to account for it by using appropriate estimation techniques. For instance, studies which find a negative effect of board gender diversity on firm risk either make use of an instrumental approach (Bernile et al., 2018) or resort to an OLS estimation (Lenard et al., 2014; Perryman et al., 2016), with some of these studies using alternative measures of risk and gender diversity as a robustness test. Studies which find a positive effect of board gender diversity on firm risk resort to using a difference in differences approach (Berger et al., 2014) or an instrumental variable approach (Adams and Ragunathan, 2017). Given the contradictory findings in the literature for the effects of board gender diversity on firm risk, Sila et al. (2016) attempt to deal with the endogeneity and employ a DPS-GMM, instrumental variable approach, and a difference in differences estimation and conclude that board gender diversity has no effect on firm risk and present evidence that any causality is merely a result of unresolved endogeneity existent with previous studies.

Besides endogeneity being a possible driver for differences in the relationship between gender diversity of the board and firm risk, the industry in concern also seems to define the direction of relationship. For instance, the studies which find gender diversity to lower firm risk include general corporations which exclude finance and utility firms (Bernile et al., 2018; Lenard et al., 2014; Perryman et al., 2016), whereas those which find a positive effect include firms in finance and banking industries (Berger et al., 2014; Adams and Ragunathan, 2017). Adams and Ragunathan (2017) argue that these differences in different industries are a product of differences in risk aversion not just limited to gender. For instance, women entering the finance or banking industries may be the same or less risk averse than their male counterparts as compared to other industries.

Given the inconclusive evidence from the literature on the effects of board gender diversity on firm risk and with the evidence that the direction of the relationship seems to vary

by the industry in concern, in chapter 3 as a first, we attempt to uncover the effects of board gender diversity on a firm's levels of risk using a sample of US Equity REITs. Since endogeneity is a concern in gender studies, this thesis attempts to resolve these issues using an instrumental variable approach with novel REIT specific instruments which leverage the unique location specific information at the asset level.

2.3.2 Gender diversity, diversification and REIT transaction activity

Majority of the literature for REITs has examined the effects of transaction activity on announcement returns or operating performance or investigated the effects of geographic diversification on REIT return and risk. Earlier studies focus on the effects of transaction activity on shareholders or debtholders wealth. McIntosh et al. (1995) examine acquisitions and dispositions and find that shareholders experience no wealth effects from transaction announcements. On the contrary, Glascock et al. (1991), Campbell et al. (2003), and Campbell et al. (2006) find transaction activity to positively affect returns, with Brounen et al. (2007) finding no effect for transaction activity on returns. In the case of creditors wealth, Datta et al. (1996) and Datta et al. (2003) find a positive effect of transaction activity on creditors wealth, with Li et al. (2020) finding an increase in transaction activity to lower creditors' wealth. Despite the inclusive evidence, the literature hints at the presence of a relation between transaction activity and performance.

Studies have further investigated the effects of diversification of a firm's portfolio on value. Motivated by The Modern Portfolio Theory (MPT) (Bodie et al., 2020) which dictates that diversification can help in lowering idiosyncratic component of risk and help achieve superior returns (Devine et al., 2024), the literature in finance (Montgomery, 1994; Berger and Ofek, 1995; Bielstein et al., 2018) and real estate (Capozza and Seguin, 1999; Cronqvist et al., 2001; Campbell et al., 2003; Hartzell et al., 2014) generally arrive at the same conclusion that diversification does not increase firm value but results in a discount. This is especially the case

for the real estate industry where information asymmetries exist where diversification by geography may result in an increase in operational costs due to a lack of local expertise (Capozza and Seguin, 1999; Devine et al., 2024) as agents who diversify by location have been known to overpay for properties (Eichholtz et al., 2016). Although majority of the studies focus on the effects of diversification on firm value, a few studies examine the effects of diversification on risk finding that concentration indeed results in an increase in risk (Ro and Ziobrowski 2009; Zhu and Li, 2022) which highlights the importance of considering both risk and return when examining diversification strategies.

Given the ample of evidence in the literature where transaction activity and diversification are known to affect value and risk, studies have delved into examining asset transaction activity and portfolio allocation choices in a real estate setting, motivated by the theory on overconfidence which dictates that overconfident investors are more likely to increase transaction activity. Zhang and Ooi (2021) examine the effects of CEO age on REIT acquisition activity and find that younger CEOs (who are considered more overconfident than older CEOs) increase REIT acquisition activity with older CEOs engaging in fewer acquisitions. Further evidence of the overconfidence effect on REIT transaction activity is presented by Eichholtz and Yonder (2015) who find that overconfident CEOs increase property transaction activity and have lower investment performance. Building on these findings, Devine et al. (2024) investigate the effects of women on the board and female executives on trading activity of US equity REITs and find that an increase in gender representation in top management teams results in lower trading activity, with transaction activity being more geographically focus.

In chapter 4 of the thesis, we further contribute to the findings of Devine et al. (2024) and examine the effects of women on a REITs board on property transaction activity. Using REITs as our sample over general corporations gives us several advantages as we are able to examine the more-averse/ less overconfident investment behaviour of women on REIT boards on transaction activity by dissecting our sample into in-state and out-of-state transactions. Lastly, since overconfident investors increase activity in bull market states (Gervais and Odean,

2001), we can further examine the effects of women on the board on a REITs transaction activity in bull and bear market states to confirm if women are indeed more risk-averse and less overconfident in their investment behaviours.

2.3.3 Gender diversity and stock price crash risk

The literature on stock price crash risk posits that managers have an incentive to withhold bad news for personal gains where such withholding of information results in a negative stock price reaction when such information is absorbed by the market (Habib et al., 2018; Kothari et al., 2009).A substantial body of literature has examined the phenomenon called stock price crash risk under various corporate actions and outcomes. Broadly, the literature identifies a positive or negative effect of these actions and outcomes on crash risk.

Jin et al. (2006) investigate the relation between r-square and several measures of transparency by examining stock returns in 40 stock markets over the period of 1990 to 2001. They find that a lack of transparency increases r-squared but stocks which have low transparency and high r-square increase stock price crash risk. They argue that more opaque the firm is the greater amount of hidden information in the form of bad news which increases the likelihood of a stock price crash when such information is disclosed to the market. Building on the work of Jin et al. (2006), Hutton et al. (2009) examine the effects of opaqueness of financial statements and distribution of stock returns. Measuring transparency using earnings management, they find that low transparency results in a higher r-squared where such opaque firms are more prone to crash risk owing to their tendency to withhold relevant information from the market. Additionally, Chang et al. (2017) examine the effects of stock liquidity and stock price crash risk. They find that firms with higher liquidity have a higher likelihood of future bad news releases which therefore result in higher selloffs by investors. Hence, managers are more likely to hoard bad news to avoid sell-offs by investors. When such information is eventually disclosed in the market, it results in a stock price crash. Further evidence of the

presence of stock price crash risk is presented by Kim et al. (2011) who examine the effects of corporate tax avoidance on crash risk. They argue that tax avoidance encourages bad news hoarding as it provides the tools and justification for the same which results in an increase in crash risk. Evidently, the presence of crash risk is also found to be a consequence of incentives. Xu et al. (2014) investigate the effects of excess perks on stock price crash risk for a sample of state-owned firms in China. They find that excess perks are positively associated with stock price crash risk where managers are incentivised to hoard bad news to reap the benefits of excess perks during their tenure. Studies have also investigated the dynamics of executives and their potential effects crash risk. Mamun et al. (2020) examine the effects of powerful CEOs on crash risk and find that entrenched CEOs where the CEO is also Chairman, founder, or president increase crash risk. These effects are weakened in the presence of external monitoring mechanisms which help alleviate agency issues created because of managerial entrenchment. Furthermore, Kim et al. (2015) investigate the effects of overconfident CEOs on crash risk and find a positive association. Since overconfident managers are more likely to overestimate gains and take on negative net present value projects, such bad performance tends to accumulate which eventually leads to a crash.

There are several studies in the literature which have found various corporate actions, outcomes, and environments to lower stock price crash risk. Dang et al. (2022) investigate the effects of US intrastate bank deregulation on stock price crash risk. They find that deregulation lower crash risk especially for banks which borrow funds and where weak corporate governance mechanisms are in place. They argue that bank deregulation helps banks to monitor the borrowings more efficiently and increases bank efficiency which minimises bad news hoarding. Kim et al. (2014) examine the effects of corporate social responsibility (CSR) on crash risk. They find that CSR lowers crash risk and CSR is more effective when firms lack governance mechanisms. CSR as a mechanism is argued to lower crash risk as it reduces bad news hoarding behaviour as socially responsible firms are more transparent due to higher ethical standards. Callen and Fang (2015) examine the effects of religiosity at the county level in the US and stock

price crash risk and find that firms headquartered in highly religious states lowers crash risk. They attribute their findings with evidence in the literature which proposes that individuals with strong religious beliefs are more likely to make morally correct decisions, have higher ethical standards and intentions coupled with more self-control and discipline (Miller and Hoffmann, 1995; Smith, 2003; Lehrer, 2004; Cunnigham, 1988; Kennedy and Lawton, 1998).

The literature has further examined the effects of gender diversity of top executives and boards on stock price crash risk. Li and Zheng (2019) examine the effects of female CEO's and CFO's and find that find that female CFO's lower stock price crash risk. On the other hand, Qayyum et al. (2022) investigate the effects of board gender diversity on crash risk and find that female boardroom representation lowers crash risk. These studies are motivated by the literature on risk-aversion and overconfidence where women are considered to be more risk-averse and less overconfident than men in their investment decisions (for e.g., Charness and Gneezy, 2012; Barber and Odean, 2001), used as an internal monitoring mechanism as they are efficient monitors (Adams and Ferreira, 2009), more likely to be transparent in their accounting practices (Francis et al., 2015), and less likely to take on negative net present value projects (Huang and Kisgen, 2013; Levi et al., 2014). Hence, functioning in a monitoring role by mitigating agency problems, firms with more gender representation as executives or on boards lower bad news hoarding which consequently lowers crash risk.

Given the evidence of female executives and female boardroom representation lowering crash risk, in chapter 5 of the thesis we extend the scope of the literature and explore the effects of female boardroom representation on REIT crash risk. Utilizing REITs as our sample gives us several advantages overall previous studies as we are able to investigate the monitoring role of women when REITs utilise risky concentration strategies which are known to increase risk. Having women as efficient monitors could help in lowering the left tail-specific risk. Furthermore, improving on previous studies which explored the effects of religion on crash risk, using the property level information of REITs we explore the exposure of a REITs business

to US state level religiosity and analyse the monitoring/ over-monitoring effects of having female representation on REIT boards.

3 Investment Overconfidence and Board Gender Diversity: Evidence of Why Location Matters

3.1 Introduction

Prior studies have examined the effects of board gender diversity on firm performance and corporate actions under three main perspectives. The agency theory, originally from Fama and Jensen (1983), explains the potential conflicts of interest that may arise between shareholders and managers. To mitigate these conflicts, corporate governance mechanisms, such as boards of directors, executive compensation schemes, and shareholder activism, are commonly used. Adams and Ferreira (2009) have shown that boards with a higher proportion of female directors tend to engage in tougher monitoring, have a greater alignment of incentives, and involve directors more in decision-making. Such boards may positively impact corporate performance by overcoming agency problems between managers and shareholders, especially in firms with weak governance. On the contrary, they find that board gender diversity may exert a negative impact on firm performance due to over-monitoring in already well-governed firms.

Furthermore, the resource dependence theory (Pfeffer and Salancik, 1978; Hillman and Dalziel, 2003) suggests that boards of directors can help firms reduce their external dependencies and gain legitimacy, advice, and resources. Gender diversity can help firms achieve better legitimacy and overcome homogeneity problems when providing advice. As suppliers, consumers and other stakeholders become more diverse, firms that include gender diversity on their boards gain access to a wider range of communication channels and resources.

This increased understanding of the marketplace – Robinson and Dechant (1997) – may enable firms to respond better to the needs and preferences of their diverse stakeholders.

Finally, the risk aversion theory suggests that women may be more risk-averse and less overconfident than men (Groson and Gneezy, 2009). Previous studies report firms with more female executives showing a lower risk, whether measured by leverage ratio – Schopohl et al. (2021) and Faccio et al. (2016) —, stock price crash risk – Li and Zeng (2019) –, or merger propensity, acquisition activities or debt announcement returns – Huang and Kisgen (2013). All these findings clearly underline the importance of considering both risk and return in a full evaluation of the effects of board gender diversity.

Empirical studies have explored the impact of board gender diversity on firm performance and risk, yielding conflicting findings. While some studies have reported a positive association between board diversity and firm performance (Liu et al., 2014; Campbell and Minguez-Vera, 2008), others have found a negative relationship in firms with strong governance (Adams and Ferreira, 2009), and still, others have detected no significant link (Carter et al., 2010; Rose, 2007). Similarly, research examining the relationship between board gender diversity and firm risk has produced mixed results, with some studies suggesting that gender-diverse boards increase firm risk (Adams and Ragunathan, 2017; Berger et al., 2014), while others find no discernible effect on risk for non-financial firms (Sila et al., 2016). These divergent results emphasize the complexity of the issue and the need for further research to elucidate the nature of the relationship between board gender diversity, firm performance, and risk. Moreover, Adams and Ferreira (2009) also underline the presence of endogeneity issues when performance is modelled using gender diversity which may be driven by reverse causality and omitted variable bias.

The objective of this study is to shed light upon the relationship between board gender diversity and firm performance, risk, and risk-adjusted returns all at once and addressing the endogeneity issue with an instrumental variable approach. To achieve this goal, we focus on US publicly listed REITs, which represent a suitable laboratory as they offer asset-level

information to generate an appropriate instrument for both cross-section and time series characteristics. This instrument also helps us to uncover the sources of REITs' firm risk in connection with board gender diversity and we are therefore able to shed light upon the impact of board gender diversity on organizational outcomes and provide insights useful to policymakers, investors, and stakeholders in general.

Knowing the individual asset location by state, we can measure a company's business exposure to states with different gender equality protection and/or awareness levels. The detailed property portfolio information also allows us to understand the sources of risk focusing on a REIT's portfolio diversification by geography, property-type and tenancy characteristics. Moreover, REITs are relatively homogeneous and have a straightforward business model, which naturally controls for potential confounding factors. Additionally, the 5:50 ownership rule restricts external blockholders from owning more than 50 percent of the shares, making external takeovers unlikely (Ghosh and Sirmans, 2003). Therefore, as internal monitoring mechanisms are found to be more critical for REITs and women directors act as efficient monitors (Adams and Ferreira, 2009), we should find board gender diversity to be an ideal proxy for internal mechanisms to deal with agency problems, and we expect it to play an important role among REITs.

We begin by analysing the effect of female boardroom representation on firm performance. To address concerns about endogeneity, we use instrumental variables that leverage information about the locations of properties owned by REITs. Our findings indicate that women on the board have a positive effect on firm performance. We then examine if women on the board affect firm risk. Our analyses reveal that women on the board increase firm risk, which is seemingly contradictory to the widely held belief that women are more risk-averse or less overconfident than men (Croson and Gneezy, 2009). To assess the combined effects on return and risk, we examine the impact of female boardroom representation on risk-adjusted return and find no significant effect. This finding suggests that any incremental increase in risk due to board gender diversity is justified by the increase in performance.

Accordingly, board gender diversity appears to promote REITs to have higher-risk, higher-return profiles.

Thus, our research reveals a noteworthy result that women serving on a board can lead to a substantial increase in a firm's risk, which seems to be inconsistent with the risk-aversion theory. To better understand the underlying reasons for this finding, we investigate the impact of female boardroom representation on diversification strategies that REITs employ to manage their risk, using the Herfindahl index[2] as a measure of diversification (Hartzell et al., 2014). Most interestingly, we find that REITs with more women on the board tend to be geographically more focused (i.e., less diversified). Further, we find that, for firms with more women on their boards, geographical concentration appears to be a significant driver of increased firm risk, while an increase in firm risk cannot be fully explained by geographical concentration among firms with fewer women on their boards. These results suggest that firms with gender-diverse boards exhibit increased risk due to lower levels of overconfidence among women on boards, as evidenced by geographical concentration. In the areas where board members have excellent market knowledge, investment history, and network, we can expect superior investment decisions. As a result, these firms also tend to achieve superior performance.

A final important note seems useful to differentiate this study from Devine et al. (2024), where they measure gender diversity differently (woman CEO) alongside women on board and Blau Index and they mainly test its relationship with risk (net investment activity, geographic focus and environmentally sustainable investment). Their methodology is based on OLS estimation, with a weighted OLS estimation in the robustness section. We instead differentiate from that study and contribute to the literature by: assessing the impact on firm performance, risk and, for the very first time, risk-adjusted returns; dealing with endogeneity through an IV approach (gender equality index or gay rights, as well as pressure from peers); and finding high

[2] Alternatively, we use the average square root of distance of properties to a REITs headquarters (Milcheva et al., 2021) as a measure of geographic diversification.

geographic concentration as a potential channel for increased risk taken by companies with a high number of women in the board.

The remainder of the study is organized as follows. Section 3.2 covers the existing literature and motivation of gender diversity on firm performance and risk. Section 3.3 describes the data used, and the methodology applied. Section 3.4 presents the results on the economic and statistical significance of the empirical tests of board gender diversity on firm performance, risk, sources of risk, and risk-adjusted returns. Section 3.5 presents the robustness tests using alternative instruments and different model specifications. Section 3.6 summarizes and concludes.

3.2 Literature review

Numerous studies have highlighted the potential benefits of diversity in top management teams. Cox and Blake (1991) and Robinson and Dechant (1997) argue that diversity can provide a business advantage, with firms that incorporate diversity experiencing lower rates of employee turnover and absenteeism. In contrast, firms that fail to embrace diversity may incur higher costs due to these factors. In addition to these benefits, diverse management teams can bring a wealth of other advantages. For example, diverse teams can offer enhanced marketplace knowledge, creativity and innovation, and improved problem-solving as a result of the variety of perspectives and experiences they bring (Cox and Blake, 1991; Robinson and Dechant, 1997; Richard and Shelor, 2002). Therefore, firms that prioritize diversity may have a competitive edge in today's global marketplace.

Given claims that diversity could benefit firms, the relationship between board gender diversity and firm performance has been a topic of interest in the literature. Empirical studies have investigated this relationship, but the results differ widely across studies, leaving the relationship inconclusive. For example, Adams and Ferreira (2009) find a negative relationship

between female directors and firm performance. In contrast, Liu et al. (2014) find a positive relationship between gender diversity and firm performance, as measured by ROA and return on sales. Campbell and Minguez-Vera (2008) also find a positive relationship between gender diversity on boards and firm performance, measured by Tobins Q. Similarly, Carter et al. (2003) find a positive relationship between the fraction of women on the board and firm value, measured by Tobins Q. However, some studies find no significant relationship between board gender diversity and firm performance. For instance, Carter et al. (2010) and Rose (2007) find no significant relationship between several firm performance measures and board gender representation.

Research on the impact of gender diversity in the REIT industry is still limited, and the findings are mixed. Dimovski et al. (2014) reported no significant association between female directors and firm performance, while Schrand et al. (2018) found a positive impact of board gender diversity on market performance. In contrast, Noguera (2020) found that board gender diversity had a positive impact on REIT performance only when there was a critical mass of women on the board. However, Hogan and Huerta's (2019) study on gender diversity in middle management found a negative impact on REIT performance. These studies suggest that the relationship between gender diversity and REIT performance is complex and may depend on various factors, such as the level of female representation and the hierarchical position of women within the organization. Thus, further research is necessary to fully understand the impact of gender diversity on REIT performance.

The motivation to study the impact of gender diversity on organizations stems from three main theories in the literature. They are the agency theory (Fama and Jensen, 1983), the resource dependence theory (Pfeffer and Salancik, 1978), and the risk aversion theory (Croson and Gneezy, 2009).

The agency theory posits that the separation of decision management from residual claims in organizations can lead managers to prioritize their own interests over those of shareholders, which highlights the need for monitoring. The board of directors, especially

outside board members, has been recognized as a means of mitigating agency problems by acting as a monitoring mechanism (Fama and Jensen, 1983). Research indicates that board independence is crucial, and diversity in the form of gender or ethnicity can enhance the independence of the board, thereby improving monitoring (Carter et al., 2003). Specifically, Adams and Ferreira (2009) have shown that women directors are more likely to be present on monitoring committees, have better attendance records, and improve the attendance of the boards to which they belong. Furthermore, evidence suggests that women directors align the interests of management and shareholders, as companies with more women on the board are associated with more equity-based compensation for directors.

The resource dependency theory, introduced by Pfeffer and Salancik (1978), suggests that organizations rely on resources from their external environments, such as financial, capital, technology, raw materials, and labour. Organizations are not self-sufficient and cannot produce all the resources they need internally. Therefore, they must obtain them from external sources. However, this dependence on external resources creates risks because organizations may not have full control over the availability or quality of these resources. To manage these risks, organizations attempt to establish connections with the external environment they depend on (Hillman et al., 2007). This could include creating alliances or partnerships with other organizations, lobbying for favourable regulations, or building relationships with suppliers, customers, and other stakeholders.

The board of directors is an effective method for reducing an organization's dependence on external resources. According to Pfeffer and Salancik (1978) and Hillman and Dalziel (2003), boards provide benefits such as legitimacy, counsel and advice, channels of communication, and access to resources. Legitimacy is important for firms as they face external pressures for diversity and need to adapt their diversity to how societies value diversity (Hillman et al., 2007; Cox et al., 1991). Firms can also profit from the legitimacy obtained through diverse boards by consumers who value diversity, thereby creating goodwill (Robinson and Dechant, 1997). In terms of counsel and advice, heterogeneous teams outperform

homogenous teams with enhanced problem-solving skills, according to Robinson and Dechant (1997). Having diversity in a team or a board of directors can help ensure that a wider range of potential solutions are explored, which can ultimately lead to better outcomes for the organization. With respect to channels of communication and resources, stakeholders, customers, and suppliers are becoming more diverse. By including women on corporate boards, firms could benefit through an enhanced understanding of the marketplace (Robinson and Dechant, 1997).

The risk-aversion theory suggests that men and women differ in their risk-taking preferences. Croson and Gneezy (2009) review the literature on gender differences and conclude that women, in general, are more risk-averse than men. Such risk-averse behaviour is exhibited in investment choices where women make more conservative investment decisions than men (Watson and McNaughton, 2007; Charness and Gneezy, 2012; Bernasek and Shwiff, 2001; Sundén and Surette, 1998). A growing body of literature has investigated the implications of such risk-taking differences in various corporate actions involving the top management of firms. Evidence from the literature suggests that female executives are associated with lower leverage (Schopohl et al., 2021; Faccio et al., 2016), lower stock price crash risk (Li and Zeng, 2019), and a lower propensity to engage in mergers and acquisitions and higher acquisition and debt announcement returns (Huang and Kisgen, 2013).

Studies on gender differences in the board of directors on the firm risk, however, find contrasting results. For instance, Sila et al. (2016) find no relationship between board gender diversity and firm risk-taking in a sample of non-financial firms, whereas Adams and Ragunathan (2017) find women directors to be less risk-averse than their male counterparts in the finance industry. Similarly, Berger et al. (2014) find women directors increase bank portfolio risk. Such differences are argued to be a result of selection processes into industries where the risk preferences of individuals are different for industries from the stereotyped women are more risk averse than men (Adams and Ragunathan, 2017).

3.3 Data and methodology

In this section we present the data used in the empirical investigation and we particularly discuss the use of instrumental variables in our estimation procedure.

3.3.1 Data and variables

In our analysis, we obtain board-level data for selected firms from BoardEx, which is a database accessible through Wharton Research Data Services (WRDS) and providing several information about board composition and characteristics of key executives. Overall, we use a sample of US public REITs sourced from the S&P Capital IQ database, which is a web-based platform combining information on companies, markets, and people globally. It provides profiles of in excess of 50,000 public and 6 million private firms worldwide. In particular, we obtain information on all equity REITs, which mainly invest in private real estate assets, and we exclude mortgage REITs, which primarily invest in debt products (i.e. mortgages). To avoid survivorship bias issues, we include all companies that existed for at least one year in the market, including stocks that have been delisted, gone bankrupt, performed poorly or were subject to merger and acquisition or other events over our sample period. Financial data is obtained from S&P Capital IQ, as well as COMPUSTAT Capital IQ. Stock price data is obtained from CRSP database via WRDS.

Importantly, we used a fuzzy matching procedure to merge the different databases by ISIN, CUSIP, address and phone number, with matchings that were also individually checked manually. Due to sometimes restricted availability of board data on BoardEx, our final sample consists of 179 firms during our sample period between 2000 and 2018, giving us a total of 2,190 firm-year observations.

We intend to test the impact of board gender diversity on three main measures: return, risk and risk-adjusted return. As far as the former is concerned, we follow previous literature – Adams and Ferreira (2009), Liu et al. (2014), Campbell and Minguez-Vera (2008), Carter et al. (2003, 2010) and Rose (2007) – and use firms' operational return as measured by return on assets (*ROA*) and return on equity (*ROE*).[3]

Furthermore, following Sila et al. (2016) and Bernile et al. (2018), we compute idiosyncratic, systematic and total volatilities to proxy for risk. Firstly, we regress monthly excess returns on the Fama and French (1993) three factors and an additional real estate factor created following Hsieh and Peterson (2000):[4]

$$r_{it} - r_{ft} = \alpha_i + \beta_1\left(R_{Mt} - r_{ft}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 NAREIT_t + \varepsilon_{it} \qquad (3.1)$$

where $r_{it} - r_{ft}$ and $R_{Mt} - r_{ft}$ represents the monthly excess return above the risk free rate r_{ft} for firm *i* and the market respectively, α_i is the intercept, SMB_t and HML_t represent the small minus big and high minus low factors[5] and $NAREIT_t$ refers to the real estate factor. This additional factor is computed as the sum of the intercept and the error term when regressing the equity National Association of Real Estate Investment Trusts (NAREIT) index on the Fama and French three factors. This additional factor is orthogonalized to the Fama and French (1993) three factors and it captures the variation in excess due a real estate factor loading.

We obtain a measure of idiosyncratic volatility (*IVOL*) by computing the standard deviation of the error term ε_{it} and the total volatility (*TVOL*) as the standard deviation of the firm's monthly excess returns each year ($r_{it} - r_{ft}$). Finally, the systematic volatility (*SVOL*) is obtained by subtracting *IVOL* from *TVOL*.

[3] Following Feng et al. (2021), we restrict ROE to -100 and +100%.
[4] We also compute systematic and idiosyncratic volatilities from the Fama and French (1993) three factor models as robustness checks.
[5] The Fama and French three factors and the risk-free rate are obtained from Kenneth French's website: https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

Finally, to combine measures of performance and risk at the firm level, we also use the Jensen's alpha from equation (3.1) – α_i – as a measure of risk-adjusted return to test whether a more substantial presence of women on the board translates into an augmented performance after accounting for risk.[6]

In the last part of our analysis, we concentrate on the sources of risk and test whether women on the board shift exposure to geographical, property type and tenants' concentration. Therefore, we construct Herfindahl indexes for these three risk components following Hartzell et al. (2014), and we rescale them to a 0 to 1 range by dividing by 10,000 the index measures obtained from the equations below – Ling et al. (2022). Geographic concentration measure - $HHIG_{it}$ (*HHI G*) is computed by taking the sum of the squared property exposure that each REIT *i* holds in each state every year ($Prop_{ijt}^2$) as follows:

$$HHIG_{it} = \sum_{j=1}^{m} Prop_{ijt}^2 \tag{3.2}$$

Property type concentration - $HHIP_{it}$ (*HHI P*), instead, is measured as the sum of the squared property exposure that each REIT *i* holds in each subsector *s* every year ($Prop_{ist}^2$) as follows:

$$HHIP_{it} = \sum_{s=1}^{q} Prop_{ist}^2 \tag{3.3}$$

Furthermore, tenants' concentration – $HHIT_{it}$ (*HHI T*) is measured as the sum of the squared exposure that each REIT *i* holds towards each of the top 30 tenants *l* by revenue every year ($Prop_{ilt}^2$) as follows:

[6] We also compute Jensen's alpha, our measure of risk-adjusted returns, using the Fama and French (1993) three factor model as robustness checks and results are confirmed.

$$HHIT_{it} = \sum_{l=1}^{30} Prop_{ilt}^{2} \tag{3.4}$$

Finally, as an alternative measure of geographic risk exposure - $DIST_{it}$ (*DIST*), we use the simple average square root of the distance of properties to a REIT headquarter ($sqrt(Distance_{nit})$) – Milcheva et al. (2021) – as follows:

$$DIST_{it} = \frac{1}{N_{it}} \sum_{n=1}^{N} sqrt(Distance_{nit}) \tag{3.5}$$

where N_{it} is the total number of properties for each REIT *i* in year *t*.

Alongside the key variable of interest in our study (percentage of women on the board), our estimation models also include several other variables to control for the heterogeneity of cross-sectional and time-dependent characteristics. The choice of controls is based on previous literature, where we combine several characteristics used in different studies to maximise their representation within the available dataset – e.g. Adams and Ferreira (2009), Carter et al. (2003), Liu et al. (2014) and Sila et al. (2016). Firstly, we include time varying board characteristic to capture heterogeneity other than gender diversity in the board composition over time: *Board Size* measures the number of directors on the board; *% Independent* represents the proportion of independent directors on the board as another form of internal monitoring; *Duality* (a binary variable that equals one if the CEO also serves as the Chairman of the board and zero otherwise) controls for potential situations of entrenchment that may be favoured by concentration of power; *CEO Tenure* reflects the length of time (in years) spent by CEOs in their role.

In addition, we also incorporate several firm characteristics: *Ln(Total Assets)* measures the natural logarithm of total assets and controls for firm size which has been shown relevant

for both firm return and risk; *Firm Age* reflects the number of years since a firm was listed on the stock exchange and proxies for both knowledge and maturity acquired by a firm regardless of board composition or other current factors; *Leverage* measures the book value of debt as a percentage of total assets and represents the financial risk of the firm; *MTB* is market to book ratio and it reflects growth opportunities.

3.3.2 Potential endogeneity and instrumental variables

Endogeneity in the form of omitted variable bias and reverse causality is known to exist for gender studies where board diversity may not be necessarily exogenous. Even if we recognise that several other studies have used functional forms and model specifications similar to ours, we include both firm- and time-fixed effects to reduce the impact of a potential endogeneity deriving from an omitted variable bias. Furthermore, we employ an instrumental variable approach to address a second form of endogeneity issue deriving from reverse causality. To construct a valid and unique instrument for percentage of women on the board, we collect a series of indicators from different sources and generate annual gender equality scores by state following Sugarman and Straus (1988) and Noia (2002). In particular, we consider indicators in three main spheres – economic, political and legal –, which reflect the recognition of participation, status and protection of women relative to men. Table A2 reports a full list and description of measures: amongst others, the economic sphere includes civilian labour force participation or median income, while political indicators report the percentage of women on state house and senate offices.[7] Finally, the legal sphere is rich of several measures which are taken from state rather than federal laws and refer to employment practices and suits, equal pay, sex discrimination in housing, finance and education law, statutes in relation to

[7] All economic and political measures are computed as a ratio for women relative to men.

abuses, arrests and reporting, as well as paid maternity leave that we add as an additional indicator to the ones used in Noia (2002).[8]

Once we obtain all these measures, we compute an average score for every sphere, state *j* and year *t* and we subsequently obtain an overall average of the three elements to compute the annual $\text{gender equality score}_{jt}$ by state. By using the information about the asset locations of each company, we further compute their business exposure to different states w_{ijt}, as the proportion of the number of assets each REIT *i* holds in state *j* in year *t*.[9] We finally construct the gender equality index - GEI_{it} (*GEI*) as a weighted average of the gender equality score by state, which is higher for states with more friendly policies for women:

$$GEI_{it} = \sum_{j=0}^{50} w_{ijt} * \text{ gender equality score}_{jt} \tag{3.6}$$

Figure 3.1 reports a colour-coded map of the gender equality score by state in 2000 (Panel A) and 2018 (Panel B). The map becomes generally darker passing from 2000 to 2018, with states moving at different pace: for example, Alabama and California hardly changing from a relatively low and high score in 2000, while Louisiana, Arizona and Nevada significantly improving. Overall, variation across states and time are both important.

As a robustness test and following Lax and Phillips (2009), we also construct and use, in combination with *PEERS*, a property weighted gay rights index for each REIT *i* at time *t* – GRI_{it} (*Gay Rights*) as an alternative instrument to *GEI*. In particular, *Gay Rights* serves as a proxy for gender protection or awareness as the score is higher for states with more friendly policies for diversity. The construction of *Gay Rights* follows the one for *GEI*, where the score for each state j is weighted by w_{ijt}, which represents the percentage of properties each REIT *i* holds in state *j* at time *t*:

[8] A detailed description of the indicators is provided in Appendix A Table A2.
[9] Previous studies purely rely on information about companies headquarter locations, while we are able to use a more precise measure of the business by using investment locations which are publicly available for REITs.

$$GRI_{it} = \sum_{j=0}^{50} w_{ijt} * \ gay\ rights\ score_j \tag{3.7}$$

Figure 3.1 Panel C reports the gay rights protection/awareness by state. As it can be visually noticed in an overall correspondence of dark/light colours with the maps in Panels A and B, the correlation between *Gay Rights* and *GEI* ranges between 0.60 and 0.65 depending upon the measure of the latter (2000, 2018 or average for the whole period). This evidence shows that there is a clear correlation with recognition of diversity in policies (i.e. gay rights awareness and gender equality more generally) and *Gay Rights* represents a valid alternative for *GEI*: as an instrument in our robustness test.

Finally, following Liu et al. (2014), we also include a second instrumental variable in our first stage regression, measured from industry peers' practice. This instrument - $PEERS_{it}$ (*PEERS*) is constructed as a percentage of the total number of women on the board in the relevant REITs sub-industry excluding the firm itself ($Women_{sub-ind,ex-i}$), divided by the board size in the same sub-industry excluding the firm ($BoardSize_{sub-ind,ex-i}$):

$$PEERS_{it} = \sum_{m=1}^{p} \frac{Women_{sub-ind,ex-i}}{BoardSize_{sub-ind,ex-i}} \tag{3.8}$$

This instrument can be viewed as a proxy for peer pressure, where a firm would be more likely to follow its industry peers in their governance practices.

3.3.3 Methodology

Following previous literature – e.g. Carter et al. (2010) Sila et al. (2016), Bernile et al. (2018) – we estimate the impact of board gender diversity as follows:

$$Outcome_{it} = \alpha + \beta * \%Women_{it} + \Theta * X_{it} + \nu_i + \mu_{ex-i,t} + \varepsilon_{it} \quad (3.9)$$

where $\%Women_{it}$ measures the percentage of women on the board for company *i* in year *t*, and Θ is a vector of coefficients for several control variables (X_{it}) used in this study: board size, percentage of independent directors on the board, CEO characteristics (i.e. tenure and dual role as chair), firm age since listing, firm size (natural logarithm of assets) and leverage; finally, ν_i captures firm fixed effects, $\mu_{ex-i,t}$ represents time fixed effects measured as industry average (excl. firm *i*) of the outcome variable to control for market-wide unobserved time-varying factors.[10]

To address concerns about the endogeneity of board gender diversity in the form of reverse causality and omitted variable bias, we estimate a two-stage IV approach, where we firstly predict our main variable of interest (*% Women*) using peers' pressure (*PEERS*) and gender equality index (*GEI*) as the two main instruments. Having two instruments and one endogenous variable, we can also perform an overidentification test, which is reported in the main tables and confirms the appropriateness of our chosen variables. In a robustness test, we also substitute *GEI* with the gay right index (*Gay Rights*). The first stage estimation model is represented as follows:

$$\%Women_{it} = \alpha + \delta * PEERS_{it} + \lambda * GEI_{it} + \Phi * X_{it} + \eta_{it} \quad (3.10)$$

where Φ represents the vector of coefficients for the same control variables X_{it} used in model (3.9) and explained above.

We then use the predicted values from the first stage ($\%\widehat{Women}_{it}$) to estimate the second stage model as follows:

[10] A detailed description of the variables is provided in Appendix A Table A1.

$$outcome_{it} = \alpha + \omega * \%\widehat{Women}_{it} + \Psi * X_{it} + \nu_i + \mu_{ex-i,t} + \varepsilon_{it} \quad (3.11)$$

where Ψ represents the vector of coefficients for the same control variables X_{it} used in both model (3.9) and (3.10). As far as outcome variables ($outcome_{it}$) are concerned, we have two measures related to firm performance (*ROE* and *ROA*), three related to total (*TVOL*), systematic (*SVOL*) and idiosyncratic (*IVOL*) risk, one for risk-adjusted returns (*Alpha RE* from equation (3.1), α_i) and four more for geographic (*HHI* G and *DIST*), property type (*HHI P*) and tenants (*HHI T*) concentration risk. Having controlled for endogeneity, ω should then represent the unbiased estimator of the impact of board gender diversity on the outcome variables performance, risk and risk-adjusted returns. Overall, we find that ω is both economically and statistically more significant than the β coefficient estimated with a simple OLS procedure.

As a final step in our empirical analysis, we offer an initial analysis to shed light upon how diversification strategies may be affected by board gender diversity and lead to higher stock volatility. In particular, we believe that companies with more women on board should present a greater geographic concentration due to their tendency to invest in familiar territories. This attitude should then increase firm risk and lead to a higher stock return volatility as estimated in the following model:

$$TVOL_{it} = \alpha + \omega * HHIG_{it} + \Theta * X_{it} + \nu_i + \mu_{ex-i,t} + \varepsilon_{it} \quad (3.12)$$

where we regress the geographic Herfindahl index – *HHI G* ($HHIG_{it}$) on total volatility – *TVOL* ($TVOL_{it}$) and a number of control variables (X_{it}), alongside firm- (ν_i) and time-fixed effects ($\mu_{ex-i,t}$).

We split the sample using the board gender diversity measure in above- and below-median and expect the relationship to hold for the above-median median sample where the effect of women on the board should be significant, but not for the below-median sub-sample. As a further robustness test, we also split the sample in three sub-samples formed by companies

with high (top 30%), medium (average 40% in the middle) and low (bottom 30%) percentage of women on the board. As previously stated, we expect the relationship between geographic concentration and total volatility to hold for the high sub-sample and not for the other two.

3.4 Main Results

3.4.1 Descriptive statistics

Table 3.1 provides the descriptive statistics for our sample (Panel A) and a comparison of these characteristics between firms with and without women on their boards (Panel B). On average women represent 10.2% of board members and this percentage is almost doubled (17.4%) when we only consider firms with women on boards. REITs with female board members have larger boards, more independent directors, and fewer CEOs simultaneously serving as board chairs than REITs with only male board members. The average CEO tenure across all firms is 5.58 years, with no significant difference determined by the presence of women on boards.

As far as firm characteristics are concerned, we find that REITs with female board members tend to be significantly older (20 vs. 14 years) and invest in larger asset portfolios, but the two groups seem to be exposed to a similar financial risk (as proxied by leverage just below 50%). Furthermore, firms with female board members exhibit higher market-to-book ratios (*MTB*) and return on equity (*ROE*), as well as lower total (*TVOL*) and idiosyncratic risk (*IVOL*) than REITs with only male board members, while the two groups do not seem to differ for operational performance (*ROA*), systematic risk (*SVOL*) and risk-adjusted return (*Alpha RE*). Additionally, firms with female board members tend to show a greater geographical diversification (lower *HHI G*) and hold properties located farther from their headquarters

(higher *DIST*) than REITs with only male board members, but the two groups are similar for property type (*HHI P*) and tenant diversification (*HHI T*).

As firm outcomes (e.g. performance, risk and risk management strategies) are hereby presented without controlling for other firm characteristics, we defer further comments to the modelling exercise and discussion of our main results. In fact, to better understand the effects of female board representation on firm outcomes, we carry out formal analyses that control for board and firm characteristics and account for possible endogeneity using an instrumental variable approach as presented in the previous section. Multicollinearity does not represent a concern for our estimations as the variance inflation factors (VIFs) are below 3.0 for all variable, with an average value of 1.4. Thus, the multicollinearity is not a serious concern for our regressions.

3.4.2 Board gender diversity and firm performance

Table 3.2 presents the main results for our estimation of the impact of board gender diversity on firm performance (Equations 3.9 to 3.11). As the literature suggests that the relationship between board gender diversity and firm performance may suffer from endogeneity due to the non-strictly exogenous nature of the presence of women on boards, we adopt an IV estimation method as our main model, but we also present results employing a simple OLS. For the IV model we use peer pressure (*PEERS*) and the gender equality index (*GEI*) as instruments for the percentage of women on boards. The first stage of our IV models confirms the need to treat the endogeneity issue and shows significant instruments (both *PEERS* and *GEI*), which also pass the Sargan–Hansen and Anderson-Canon test for respectively over- and under-identification.

Our second stage results show a positive contribution of women to firm performance for both *ROA* or *ROE,* and they confirm the findings of Liu et al. (2014), Campbell and Minguez-Vera (2008), and Carter et al. (2003) for general equities and Schrand et al. (2018)

and Noguera (2020) for REITs. More specifically, a 1% increase in the percentage of women on boards is associated with a 0.2% increase in *ROA* (significant at the 1% level) and a 0.8% increase in *ROE*. Overall, the results from the performance regressions show compelling evidence of women on the board improving REIT performance. Women on the board may be acting as an internal monitoring mechanism (Adams and Ferreira, 2009) as they are considered true outsiders and don't belong to the 'old boys club' (Carter et al., 2003) thereby alleviating agency issues. Alternatively, such improved performance could be explained in a resource-based perspective where women on the board could benefit REITs by bringing in their own unique resources and better understanding of diverse marketplaces (Pfeffer and Salancik, 1978; Hillman and Dalziel, 2003; Robinson and Dechant, 1997). Our control variables show results in line with expectations with board size and firm age hindering performance and the dimension of the asset portfolio creating economies of scale and improving returns. Finally, leverage has positive impact on unlevered performance but a negative one on the levered one, probably due to the multiplier effect and its impact around the global financial crisis.

Moreover, our OLS estimations show weaker results, and we only find a significant and almost 20 times smaller impact of board gender diversity on operational performance, and no impact on the levered return at firm level (*ROE*). Using a similar estimation model, these findings are similar to Carter et al. (2010) and Rose (2007) for general equities and Dimovski et al. (2014) for REITs. Therefore, we overall present strong and compelling evidence for the need to treat endogeneity (using an IV as opposed to OLS estimation) and for the significantly positive impact of board gender diversity on firm performance, aligning with agency theory and resource dependency theory.

3.4.3 Board gender diversity and firm risk

After presenting the results on performance, we also estimate models testing the impact of board gender diversity on firm risk as previous empirical evidence on the risk-aversion

theory suggests the importance of considering both risk and return to evaluate the effects of board gender diversity and female executives on firm outcomes - Schopohl et al. (2021); Faccio et al. (2016); Li and Zeng (2019); Huang and Kisgen (2013). Table 3.3 reports our main results for total, systematic and idiosyncratic volatility. By examining these different measures of risk, we can gain a deeper understanding of how the effect of board gender diversity differs across different component of the overall risk.

We use IV as main estimation method and find evidence that both total (*TVOL*) and systematic volatilities (*SVOL*) increase with more women on the board, in line with studies in general equities such as Adams and Ragunathan (2017) and Berger et al. (2014). Women tend to increase the exposure to the market risk component, but do not do so as far as idiosyncratic risk is considered. As systematic risk is the only one priced in financial markets, this suggests that women only take further risk exposure when they can generate extra performance – i.e. risk aversion theory, as in Croson and Gneezy (2009) and Barber and Odean (2001). More specifically, a 1% increase of women on the board results in a 1.1% and 0.7% increase in total and systematic volatilities respectively.[11] These findings are also consistent with our performance results as the increase in risk taken by firms with greater gender diversity leads to a higher performance. Furthermore, the more risk-averse nature of women on the board could increase systematic risk as they could be aligning more closely with the market by reducing idiosyncratic decision making. Overall, the results clearly highlight the importance of women on corporate boards. Contrary to popular belief and the existing literature on gender diversity and firm risk, women on REIT boards tend to increase the overall risk, especially the systematic component of risk-taking. This increase in risk for REITs could be a consequence of real estate being a male-dominated industry (Devine et al., 2024). Further supporting evidence is presented by Adams and Ragunathan (2017) who argue that women may behave differently depending

[11] Alternatively, we compute systematic and idiosyncratic volatility using the Fama and French (1993) three factor models and find that on average our results still hold (See Table A3 in Appendix A).

on the industry in question. Women in finance and real estate industries may in-fact be more risk-taking when compared to other industries.

Contrarily, our OLS results do not show significance for either *TVOL* or *SVOL*, in line with previous studies such as Sila et al. (2016). Moreover, the increase in *IVOL* using OLS would be contrary to previous literature and therefore we give further support to the necessary treatment of endogeneity using an IV estimation approach.

3.4.4 Board gender diversity and risk-adjusted returns

As our results suggest that board gender diversity leads to a higher performance, as well as a higher systematic and total risk, we believe that the extra performance obtained by firms with more women on boards may only compensate for extra risk, without necessarily generating a superior return on a risk-adjusted basis. As far as we know, there is no previous study that attempts to test the impact of female board representation on performance on a risk-adjusted basis. Therefore, we take a further step and combine the two previous findings to understand if the presence of women on boards can generate an extra return after adjusting for the higher risk. We estimate equation 3.9 to 3.11 and Table 3.4 presents the main results, where the outcome variable is represented by the abnormal return (*Alpha RE*) obtained with a four-factor asset pricing model as explained in section 3.3. We do not find any evidence for the ability of women on boards to generate superior risk-adjusted returns, whether we use an IV or an OLS estimation. Our results are also consistent with the adoption of a pure Fama and French (1993) three factor model (see Table A3 in Appendix A). Overall, we are the first to show that firms with a higher proportion of female representation are only able to generate an extra return, to compensate investors for the additional risk taken.

3.4.5 Board gender diversity and risk management strategy

To further understand the higher risk strategy adopted by firms with greater board gender diversity, we explore the mechanisms behind these portfolio and risk management strategies. Using REITs as our sample allows us to identify the sources of such risk more precisely as we have access to the detailed information about individual real estate assets owned by REITs. Therefore, we investigate whether female board representation affects several risk management decisions related to the exposure to/diversification by geography (asset location), property type (destination of use for the single assets) and tenants' composition (single vs multi-tenant properties).

Table 3.5 reports the estimation of equation 3.11 (IV, Panel A) and 3.9 (OLS, Panel B) that test the impact of board gender diversity on the firm's risk management decisions. The outcome variables are concentration measures (Herfindahl indexes) of geography (*HHI G*), property type (*HHI P*) and tenants (*HHI T*). We also use a further measure of distance of individual real estate assets from the firm's headquarter as a robustness for the geographical measure.

Panel A shows that firms with greater female representation concentrate geographically more (higher *HHI G*) and own assets that tend to be closer to their headquarters (lower *DIST*), confirming previous findings in Devine et al. (2024). However, contrarily to their interpretation of high geographical concentration as a low-risk strategy, we follow well established literature – e.g. Ro and Ziobrowski (2009) – and we associate higher concentration measures with greater risk. As Zhu and Li (2022) and others show, we believe that this decision is justified by the link between higher concentration at the asset level and greater risk observed at the firm level (e.g. total volatility of stock returns). At the same time, REITs with greater board gender diversity also tend to partly[12] offset this riskier position with a greater diversification by property type

[12] Later models will establish the predominance of geographical concentration on property type diversification as we observe an overall increase in total risk.

within more concentrated geographies. More specifically, the estimated coefficients indicate that with a 1% increase in female board representation geographic and property type concentration respectively grow by 0.8% and decrease by 0.6%.[13] Additionally, risk management decisions related to the average number of tenants within each property seem to be less important and influential as they do not appear to affect a firm's total risk.

Finally, OLS results in Panel B show significance (and similar direction to the IV estimation) for property type. However, the lack of results for geographical concentration further confirms the need to treat endogeneity adopting an instrumental variable approach. Overall, these findings suggest that firms with more women on board tend to make conservative investment choices by holding assets in areas closer to their headquarters and less spread around different states. This is consistent with information theory, where agents (i.e. board members) prefer to invest in familiar areas where they benefit from an information advantage (e.g. market knowledge, investment history and business network) (Devine et al., 2024), as well as risk-aversion literature (Croson and Gneezy, 2009; Barber and Odean, 2001), which finds female being less overconfident than male agents. Furthermore, women on the board may increase geographic focus due to their superior investment decisions since out-of-town transactions may result in an increase in operational costs due to a lack of local expertise (Devine et al., 2024). This is evidenced in the literature as agents who conduct out-of-town transactions have been known to overpay for properties (Eichholtz et al., 2016). Interestingly, this less overconfident investment behaviour results in geographical concentration, which in turn increases firm risk, even if women partly compensate their geographical focus with diversification across property types.

[13] Note that the results of property-type diversification apply only to diversified REITs that own a variety of property types. In the United States, the majority of US REITs are specialized, meaning they focus on a specific property sector.

3.4.6 Board gender diversity as moderator of the relationship between geographical concentration and firm risk

Having identified geographical concentration caused by gender-diverse boards as the main source of additional firm risk, we then formally test the impact of geographical concentration on firm risk. More specifically, we examine the relationship between the main geographical concentration measure *HHI G* and REITs total volatility *TVOL*. Moreover, as the origin of greater geographical concentration lies in board gender diversity (see Table 3.5), we test the relationship between *HHI G* and *TVOL* using sub-samples with high and low percentage of women on board. Table 3.6 Panel A presents the analysis using three sub-samples for REITs with high (top 30^{th} percentile), medium (mid) and low (bottom 30^{th} percentile) female representation on the board. Panel B also present a similar analysis where the sample is split around the median value of board diversity. Importantly, we expect geographical concentration to increase firm risk only for the sub-samples with high female representation on the board as women should be able to influence investment decisions more with their less overconfident behaviour.

The main results confirm that a rise in geographical concentration (higher *HHI G*) leads to an increase in REITs overall volatility for firms with high board gender diversity only. Panel A and B present consistent results and the economic impact is found to in the region of 0.2 - 0.3 increase in total risk for a one standard deviation of *HHI G*. On the contrary, an increase in firm risk cannot be generally explained by geographical concentration among firms with fewer women on board. Overall, our findings support the argument that firms with gender-diverse boards exhibit increased risk due to lower levels of overconfidence among women on boards, as evidenced by geographical concentration.

3.5 Robustness tests

3.5.1 Gay Rights as an alternative instrument

Even if we have already conducted exogeneity and validity tests for instruments used in IV estimations, alongside *PEERS*, we also use *Gay Rights* (i.e. property weighted gender awareness score (Section 3.3.2 equation 3.7) as an alternative instrumental variable to *GEI.*

Table 3.7 reports the main results for performance, risk and risk-adjusted returns. The first stage estimation shows both instruments being significant and positively related to female board representation.[14]

The second stage IV results confirm our baseline results that board gender diversity generates an increase in total and systematic risk[15] which is compensated by a higher return (whether measured by *ROA* or *ROE*). The sign and order of magnitude of all coefficients are also in line with our main models and further confirm that the increase in performance for REITS with more women on the board is obtained with an associated increase in risk due to their less overconfident investment behaviour, thereby resulting in no significantly different risk-adjusted returns.[16]

Table 3.8 presents the results for the effects of women on the board on a REITs risk management decisions using our alternative instrument – *Gay Rights* instead of *GEI*, along with *PEERS*. The first stage results show that our instruments are significant and positively related to women on the board. Consistent with our main analysis, from our second stage IV results, board gender diversity increases geographic concentration of a REITs assets (whether measured

[14] For the remaining analyses, on average, we find *PEERS* and *Gay Rights* to be positively related with *% Women*. Furthermore, the instruments meet the exogeneity and validity assumptions where we fail to reject the null hypothesis under the Sargan-Hansen test and reject the null hypothesis under the Anderson-canon test.
[15] Our results of an increase in systematic risk are largely consistent with using a pure Fama and French (1993) three factor model (See Table A4 in Appendix A).
[16] These results are corroborated when we use a pure Fama and French (1993) three factor model (See Table A4 in Appendix A).

by *HHI G* or *DIST*). The sign and order of magnitude of the coefficients are consistent with our main analysis and confirm that women on the board are indeed less overconfident than men in their investment decisions as they seem to display a 'home-bias' by locating properties closer to where the REIT is headquartered – as measured by *DIST*, and concentrating their properties – as measured by *HHI G*. However, we find no evidence of property type diversification as we did in our main analysis.

3.5.2 LIML estimation

Although we have provided robust evidence of our findings in this study using alternative instruments which meet the validity and exogeneity criteria, we repeat our analysis using a limited information maximum likelihood (LIML) estimation to further validate our results. The LIML model is believed to be superior to the two-stage least squares since it takes into account the covariance of the error terms and the maximum likelihood method is believed to produce better estimators (Anderson, 2005).

Table 3.9 reports the main results for performance, risk and risk-adjusted returns using an LIML approach. The first stage estimation shows both instruments – *PEERS* and *GEI*, are significant and positively related to women on the board, which is consistent with our main analysis where use an IV estimation. The second stage LIML results confirm our main analysis and our results from our robustness tests using alternative instruments. Women on the board increase firm performance (both measures *ROA* and *ROE*) and increase risk (both systematic and total risk) resulting in no risk-adjusted returns *(Alpha RE*).[17] The sign and order of magnitude is consistent with our main analysis and where we use alternate instruments.

In Table 3.10, we report the results for the effect of women on the board on a REITs risk-management decisions using an LIML approach. From the first stage results, it is evident

[17] We repeat our analysis by replacing our instrument - *GEI* with *Gay Rights* along with *PEERS* in an LIML setting and find that our results still hold (See Table A5 in Appendix A).

that our instruments – *PEERS* and *GEI*, are significantly and positively related to the percentage of women on the board. From the second stage results, we confirm the findings from our main analysis and from our robustness tests where we used alternate instruments. Women on the board increase the concentration of a REITs assets by geography (both measures *HHIG* and *DIST*), and lower concentration by property type (*HHI P*).[18] The sign and order of magnitude of the coefficients is consistent with our main analysis and with our robustness tests where use alternate instruments.

3.5.3 Location-weighted local factor

Although we have provided robust evidence of our findings in this study using alternative instruments and a LIML model, we further add confidence in our results by incorporating a location-weighted local factor. Specifically, we create a REIT specific location-weighted change in employment variable (*Employment*) as follows:

$$Employment_{it} = \sum_{j=0}^{50} w_{ijt} * \text{Emp}_{jt} \tag{3.13}$$

where, w_{ijt} is the proportion of properties REIT *i* holds in state *j* in year *t* and Emp_{jt} is the change in employment in state *j* in year *t*. Utilising this variable helps us conduct heterogeneity tests as characteristics of the economy could affect performance, risk, and risk-adjusted returns. Furthermore, including such a variable could help us capture the unobservable local factors which could further help add credibility to our instruments and our analysis.

Table 3.11 reports the results for performance, where we include a REIT location-weighted local factor- *Employment*. The first stage estimation shows both instruments – *PEERS*

[18] As a further robustness test, we replace *GEI* with *Gay Rights* in a LIML approach and find largely consistent results (See Table A6 in Appendix A).

and *GEI*, and *PEERS* and *Gay Rights* are significant and positively related to women on the board, which is consistent with our previous analysis where use an IV and LIML estimation. The second stage results confirm our main analysis and our results from LIML estimation where women on the board increase firm performance (both measures *ROA* and *ROE*). The sign and order of magnitude is consistent with our main analysis and where we use alternate instruments.

Table 3.12 report the results for the effects of women on the board on our measures of risk- *TVOL*, *SVOL*, and *IVOL*. From the second stage results, it is evident that women on the board increase risk (both *TVOL* and *SVOL*) when using *PEERS* and *GEI* as instruments and increase *TVOL*, *SVOL*, and *IVOL* when we use *PEERS* and *Gay Rights* as instruments. Overall, our results are consistent with our main analysis and LIML estimation. The sign and order of magnitude are consistent with our previous model specifications.

In Table 3.13 we present the results for the effects of women on the board on our measure of risk-adjusted returns- *Alpha RE*. Consistent with our main analysis and with our LIML estimation, women on the board have no statistically significant effect on risk-adjusted returns when we use *PEERS* and *GEI* or *PEERS* and *Gay Rights* as instruments.

Table 3.14 presents the results for the effect of women on the board on our measures of concentration- *HHI G*, *DIST*, *HHI P*, and *HHI T*. Consistent with our main analysis and with our robustness tests, we find women on the board to increase geographic concentration- *HHI G* and *DIST*, and lower property type concentration- *HHI P* when we use *PEERS* and *GEI* as instruments. We find similar results when using *PEERS* and *Gay Rights* as our instruments with the exception of property type concentration where we find no statistically significant effect for women on the board.

Overall, we find consistent results from our main analysis and from our robustness tests when using a LIML estimation. Including the location-weighted local factor- *Employment* helps us to further add confidence in our results as we are able to capture the effects of unobservable local factors.

3.6 Conclusion

Gender diversity of top management teams has been a topic of conversation centred around corporate practices and policy initiatives. With the growing adoption of gender quotas by countries, the behavioural implications of gender differences between men and women on corporate actions and outcomes warrants investigation. A vast number of studies have attempted to unfold the effects of female boardroom representation on firm performance, risk, and various other corporate actions.

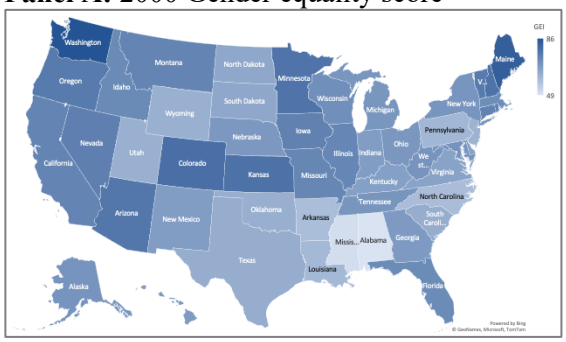
Our study further contributes to the literature by investigating the effects of board gender diversity on firm performance, risk, sources of risk, and risk-adjusted returns on a sample of US equity REITs. Taking advantage of the REITs business environment (i.e., location of properties), we are able to construct good quality instruments for board gender diversity using the REITs business exposures to states, which helps us uncover such relationships. We make the following contributions to the literature. Firstly, we find that women on the board increase firm performance, which is in line with the literature which posits a positive relationship. Secondly, we document a positive effect of board gender diversity on firm risk which is in contrast to the notion that women are more risk-averse than men. Thirdly, a REITs simple business model of real estate portfolios allows us to analyse the possible sources of risk, i.e., risk taking behaviour with the help of diversification measures (for e.g., geographic, property-type, and tenants). We, for the first time, find that REITs with more female boardroom representation exhibit less overconfident investment behaviour with a geographically concentrated asset base, although diversifying across property types. Such less overconfident investment behaviour increases the risk of the investments which is reflected with a higher firm risk. Lastly, we find board gender diversity to have no effect on risk-adjusted performance as board gender diversity increases firm performance and firm risk thereby resulting in no significant alpha.

Although in this study we have attempted to examine the effects of women on REIT boards on performance, risk, and risk-adjusted returns there are some limitations to the findings. Firstly, this study has only investigated the effects of women on REIT boards. Future research could examine the effects of other forms of diversity such as female CFO's or CEO's and even ethnicity. Secondly, as a further robustness, future research could build upon the instruments used in this thesis to incorporate measures of innovativeness as measures in the index to account for the general conditions of markets. Lastly, future research could examine the effects of transitions of male and female board of directors on REIT performance and risk.

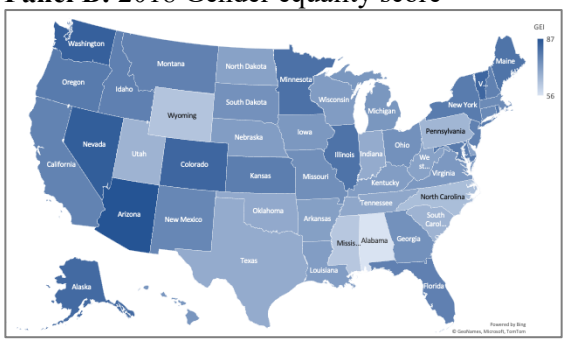
Figure 3.1 Gender equality and Gay Rights score by state

This figure reports the gender equality and Gay Rights score by state at the beginning (2000) and end (2018) of our sample period. Darker states show a higher gender equality score. Lighter states show less gender friendliness.

Panel A: 2000 Gender equality score



Panel B: 2018 Gender equality score



Panel C: 2000 Gay Rights score

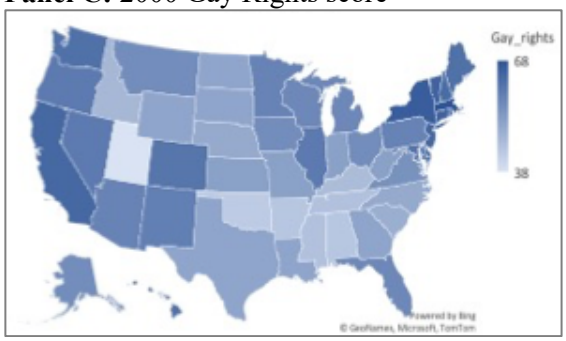


Table 3.1 Descriptive statistics

This table reports summary statistics and mean difference for firms with and without women on the board for the sample over the period 2000 to 2018. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. ROE is return on equity which is measured as the ratio of net income to shareholders equity. TVOL is total risk and is measured as the standard deviation of a REITs excess stock price returns. IVOL is idiosyncratic risk and is measured as the standard deviation of a REITs residuals from a factor model. SVOL is the difference between TVOL and IVOL. HHI G is a Herfindahl index which measures the concentration of a REITs properties by geography. DIST is the average square root of distance of a REITs properties to its headquarters. HHI P is a Herfindahl index which measures the concentration of a REITs properties by property type. HHI T is a Herfindahl index which measures the concentration of a REITs tenants based on the top 30 tenants. Alpha RE is Jenson's alpha which is obtained from the RE factor model. A detailed description of variables is provided in Appendix A Table A1.

		Panel A: Full sample of all firms						**Panel B: Differences in mean**				
		Descriptive Statistics						Firms with Women (1)		Firms without Women (2)		Mean Difference
		N	Mean	Median	Std. Dev	Min	Max	N	Mean	N	Mean	(1) - (2)
Board characteristics	% Women	2190	10.165	10.000	10.411	0.000	50.000	1279	17.405	911	0.000	17.405***
	Board Size	2190	8.169	8.000	2.093	2.000	17.000	1279	8.696	911	7.430	1.266***
	% Independent	2190	80.178	83.333	10.732	0.000	100.000	1279	82.487	911	76.938	5.549***
	Duality	2190	0.449	0.000	0.497	0.000	1.000	1279	0.425	911	0.483	-0.058**
	CEO Tenure	2190	5.580	3.800	5.895	0.000	44.700	1279	5.610	911	5.539	0.070
Firm characteristics	Firm Age	1816	17.286	15.000	13.369	0.000	65.000	1033	20.007	783	13.697	6.309***
	Ln(Assets)	2187	14.610	14.778	1.412	8.172	17.464	1276	15.069	911	13.967	1.102***
	Leverage	2187	0.492	0.496	0.168	0.000	1.381	1276	0.494	911	0.489	0.004
Performance variables	MTB	1347	1.371	1.275	0.468	0.303	3.991	781	1.427	566	1.294	0.133***
	ROA	2174	2.745	2.692	1.93	-10.225	15.195	1271	2.765	903	2.716	0.049
	ROE	2160	4.335	4.949	11.765	-96.499	92.565	1268	5.397	892	2.826	2.571***

Table 3.1 Descriptive statistics (Continued)

		Panel A: Full sample of all firms						Panel B: Differences in mean				
		Descriptive Statistics						Firms with Women (1)		Firms without Women (2)		Mean Difference
		N	Mean	Median	Std. Dev	Min	Max	N	Mean	N	Mean	(1) - (2)
Risk variables	TVOL	2166	0.260	0.209	0.192	0.010	2.187	1272	0.246	894	0.280	-0.034***
	SVOL	2166	0.123	0.099	0.110	0.002	1.327	1272	0.122	894	0.124	-0.002
	IVOL	2166	0.137	0.107	0.125	0.000	2.061	1272	0.124	894	0.156	-0.032***
Diversification variables	HHI G	2093	0.204	0.133	0.203	0.007	1.000	1211	0.181	882	0.234	-0.053***
	DIST	2070	24.753	24.968	12.151	1.837	79.084	1191	25.795	879	23.342	2.453***
	HHI P	2093	0.724	0.800	0.262	0.154	1.000	1211	0.727	882	0.719	0.008
	HHI T	1087	0.047	0.011	0.102	0.001	1.000	643	0.045	444	0.051	-0.006
Risk-adjusted return variables	Alpha RE	2166	0.008	0.007	0.152	-3.078	2.660	1272	0.006	894	0.012	-0.007

Table 3.2 Board gender diversity and firm performance

This table reports the results for the effect of percentage of women on the board on firm performance. ROA is return on assets which is the ratio of net income to total assets. ROE is return on equity which is measured as the ratio of net income to shareholders equity. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	Panel A: IV Estimation			**Panel B: OLS Estimation**	
	1st Stage	***2nd Stage***			
Dependent Variable	% Women	ROA	ROE	ROA	ROE
% Women		0.193***	0.841*	0.011**	0.035
		(0.073)	(0.466)	(0.005)	(0.036)
PEERS	0.161**				
	(0.064)				
GEI	0.152**				
	(0.069)				
Board Size	0.354**	-0.227***	-0.582**	-0.144***	-0.200
	(0.146)	(0.044)	(0.283)	(0.027)	(0.213)
% Independent	0.023	-0.009	0.028	-0.012**	0.028
	(0.026)	(0.007)	(0.041)	(0.005)	(0.037)
Duality	0.102	0.173	0.439	0.217**	0.623
	(0.477)	(0.119)	(0.747)	(0.088)	(0.700)
CEO Tenure	-0.048	0.009	0.144**	0.004	0.128**
	(0.036)	(0.009)	(0.059)	(0.007)	(0.053)
Firm Age	0.929***	-0.231***	-0.747*	-0.022**	0.067
	(0.07)	(0.079)	(0.454)	(0.011)	(0.079)
Ln(Assets)	-1.559***	0.557***	1.800*	0.303***	0.491
	(0.38)	(0.149)	(0.975)	(0.070)	(0.560)
Leverage	-0.925	0.960**	-4.626*	1.274***	-2.180
	(1.654)	(0.414)	(2.631)	(0.296)	(2.365)
Constant	-6.416	-0.181	-11.282	-0.945	-7.167
	(7.344)	(1.296)	(9.070)	(0.951)	(7.415)
Observations	1749	1749	1746	1802	1796
R^2		0.311	0.170	0.619	0.335
Anderson (p-val)		0.002	0.002		
Sargan (p-val)		0.586	0.855		
Firm FE	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES

Table 3.3 Board gender diversity and firm risk

This table presents the regression results for the effect of female boardroom representation on firm risk, where risk measures are obtained using the RE factor model. TVOL is total risk and is measured as the standard deviation of a REITs excess stock price returns. IVOL is idiosyncratic risk and is measured as the standard deviation of a REITs residuals from the RE factor model. SVOL is the difference between TVOL and IVOL. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	Panel A: IV Estimation				**Panel B: OLS Estimation**		
	1st Stage	***2nd Stage***					
Dependent Variable	% Women	TVOL	SVOL	IVOL	TVOL	SVOL	IVOL
% Women		0.011*	0.007*	0.004	0.001	-0.000	0.001**
		(0.006)	(0.004)	(0.003)	(0.001)	(0.000)	(0.000)
PEERS	0.207**						
	(0.085)						
GEI	0.242**						
	(0.096)						
Board Size	0.327	-0.003	-0.001	-0.002	0.001	0.003	-0.003
	(0.219)	(0.005)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
% Independent	0.062*	0.001	0	0	0.001	0.000	0.001*
	(0.036)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)
Duality	-0.393	0.002	0.001	0.002	0.000	-0.001	0.002
	(0.706)	(0.014)	(0.010)	(0.009)	(0.014)	(0.009)	(0.010)
CEO Tenure	-0.081	-0.001	-0.001	0	-0.002*	-0.001*	-0.001
	(0.056)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Firm Age	0.741***	-0.011**	-0.007*	-0.004	-0.001	0.000	-0.002
	(0.094)	(0.005)	(0.004)	(0.003)	(0.002)	(0.001)	(0.001)
Ln(Assets)	-1.078**	0.005	0.004	0.001	-0.007	-0.003	-0.003
	(0.528)	(0.012)	(0.008)	(0.008)	(0.010)	(0.007)	(0.007)
Leverage	-4.052*	0.055	0.013	0.044	0.049	0.008	0.042
	(2.361)	(0.052)	(0.035)	(0.032)	(0.044)	(0.029)	(0.031)
MTB	1.540*	-0.083***	-0.036***	-0.052***	-0.077***	-0.024**	-0.058***
	(0.866)	(0.019)	(0.013)	(0.012)	(0.016)	(0.011)	(0.011)
ROA	0.274	-0.029***	-0.020***	-0.009***	-0.026***	-0.015***	-0.011***
	(0.195)	(0.004)	(0.003)	(0.003)	(0.004)	(0.002)	(0.003)
Constant	-15.331	0.262*	0.166*	0.127	0.280**	0.134	0.172*
	(9.821)	(0.144)	(0.098)	(0.089)	(0.139)	(0.090)	(0.097)

Table 3.3 Board gender diversity and firm risk (Continued)

	Panel A: IV Estimation				**Panel B: OLS Estimation**		
	1st Stage	***2nd Stage***					
Dependent Variable	% Women	TVOL	SVOL	IVOL	TVOL	SVOL	IVOL
Observations	990	990	990	990	1040	1040	1040
R^2		0.459	0.299	0.501	0.512	0.384	0.456
Anderson (p-val)		0.001	0.001	0.001			
Sargan (p-val)		0.41	0.183	0.889			
Firm FE	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES

Table 3.4 Board gender diversity and risk-adjusted returns

This table reports results for the effect of board gender diversity on risk-adjusted returns, where risk-adjusted measure is obtained using the RE factor model. Alpha RE is Jenson's alpha which is obtained from the RE factor model. % Women is the percentage of women on a REITs board. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	IV Estimation		**OLS Estimation**
	1st Stage	***2nd Stage***	
Dependent Variable	% Women	Alpha RE	Alpha RE
% Women		-0.002	-0.001
		(0.006)	(0.001)
PEERS	0.202***		
	(0.064)		
GEI	0.133*		
	(0.070)		
Board Size	0.390***	0.001	-0.001
	(0.147)	(0.004)	(0.004)
% Independent	0.020	-0.001	-0.000
	(0.026)	(0.001)	(0.001)
Duality	0.242	0.001	0.000
	(0.484)	(0.012)	(0.012)
CEO Tenure	-0.049	0.000	-0.000
	(0.037)	(0.001)	(0.001)
Firm Age	0.787***	0.003	0.002
	(0.064)	(0.006)	(0.001)
Ln(Assets)	-1.441***	-0.019	-0.019**
	(0.385)	(0.013)	(0.009)
Leverage	-2.218	-0.016	-0.026
	(1.644)	(0.041)	(0.039)
Constant	1.417	0.261**	0.283**
	(7.184)	(0.130)	(0.125)
Observations	1750	1750	1804
R^2		0.135	0.061
Anderson (p-val)		0.001	
Sargan (p-val)		0.160	
Firm FE	YES	YES	YES
Time Effects	YES	YES	YES

Table 3.5 Board gender diversity and risk management strategies

This table reports the regression results for the effect of board gender diversity on measures of diversification. Panel A presents the results for the IV estimation and Panel B reports the results for the OLS estimation. HHI G is a Herfindahl index which measures the concentration of a REITs properties by geography. DIST is the average square root of distance of a REITs properties to its headquarters. HHI P is a Herfindahl index which measures the concentration of a REITs properties by property type. HHI T is a Herfindahl index which measures the concentration of a REITs tenants based on the top 30 tenants. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	Panel A: IV Estimation (2nd Stage)				**Panel B: OLS Estimation**			
	HHI G	DIST	HHI P	HHI T	HHI G	DIST	HHI P	HHI T
% Women	0.008***	-0.633***	-0.006**	0.001	0.000	-0.009	-0.001***	-0.000
	(0.003)	(0.185)	(0.003)	(0.002)	(0.000)	(0.014)	(0.000)	(0.000)
Board Size	-0.006**	0.364**	0.001	-0.001	-0.004*	0.128	-0.001	-0.001
	(0.003)	(0.166)	(0.003)	(0.002)	(0.002)	(0.088)	(0.002)	(0.002)
% Independent	0.001	0.003	0.002***	0	0.001***	-0.032**	0.001***	-0.000
	(0)	(0.027)	(0.000)	(0.000)	(0.000)	(0.014)	(0.000)	(0.000)
Duality	0.004	0.525	0.009	0.015***	0.000	0.776***	0.011	0.013**
	(0.008)	(0.491)	(0.008)	(0.005)	(0.006)	(0.283)	(0.008)	(0.006)
CEO Tenure	0	-0.015	0	0	-0.000	0.037	-0.000	-0.000
	(0.001)	(0.042)	(0.001)	(0.000)	(0.001)	(0.023)	(0.001)	(0.000)
Firm Age	-0.007**	0.721***	0.011***	0.001	-0.000	0.135***	0.006***	0.002**
	(0.003)	(0.181)	(0.003)	(0.002)	(0.001)	(0.033)	(0.001)	(0.001)
Ln(Assets)	-0.011*	-0.890**	-0.018**	-0.034***	-0.019***	-0.162	-0.012**	-0.036***
	(0.006)	(0.420)	(0.007)	(0.004)	(0.005)	(0.211)	(0.006)	(0.005)

Table 3.5 Board gender diversity and risk management strategies (Continued)

	Panel A: IV Estimation (2nd Stage)				Panel B: OLS Estimation			
	HHI G	DIST	HHI P	HHI T	HHI G	DIST	HHI P	HHI T
Leverage	-0.070**	-0.319	-0.112***	-0.081***	-0.099***	2.772***	-0.092***	-0.070***
	(0.027)	(1.851)	(0.029)	(0.023)	(0.021)	(0.940)	(0.027)	(0.025)
MTB	-0.01	0.407	0.012	-0.007	0.002	-0.631*	0.004	0.002
	(0.01)	(0.659)	(0.011)	(0.009)	(0.008)	(0.341)	(0.010)	(0.009)
ROA	0.001	0.077	0.007***	-0.006*	0.004**	-0.182**	0.005**	-0.008***
	(0.002)	(0.153)	(0.003)	(0.003)	(0.002)	(0.077)	(0.002)	(0.003)
Constant	0.781***	15.354***	0.983***	0.566***	0.767***	15.358***	0.998***	0.568***
	(0.076)	(4.978)	(0.089)	(0.050)	(0.064)	(2.901)	(0.088)	(0.059)
Observations	996	982	996	515	996	982	996	538
R^2	0.905	0.904	0.926	0.759	0.931	0.967	0.927	0.804
Anderson (p-val)	0.001	0.000	0.001	0.011				
Sargan (p-val)	0.114	0.000	0.040	0.578				
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES	YES

Table 3.6 Moderating effect of board gender diversity on the link between geographical concentration and firm risk

This table reports the result for the effect of geographic concentration on firm risk, with the moderating effect of women on the board. Panel A presents the results where the sample is split into top 30 (High), middle 40 (Mid), and bottom 30 (Low) percentiles based on women on the board. Panel B presents the results where the sample is split into above (High) and below (Low) median women on the board. Risk is measured as TVOL which is the standard deviation of a REITs excess stock price returns. HHI G is a Herfindahl index which measures the concentration of a REITs properties by geography. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	Panel A: Three Sub-Samples			**Panel B: Two Sub-Samples**	
	High	Mid	Low	Above Median	Below Median
HHI G	0.292*	0.077	0.010	0.204*	0.030
	(0.162)	(0.182)	(0.139)	(0.122)	(0.110)
Board Size	0.018**	0.007	-0.016	0.009*	0.000
	(0.007)	(0.007)	(0.011)	(0.005)	(0.007)
% Independent	-0.000	-0.002*	0.003*	-0.001	0.001
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Duality	-0.008	0.051**	-0.018	-0.008	-0.004
	(0.023)	(0.023)	(0.035)	(0.017)	(0.024)
CEO Tenure	0.000	-0.003	-0.003	-0.001	-0.004*
	(0.002)	(0.002)	(0.003)	(0.001)	(0.002)
Firm Age	-0.006**	0.006**	-0.009**	-0.002	0.001
	(0.002)	(0.003)	(0.004)	(0.002)	(0.003)
Ln(Assets)	0.031*	-0.035*	0.024	0.016	-0.007
	(0.017)	(0.019)	(0.024)	(0.014)	(0.017)
Leverage	0.148**	0.092	-0.180	0.154***	-0.127
	(0.071)	(0.088)	(0.123)	(0.056)	(0.082)
MTB	-0.008	-0.099***	-0.048	-0.026	-0.144***
	(0.026)	(0.029)	(0.045)	(0.021)	(0.030)
ROA	-0.018***	-0.019**	-0.053***	-0.019***	-0.035***
	(0.006)	(0.008)	(0.008)	(0.005)	(0.006)
Constant	-0.478*	0.609**	0.203	-0.202	0.359*
	(0.255)	(0.302)	(0.281)	(0.203)	(0.200)
Observations	269	415	307	463	527
R^2	0.618	0.566	0.537	0.538	0.513
Firm FE	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES

Table 3.7 Board gender diversity and performance, risk, and risk-adjusted returns robustness tests

This table presents the results for the effect of board gender diversity on REIT performance, risk, and risk-adjusted returns. PEERS and Gay Rights are used as instruments for % Women. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. Gay Rights is the property weighted gender awareness score. ROA is return on assets which is the ratio of net income to total assets. ROE is return on equity which is measured as the ratio of net income to shareholders equity. TVOL is total risk and is measured as the standard deviation of a REITs excess stock price returns. IVOL is idiosyncratic risk and is measured as the standard deviation of a REITs residuals from the RE factor model. SVOL is the difference between TVOL and IVOL. Alpha RE is Jenson's alpha which is obtained from the RE factor model. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	1st Stage	**2nd Stage**					
		Performance		**Risk**			**Risk-adj. return**
Dependent Variable	% Women	ROA	ROE	TVOL	SVOL	IVOL	Alpha RE
% Women		0.284***	1.103**	0.015**	0.010**	0.006	0
		(0.085)	(0.476)	(0.007)	(0.004)	(0.004)	(0.006)
PEERS	0.165***						
	(0.064)						
Gay Rights	0.222***						
	(0.085)						
Board Size	0.372**	-0.258***	-0.677**	-0.004	-0.002	-0.003	0.000
	(0.146)	(0.055)	(0.302)	(0.005)	(0.004)	(0.003)	(0.004)
% Independent	0.019	-0.011	0.023	0	0	0	-0.001
	(0.026)	(0.008)	(0.045)	(0.001)	(0.001)	(0.001)	(0.001)
Duality	0.084	0.16	0.411	0.003	0.002	0.003	0.000
	(0.477)	(0.151)	(0.814)	(0.016)	(0.011)	(0.009)	(0.012)
CEO Tenure	-0.046	0.013	0.154**	-0.001	-0.001	0	0.000
	(0.036)	(0.012)	(0.064)	(0.001)	(0.001)	(0.001)	(0.001)

Table 3.7 Board gender diversity and performance, risk, and risk-adjusted returns robustness tests (Continued)

	1st Stage	2nd Stage					
		Performance		Risk			Risk-adj. return
Dependent Variable	% Women	ROA	ROE	TVOL	SVOL	IVOL	Alpha RE
Firm Age	0.960***	-0.327***	-0.999**	-0.014**	-0.009**	-0.006	0.002
	(0.069)	(0.092)	(0.465)	(0.006)	(0.004)	(0.004)	(0.006)
Ln(Assets)	-1.566***	0.699***	2.234**	0.01	0.007	0.003	-0.017
	(0.380)	(0.181)	(1.022)	(0.014)	(0.009)	(0.008)	(0.013)
Leverage	-0.566	1.027*	-4.366	0.07	0.022	0.051	-0.013
	(1.647)	(0.525)	(2.863)	(0.057)	(0.039)	(0.034)	(0.041)
MTB				-0.088***	-0.039***	-0.055***	
				(0.021)	(0.014)	(0.013)	
ROA				-0.030***	-0.021***	-0.010***	
				(0.005)	(0.003)	(0.003)	
Constant	-9.597	-0.329	-13.798	0.268*	0.17	0.13	0.249*
	(7.590)	(1.645)	(9.743)	(0.157)	(0.106)	(0.093)	(0.129)
Observations	1749	1749	1746	990	990	990	1750
R^2		-0.112	0.013	0.351	0.175	0.460	0.139
Anderson (p-val)		0.001	0.001	0.001	0.001	0.001	0.000
Sargan (p-val)		0.507	0.666	0.911	0.465	0.480	0.108
Firm FE	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES

Table 3.8 Board gender diversity and concentration robustness tests

This table presents the results for the effect of board gender diversity on our measures of concentration. PEERS and Gay Rights are used as instruments for % Women. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. Gay Rights is the property weighted gender awareness score. HHI G is a Herfindahl index which measures the concentration of a REITs properties by geography. DIST is the average square root of distance of a REITs properties to its headquarters. HHI P is a Herfindahl index which measures the concentration of a REITs properties by property type. HHI T is a Herfindahl index which measures the concentration of a REITs tenants based on the top 30 tenants. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	1st Stage	**2nd Stage**			
Dependent Variable	% Women	HHI G	DIST	HHI P	HHI T
% Women		0.019***	-0.753***	-0.001	0.002
		(0.006)	(0.226)	(0.003)	(0.003)
PEERS	0.224***				
	(0.085)				
Gay Rights	0.258**				
	(0.117)				
Board Size	0.341	-0.010**	0.410**	-0.001	-0.001
	(0.219)	(0.005)	(0.192)	(0.002)	(0.002)
% Independent	0.055	0	0.01	0.001***	0
	(0.036)	(0.001)	(0.031)	(0.000)	(0.000)
Duality	-0.592	0.01	0.476	0.012	0.017***
	(0.704)	(0.014)	(0.561)	(0.007)	(0.006)
CEO Tenure	-0.07	0.001	-0.024	0	0
	(0.056)	(0.001)	(0.048)	(0.001)	(0.001)
Firm Age	0.781***	-0.018***	0.834***	0.006**	-0.001
	(0.094)	(0.005)	(0.220)	(0.003)	(0.003)
Ln(Assets)	-1.068**	0.002	-1.030**	-0.012*	-0.033***
	(0.526)	(0.012)	(0.488)	(0.006)	(0.005)
Leverage	-3.472	-0.023	-0.914	-0.091***	-0.078***
	(2.341)	(0.050)	(2.148)	(0.027)	(0.026)
MTB	1.798**	-0.03	0.607	0.003	-0.003
	(0.851)	(0.019)	(0.764)	(0.010)	(0.011)
ROA	0.269	-0.004	0.126	0.005**	-0.008*
	(0.197)	(0.004)	(0.178)	(0.002)	(0.004)
Constant	-13.9	0.803***	15.353***	0.999***	0.563***
	(10.061)	(0.137)	(5.677)	(0.081)	(0.055)
Observations	996	996	982	996	515

Table 3.8 Board gender diversity and concentration robustness tests (Continued)

	1st Stage	2nd Stage			
Dependent Variable	% Women	HHI G	DIST	HHI P	HHI T
R^2		0.687	0.875	0.938	0.716
Anderson (p-val)		0.001	0.001	0.001	0.079
Sargan (p-val)		0.001	0.000	0.825	0.516
Firm FE	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES

Table 3.9 Board gender diversity, performance, risk, and risk-adjusted returns LIML

This table reports the results for the effect of board gender diversity on performance, risk, risk-adjusted returns using an LIML approach. PEERS and GEI are used as instruments for % Women. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. ROA is return on assets which is the ratio of net income to total assets. ROE is return on equity which is measured as the ratio of net income to shareholders equity. TVOL is total risk and is measured as the standard deviation of a REITs excess stock price returns. IVOL is idiosyncratic risk and is measured as the standard deviation of a REITs residuals from the RE factor model. SVOL is the difference between TVOL and IVOL. Alpha RE is Jenson's alpha which is obtained from the RE factor model. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	1st Stage	**2nd Stage**					
		Performance			**Risk**		**Risk-adj. return**
Dependent Variable	% Women	ROA	ROE	TVOL	SVOL	IVOL	Alpha RE
% Women		0.198***	0.843*	0.011*	0.008**	0.004	-0.002
		(0.075)	(0.467)	(0.006)	(0.004)	(0.003)	(0.007)
PEERS	0.161**						
	(0.064)						
GEI	0.152**						
	(0.069)						
Board Size	0.354**	-0.229***	-0.583**	-0.003	-0.002	-0.002	0.001
	(0.146)	(0.045)	(0.283)	(0.005)	(0.003)	(0.003)	(0.004)
% Independent	0.023	-0.009	0.028	0.001	0	0	-0.001
	(0.026)	(0.007)	(0.041)	(0.001)	(0.001)	(0.000)	(0.001)
Duality	0.102	0.173	0.439	0.002	0.001	0.002	0.001
	(0.477)	(0.121)	(0.747)	(0.015)	(0.010)	(0.009)	(0.012)
CEO Tenure	-0.048	0.009	0.144**	-0.001	-0.001	0	0.000
	(0.036)	(0.010)	(0.059)	(0.001)	(0.001)	(0.001)	(0.001)

Table 3.9 Board gender diversity, performance, risk, and risk-adjusted returns LIML (Continued)

	1st Stage	2nd Stage					
		Performance		Risk			Risk-adj. return
Dependent Variable	% Women	ROA	ROE	TVOL	SVOL	IVOL	Alpha RE
Firm Age	0.929***	-0.236***	-0.749*	-0.011**	-0.008**	-0.004	0.004
	(0.070)	(0.081)	(0.455)	(0.006)	(0.004)	(0.003)	(0.007)
Ln(Assets)	-1.559***	0.564***	1.804*	0.006	0.006	0.001	-0.019
	(0.380)	(0.152)	(0.976)	(0.013)	(0.009)	(0.008)	(0.014)
Leverage	-0.925	0.964**	-4.623*	0.057	0.017	0.044	-0.017
	(1.654)	(0.419)	(2.633)	(0.053)	(0.037)	(0.032)	(0.041)
MTB				-0.084***	-0.038***	-0.052***	
				(0.019)	(0.014)	(0.012)	
ROA				-0.029***	-0.020***	-0.009***	
				(0.005)	(0.003)	(0.003)	
Constant	-6.416	-0.188	-11.304	0.263*	0.168*	0.127	0.263**
	(7.344)	(1.312)	(9.079)	(0.145)	(0.102)	(0.089)	(0.132)
Observations	1749	1749	1746	990	990	990	1750
R^2		0.808	0.326	0.831	0.684	0.804	0.136
Firm FE	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES

Table 3.10 Risk management strategy LIML

This table reports the results for the effect of board gender diversity on measures of diversification using an LIML approach. PEERS and GEI are used as instruments for % Women. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. HHI G is a Herfindahl index which measures the concentration of a REITs properties by geography. DIST is the average square root of distance of a REITs properties to its headquarters. HHI P is a Herfindahl index which measures the concentration of a REITs properties by property type. HHI T is a Herfindahl index which measures the concentration of a REITs tenants based on the top 30 tenants. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	1st Stage	**2nd Stage**			
Dependent Variable	% Women	HHI G	DIST	HHI P	HHI T
% Women		0.009***	-1.262***	-0.008**	0.001
		(0.003)	(0.463)	(0.004)	(0.002)
PEERS	0.210**				
	(0.085)				
GEI	0.255***				
	(0.097)				
Board Size	0.333	-0.006**	0.602*	0.002	-0.001
	(0.218)	(0.003)	(0.320)	(0.003)	(0.002)
% Independent	0.061*	0.001	0.039	0.002***	0
	(0.036)	(0.000)	(0.051)	(0.000)	(0.000)
Duality	-0.586	0.004	0.271	0.008	0.015***
	(0.703)	(0.008)	(0.882)	(0.009)	(0.005)
CEO Tenure	-0.077	0	-0.066	-0.001	0
	(0.057)	(0.001)	(0.079)	(0.001)	(0.000)

Table 3.10 Risk management strategy LIML (Continued)

	1st Stage		2nd Stage		
Dependent Variable	% Women	HHI G	DIST	HHI P	HHI T
Firm Age	0.737***	-0.008***	1.311***	0.012***	0.001
	(0.095)	(0.003)	(0.444)	(0.004)	(0.002)
Ln(Assets)	-1.081**	-0.01	-1.622*	-0.019***	-0.034***
	(0.526)	(0.007)	(0.838)	(0.008)	(0.004)
Leverage	-4.254*	-0.065**	-3.432	-0.119***	-0.081***
	(2.350)	(0.030)	(3.666)	(0.032)	(0.023)
MTB	1.870**	-0.012	1.453	0.015	-0.006
	(0.849)	(0.011)	(1.292)	(0.012)	(0.009)
ROA	0.299	0.001	0.337	0.008***	-0.006*
	(0.195)	(0.003)	(0.304)	(0.003)	(0.003)
Constant	-15.962	0.783***	15.350*	0.979***	0.565***
	(9.782)	(0.081)	(8.848)	(0.094)	(0.050)
Observations	996	996	982	996	515
R^2		0.947	0.934	0.992	0.808
Firm FE	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES

Table 3.11 Board gender diversity and firm performance location-weighted factor

This table reports the results for the effect of percentage of women on the board on firm performance. ROA is return on assets which is the ratio of net income to total assets. ROE is return on equity which is measured as the ratio of net income to shareholders equity. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. Employment is the property weighted change in state level employment for each REIT in each year. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	Panel A: GEI			**Panel B: Gay Rights**		
	1st Stage	***2nd Stage***		***1st Stage***	***2nd Stage***	
Dependent Variable	% Women	ROA	ROE	% Women	ROA	ROE
% Women		0.200***	0.907*		0.287***	1.149**
		(0.074)	(0.470)		(0.086)	(0.479)
PEERS	0.163**			0.167***		
	(0.064)			(0.064)		
GEI	0.152**					
	(0.069)					
Gay Rights				0.222***		
				(0.085)		
Board Size	0.358**	-0.226***	-0.581**	0.376**	-0.256***	-0.670**
	(0.146)	(0.045)	(0.288)	(0.146)	(0.055)	(0.306)
% Independent	0.023	-0.009	0.026	0.019	-0.011	0.022
	(0.026)	(0.007)	(0.042)	(0.026)	(0.009)	(0.046)
Duality	0.105	0.175	0.462	0.087	0.162	0.435
	(0.477)	(0.121)	(0.761)	(0.477)	(0.153)	(0.825)
CEO Tenure	-0.048	0.01	0.147**	-0.046	0.013	0.156**
	(0.036)	(0.010)	(0.060)	(0.036)	(0.012)	(0.065)
Firm Age	0.920***	-0.244***	-0.835*	0.951***	-0.336***	-1.067**
	(0.071)	(0.079)	(0.456)	(0.070)	(0.092)	(0.466)
Ln(Assets)	-1.572***	0.558***	1.848*	-1.579***	0.696***	2.250**
	(0.381)	(0.152)	(0.990)	(0.381)	(0.182)	(1.035)
Leverage	-0.902	0.983**	-4.436*	-0.542	1.046**	-4.201
	(1.655)	(0.421)	(2.678)	(1.647)	(0.529)	(2.902)
Employment	0.078	0.059**	0.497***	0.074	0.054	0.479**
	(0.107)	(0.027)	(0.173)	(0.106)	(0.034)	(0.187)
Constant	-5.97	0.162	-10.708	-9.113	-0.013	-13.068
	(7.370)	(1.331)	(9.266)	(7.623)	(1.673)	(9.913)
Observations	1749	1749	1746	1749	1749	1746
R^2		0.806	0.302		0.693	0.177
Anderson (p-val)		0.002	0.002		0.0005	0.001
Sargan (p-val)		0.570	0.834		0.542	0.716
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES

Table 3.12 Board gender diversity and firm risk location-weighted factor

This table presents the regression results for the effect of female boardroom representation on firm risk including a location-weighted factor- Employment. TVOL is total risk and is measured as the standard deviation of a REITs excess stock price returns. IVOL is idiosyncratic risk and is measured as the standard deviation of a REITs residuals from the RE factor model. SVOL is the difference between TVOL and IVOL. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	Panel A: GEI				**Panel A: Gay Rights**			
	1st Stage	***2nd Stage***			***1st Stage***	***2nd Stage***		
Dependent Variable	% Women	TVOL	SVOL	IVOL	% Women	TVOL	SVOL	IVOL
% Women		0.011**	0.007*	0.005		0.015**	0.010**	0.007*
		(0.006)	(0.004)	(0.004)		(0.007)	(0.004)	(0.004)
PEERS	0.208**				0.221***			
	(0.085)				(0.085)			
GEI	0.242**							
	(0.096)							
Gay Rights					0.252**			
					(0.116)			
Board Size	0.328	-0.003	-0.001	-0.002	0.335	-0.004	-0.002	-0.003
	(0.220)	(0.005)	(0.003)	(0.003)	(0.220)	(0.005)	(0.004)	(0.003)
% Independent	0.062*	0.001	0	0	0.057	0	0	0
	(0.036)	(0.001)	(0.001)	(0.001)	(0.036)	(0.001)	(0.001)	(0.001)
Duality	-0.391	0.002	0.001	0.003	-0.397	0.004	0.002	0.004
	(0.707)	(0.015)	(0.010)	(0.009)	(0.707)	(0.016)	(0.011)	(0.010)
CEO Tenure	-0.081	-0.001	-0.001	0	-0.075	-0.001	-0.001	0
	(0.056)	(0.001)	(0.001)	(0.001)	(0.056)	(0.001)	(0.001)	(0.001)
Firm Age	0.741***	-0.011**	-0.007*	-0.005	0.783***	-0.014**	-0.009**	-0.007*
	(0.094)	(0.005)	(0.004)	(0.003)	(0.093)	(0.006)	(0.004)	(0.004)

Table 3.12 Board gender diversity and firm risk location-weighted factor (Continued)

	Panel A: GEI				**Panel A: Gay Rights**			
	1st Stage	***2nd Stage***			***1st Stage***	***2nd Stage***		
Dependent Variable	% Women	TVOL	SVOL	IVOL	% Women	TVOL	SVOL	IVOL
Ln(Assets)	-1.075**	0.006	0.004	0.003	-1.062**	0.01	0.007	0.005
	(0.529)	(0.012)	(0.008)	(0.008)	(0.529)	(0.014)	(0.009)	(0.008)
Leverage	-4.035*	0.058	0.013	0.05	-3.272	0.073	0.021	0.057*
	(2.366)	(0.052)	(0.035)	(0.033)	(2.353)	(0.058)	(0.039)	(0.035)
MTB	1.549*	-0.083***	-0.037***	-0.050***	1.464*	-0.088***	-0.040***	-0.053***
	(0.870)	(0.019)	(0.013)	(0.012)	(0.871)	(0.021)	(0.014)	(0.013)
ROA	0.273	-0.029***	-0.020***	-0.010***	0.242	-0.030***	-0.021***	-0.010***
	(0.195)	(0.004)	(0.003)	(0.003)	(0.197)	(0.005)	(0.003)	(0.003)
Employment	-0.029	-0.003	0.001	-0.009***	-0.019	-0.003	0.001	-0.009***
	(0.244)	(0.005)	(0.003)	(0.003)	(0.244)	(0.005)	(0.003)	(0.003)
Constant	-15.343	0.261*	0.167*	0.124	-13.762	0.267*	0.171	0.127
	(9.827)	(0.145)	(0.098)	(0.090)	(10.081)	(0.159)	(0.106)	(0.095)
Observations	990	990	990	990	990	990	990	990
R^2		0.833	0.707	0.798		0.799	0.655	0.779
Anderson (p-val)		0.001	0.001	0.001		0.001	0.001	0.001
Sargan (p-val)		0.392	0.187	0.987		0.882	0.473	0.610
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES	YES

Table 3.13 Board gender diversity and risk-adjusted returns location-weighted factor

This table reports results for the effect of board gender diversity on risk-adjusted returns including a location-weighted factor- Employment. Alpha RE is Jenson's alpha which is obtained from the RE factor model. % Women is the percentage of women on a REITs board. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	Panel A: GEI		**Panel B: Gay Rights**	
	1st Stage	***2nd Stage***	***1st Stage***	***2nd Stage***
Dependent Variable	% Women	Alpha RE	% Women	Alpha RE
% Women		-0.002		0
		(0.006)		(0.006)
PEERS	0.203***		0.208***	
	(0.064)		(0.064)	
GEI	0.136*			
	(0.070)			
Gay Rights			0.197**	
			(0.084)	
Board Size	0.397***	0.001	0.414***	0.000
	(0.147)	(0.004)	(0.148)	(0.004)
% Independent	0.020	-0.001	0.016	-0.001
	(0.026)	(0.001)	(0.026)	(0.001)
Duality	0.250	0.001	0.234	0.000
	(0.484)	(0.012)	(0.484)	(0.012)
CEO Tenure	-0.049	0.000	-0.047	0.000
	(0.037)	(0.001)	(0.037)	(0.001)
Firm Age	0.779***	0.003	0.805***	0.002
	(0.065)	(0.006)	(0.063)	(0.006)
Ln(Assets)	-1.480***	-0.019	-1.488***	-0.016
	(0.385)	(0.013)	(0.385)	(0.013)
Leverage	-2.102	-0.018	-1.792	-0.014
	(1.644)	(0.041)	(1.634)	(0.040)
Employment	0.182*	-0.002	0.180*	-0.002
	(0.105)	(0.003)	(0.105)	(0.003)
Constant	1.803	0.255*	-0.768	0.241*
	(7.183)	(0.132)	(7.379)	(0.131)
Observations	1750	1750	1750	1750
R^2		0.137		0.141
Anderson (p-val)		0.001		0.000
Sargan (p-val)		0.164		0.109
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES

Table 3.14 Board gender diversity and risk management strategies location-weighted factor

This table reports the regression results for the effect of board gender diversity on measures of diversification returns including a location-weighted factor- Employment. Panel A presents the results for the IV estimation and Panel B reports the results for the OLS estimation. HHI G is a Herfindahl index which measures the concentration of a REITs properties by geography. DIST is the average square root of distance of a REITs properties to its headquarters. HHI P is a Herfindahl index which measures the concentration of a REITs properties by property type. HHI T is a Herfindahl index which measures the concentration of a REITs tenants based on the top 30 tenants. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	Panel A: GEI					**Panel A: Gay Rights**				
	1st Stage	***2st Stage***				***1st Stage***	***2nd Stage***			
	% Women	HHI G	DIST	HHI P	HHI T	% Women	HHI G	DIST	HHI P	HHI T
% Women		0.008***	-0.648***	-0.007**	0.001		0.020***	-0.774***	-0.001	0.002
		(0.003)	(0.190)	(0.003)	(0.002)		(0.006)	(0.232)	(0.003)	(0.003)
PEERS	0.207**					0.220***				
	(0.085)					(0.085)				
GEI	0.253***									
	(0.097)									
Gay Rights						0.258**				
						(0.117)				
Board Size	0.322	-0.006**	0.358**	0.001	-0.001	0.329	-0.009**	0.404**	-0.001	-0.001
	(0.219)	(0.003)	(0.168)	(0.003)	(0.002)	(0.220)	(0.005)	(0.195)	(0.002)	(0.002)
% Independent	0.061*	0.001	0.005	0.002***	0	0.055	0	0.012	0.001***	0
	(0.036)	(0.000)	(0.027)	(0.000)	(0.000)	(0.036)	(0.001)	(0.032)	(0.000)	(0.000)
Duality	-0.588	0.004	0.511	0.008	0.015***	-0.593	0.01	0.458	0.011	0.017***
	(0.704)	(0.008)	(0.499)	(0.008)	(0.005)	(0.704)	(0.014)	(0.573)	(0.007)	(0.006)
CEO Tenure	-0.077	0	-0.016	-0.001	0	-0.07	0.001	-0.026	0	0
	(0.057)	(0.001)	(0.042)	(0.001)	(0.000)	(0.056)	(0.001)	(0.049)	(0.001)	(0.001)

Table 3.14 Board gender diversity and risk management strategies location-weighted factor (Continued)

	Panel A: GEI					**Panel A: Gay Rights**				
	1st Stage	***2st Stage***				***1st Stage***	***2nd Stage***			
	% Women	HHI G	DIST	HHI P	HHI T	% Women	HHI G	DIST	HHI P	HHI T
Firm Age	0.738***	-0.007***	0.732***	0.012***	0.001	0.781***	-0.018***	0.850***	0.007**	-0.001
	(0.095)	(0.003)	(0.185)	(0.003)	(0.002)	(0.094)	(0.006)	(0.225)	(0.003)	(0.003)
Ln(Assets)	-1.095**	-0.01	-0.918**	-0.019***	-0.034***	-1.084**	0.003	-1.068**	-0.013**	-0.033***
	(0.526)	(0.007)	(0.430)	(0.007)	(0.004)	(0.527)	(0.012)	(0.502)	(0.006)	(0.005)
Leverage	-4.290*	-0.067**	-0.397	-0.120***	-0.082***	-3.518	-0.019	-1.025	-0.097***	-0.078***
	(2.352)	(0.028)	(1.887)	(0.030)	(0.023)	(2.342)	(0.052)	(2.200)	(0.027)	(0.026)
MTB	1.759**	-0.007	0.323	0.008	-0.004	1.671*	-0.026	0.514	0	0
	(0.867)	(0.010)	(0.668)	(0.011)	(0.010)	(0.869)	(0.019)	(0.775)	(0.010)	(0.012)
ROA	0.297	0.001	0.079	0.008***	-0.006*	0.266	-0.004	0.131	0.006**	-0.008*
	(0.195)	(0.002)	(0.156)	(0.003)	(0.003)	(0.197)	(0.004)	(0.181)	(0.002)	(0.004)
Employment	0.128	-0.004*	0.134	0.007***	-0.002	0.147	-0.007	0.159	0.006***	-0.002
	(0.201)	(0.002)	(0.143)	(0.002)	(0.002)	(0.201)	(0.004)	(0.165)	(0.002)	(0.002)
Constant	-15.609	0.772***	15.712***	1.026***	0.560***	-13.672	0.790***	15.776***	1.035***	0.556***
	(9.801)	(0.078)	(5.072)	(0.092)	(0.051)	(10.068)	(0.141)	(5.816)	(0.082)	(0.056)
Observations	996	996	982	996	515	996	996	982	996	515
R^2		0.951	0.979	0.993	0.808		0.838	0.972	0.994	0.770
Anderson (p-val)		0.000	0.000	0.000	0.011		0.001	0.001	0.001	0.083
Sargan (p-val)		0.136	0.000	0.068	0.610		0.001	0.000	0.970	0.546
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

4 Women on the Board and Property Transaction Activity

4.1 Introduction

Are women more risk-averse and less overconfident than men is a question which has piqued the interest of several scholars. Studies on differences in risk-taking behaviour find that women are more risk-averse/ less overconfident than men in their investment decisions (for e.g., Charness and Gneezy, 2012). Stemming from this, a number of studies have investigated the effects of women on the board and female executives on various corporate actions and outcomes. Such studies find female executives lower leverage (Schopohl et al., 2021; Faccio et al., 2016), and lower stock price crash risk (Li and Zeng, 2019). Studies on the board of directors find women on the board to increase risk in the finance industry (Adams and Ragunathan, 2017) and have no effect on risk for non-financial firms (Sila et al., 2016), leaving the results inconclusive, where Adams and Ragunathan (2017) point out that women seem have different risk preferences depending on the industry with Sila et al. (2016) arguing that the possible differences in results in gender studies are due to concerns of endogeneity. A body of literature has further examined the effects of gender of the board and female executives on firm-level M&A's and find that firms with more women have a lower propensity to engage in M&A's, have higher debt and acquisition returns, with lower bid premiums being paid out (Huang and Kisgen, 2013; Levi et al., 2014). With respect to REITs, Devine et al. (2024) examine the effects of female executives and women on the board and find that REITs with female executives and with gender diverse boards lower a REITs transaction activity and these REITs are more geographically focussed and increase investments in sustainable properties.

This study builds on the findings of Devine et al. (2024) and investigates the effects of board gender diversity on property acquisition, disposition, and overall transaction activity on a sample of US Equity REITs using an IV approach. We use REITs as our sample for the following reasons. Firstly, unlike previous studies which focus on firm-level transaction activity, the characteristics of a REITs property (i.e., property size, property type, location, etc.,) are known, which enables us to investigate the risk-taking investment behaviour of women on the board in more depth and to identify sources and possible differences in investment outcomes. More importantly, since the location of a REITs properties are known, we are able to make use of reliable instruments to deal with the endogeneity existent in gender studies and by utilizing this unique location specific information of REITs we are able to examine in-state and out-of-state transaction activity. Lastly, the majority of studies focus on firm-level M&A's which are large and infrequent transactions. Since a REITs primary business is acquisition, operation, and sale of properties, the frequency of such transactions provides us with a better understanding of investment behaviours and decisions made by REITs with more women on the board.

We begin with examining the effects of board gender diversity on a REITs investment activity. Utilizing instruments created by taking advantage of a REITs property location in an instrumental variable setting, our findings suggest that REITs with more women on the board lower transaction activity, and most of this reduction stems from these REITs lowering their transaction activity in states where they are not headquartered. Our findings supplement the existing literature with evidence that women are less overconfident than men in their investment decisions as they lower the frequency of property transactions and are less likely to transact in unfamiliar states. Given our unique sample of REITs, we are further able to investigate the investment behaviour of REITs with women on the board. If women are indeed less overconfident than men in their investment decisions, we would expect REITs with more women on the board to acquire larger properties (i.e., concentrating not just by location but also

by size of properties). Our findings suggest that REITs with more women on the board transact larger properties which creates a concentration effect.

We further examine if REITs with more women on board make different investment decisions from REITs with fewer women on the board in different market conditions (i.e., bull versus bear market states). Our findings suggest that REITs with more women on the board lower transaction activity in bull market states. Our findings are interesting as overconfident investors are known to increase transaction activity in general market increases such as bull market states, attributing success to their own ability which results in a decrease in profits (Gervais and Odean, 2001). Hence our results further solidify the notion that women are more risk-averse and less overconfident in their investment choices than men.

Lastly, we investigate the effect of women on the board on traditional versus non-traditional REITs. We find that board gender diversity lowers transaction activity for non-traditional REITs and not for traditional REITs. Traditional REITs are more likely to have institutional ownership and are generally characterised by stable returns. Non-traditional REITs are considered riskier due to unstable cash flows, and they usually lack external monitoring mechanisms (Newell and Peng, 2006). Given that women are efficient monitors and often used as a proxy for internal monitoring mechanisms (Adams and Ferreira, 2009), and the fact that they are more risk-averse/ less overconfident than men in their investment decisions, we would expect REITs with more women on the board to lower transaction activity for non-traditional REITs due to their superior monitoring.

Remainder of the study is organised as follows. Section 4.2 overviews the literature on risk-aversion and overconfidence, as well as the literature on REIT investment activity. Section 4.3 describes the data and methodology applied. Section 4.4 presents the results on the statistical and economic significance for the effect of women on the board and REIT transaction activity. Section 4.5 reports the results on the robustness test using alternative model specifications. Section 4.6 summarizes and concludes the study.

4.2 Literature review

The risk aversion literature on differences between men and women find that women are more risk averse than men. Charness and Gneezy (2012) over 15 sets of experiments conducted in different countries find that women make more conservative investment decisions than men. In addition, Levin et al. (1998) conducted a study on gambling outcomes based on probabilities of outcomes on investments involving a sample of 110 students. The authors find that women are less inclined to take risks, being more cautious in their decision making. Similarly, Sarin and Wieland (2016) in a study on probability gambles find women to exhibit more risk-averse behaviour than men. However, under decisions in uncertainty, men and women were found to have similar risk-taking behaviour. Additionally, Watson and McNaughton (2007) in a study on retirement fund preferences of staff in Australian universities find women make more conservative investment decisions by choosing pension funds which are less risky. The results of Watson and McNaughton (2007) are further corroborated by Arano et al. (2010) who find that in married households where investment decisions are taken jointly, women tend to make more risk-averse individual retirement asset allocations than men. Croson and Gneezy (2009) further add to the existing literature on risk-taking differences between men and women, finding women to be more risk-averse with malleable social preferences and having a tendency to avoid competition. Another body of literature has examined if women are less overconfident than men in their investment decisions. Barber and Odean (2001) analyse stock investments made by men and women and find that men trade 45 percent more than women.

A vast number of studies have since then been conducted in finance and related literature to ascertain if women are indeed more risk-averse than men. Evidence from studies on the implications of gender differences on corporate actions and outcomes find contrasting results. For instance, Schopohl et al., (2021) and Faccio et al., (2016) find females executives lower leverage of firms, whereas Li and Zeng (2019) find female executives to lower stock

price crash risk. Considering the board of directors, Adams and Ragunathan (2017) find contrasting results to the general risk aversion literature, with women on the board being less risk-averse to men in the finance industry. Contrary to Adams and Ragunathan (2017), Sila et al. (2016) find no significant differences in risk-taking outcomes for firms with women on the board in a sample of non-financial firms. Literature has further examined the effect of board of directors and executives or mergers and acquisitions, finding firms with women having a lower propensity to engage in mergers and acquisitions with higher acquisition and debt announcement returns, and lower bid premiums (Huang and Kisgen, 2013; Levi et al., 2014).

Furthermore, the majority of the literature on REIT transaction activity either focusses on shareholder's or debtholder's wealth. Glascock et al. (1991) examine the announced returns experienced by buyers and sellers of property for a sample of 99 buyers and 51 sellers. They find that both buyers and sellers experience positive abnormal returns when purchasing or selling property. However, their returns are not significantly different from zero when they are conducting an extensive acquisition. Additionally, McIntosh et al. (1995) study acquisitions and dispositions for a sample of REITs and find that shareholders experience no wealth effects from transaction announcements but dispositions when REITs increase dividends results in a positive wealth effect. In addition to McIntosh et al. (1995), Campbell et al. (2003) examine announcement returns around acquisitions and find a positive effect. Such an effect is attributed to a more geographic focus of a REITs asset base and when debt is used to finance such transactions. Furthermore, Campbell et al. (2006) examine selloffs by US equity REITs and find that shareholders returns are positive and returns are inversely related to pre-announcement operating performance. In contrast to the previous literature, Brounen et al. (2007) investigate if active management strategies generate abnormal returns. Using the sum of acquisitions and dispositions as a proxy for active management strategy, they find no significant shareholder abnormal returns.

Few studies have examined the effects of property transaction activity of debtholders wealth. Datta et al. (1996) examine the effects of divestitures on shareholder and bondholder

wealth and find a positive effect for shareholder and bondholder abnormal returns measured around the announcement date. Furthermore, selloffs caused by financial distress enhance bondholder value, whereas selloffs for strategic restructuring enhance shareholder value. Additionally, Datta et al. (2003) examine the effects of divestitures on stockholder and bondholder wealth for acquirers and sellers and document a positive effect of divestitures for sellers only. However, they find no significant effect when considering the net wealth of the transactions. Li et al. (2020) analyse the effects of overall transaction activity (purchase plus sale) on creditors wealth for a sample of US equity REITs and find that an increase in transaction activity lowers creditors' wealth. However, this negative effect is mitigated when REITs trade at a premium to net asset value and when the proceeds from sales are used to pay the debt following the transactions. Furthermore, they document that an increase in geographic focus increases bond yield spreads.

With respect to effects of governance mechanisms on REIT performance, the literature has examined the effects of board structure, ownership, and compensation (for eg., Ghosh and Sirmans, 2003; Ghosh and Sirmans, 2005; Ghosh and Sirmans, 2006), insider ownership (for eg., Capozza and Seguin 2003; Han, 2006), and studies using several governance mechanisms and governance indices (for eg., Hartzell et al., 2008; Bianco et al., 2007; Bauer et al., 2010).[19] There are very few studies which have investigated the effects of governance mechanisms on a REITs transaction activity. Eichholtz and Yonder (2015) examine the effects of CEO overconfidence on REIT property investment activity and find that overconfident managers increase property transaction activity and have lower investment performance. Zhang and Ooi (2021) investigate the effect of CEO age on REIT acquisition activity and find that younger CEOs increase the REITs acquisitions activity and older CEOs engage in fewer acquisitions but are more likely to acquire in unfamiliar states and in out-of-wave acquisitions. Devine et al. (2024) examine the effects of female CEO's and board gender diversity and a REIT transaction

[19] The literature on the effects of governance on REITs is vast and these are merely examples of what has been covered and is by no means exhaustive.

activity and find that an increase in gender representation in top management teams results in a lower trading activity, an increase in geographic focus of properties, and an increase in sustainable property investments.

Our study further adds to the findings of Devine at al. (2024) by examining the effects of board gender diversity on a REITs investment activity. Since the existing literature has largely focussed on firm-level M&A's and with only one REIT study examining the effects of gender diverse boards and executives on REIT investment activity, our study aims to fill in this research gap by investigating the less overconfident investment behaviour of women on boards on a REITs investment decisions by taking advantage of the characteristics of a REITs properties (i.e., location, property-type, property size, and tenants). Particularly, we aim to further add to the literature by examining the in-state and out-of-state transaction of properties and the investment behaviour of REITs with more women on the board in different market conditions (i.e. bull and bear market states) which has not been previously explored.

4.3 Data, methodology, and summary statistics

4.3.1 Data and methodology

Our sample consists of all listed Equity REITs in the US that were listed at some points in our study to avoid survivorship bias. Financial data is obtained for S&P Global Market Intelligence[20] database and from COMPUSTAT Capital IQ database. Data on transaction activity (i.e., acquisitions and dispositions) and characteristics of properties (for e.g., location, size, etc.,) is obtained from the S&P Global Market Intelligence database. Board level data is obtained from BoardEx via Wharton Research Data Services (WRDS). Our final sample ranges

[20] Formerly known as SNL Financial.

from the year 2000 to 2018 and begins from the year 2000 as WRDS has board level data from that year. The number of observations vary depending on the estimation method employed.

To test the effect of women on the board on transaction activity, we regress our measures of transaction activity on the percentage of women on the board (*WOMEN*) and a set of control variables:[21]

$$transaction\ activity_{it} = \alpha + \beta WOMEN_{it} + \gamma controls_{it} + \nu_i + \mu_t + \varepsilon_{it} \quad (4.1)$$

Following the literature (for eg., Li et al., 2020), we use three proxies to measure transaction activity: *ACQ, DISP*, and *OVERALL*. *ACQ* is the total value[22] of property transactions for a firm in a given year, divided by the average number of transactions in the current and previous year, or

$$ACQ = \frac{Property\ Acquistions_t}{Total\ Properties_t - Total\ Properties_{t-1}} \quad (4.2)$$

DISP is measured as the total number of property sales transactions in a given year, divided by the average number of transactions in the current and previous year, or

$$DISP = \frac{Property\ Sales_t}{Total\ Properties_t - Total\ Properties_{t-1}} \quad (4.3)$$

Overall is the sum of *ACQ* and *DISP* in a given year, divided by the average number of transactions in the current and previous year, or

$$OVERALL = \frac{Acq_t + Disp_t}{Total\ Properties_t - Total\ Properties_{t-1}} \quad (4.4)$$

[21] Description of variables is provided in Appendix B Table B1.
[22] Alternatively, we use the count of properties for our analysis where the value of properties is not available.

We further measure the distance to acquisitions (*D_ACQ*), dispositions (*D_DISP*), and overall activity (*D_OVERALL*), from a REITs headquarters as follows:

$$DIST_{it} = \frac{1}{N_{it}} \sum_{n=1}^{N} sqrt(Distance_{nit}) \tag{4.5}$$

As an alternative measure to distance to examine in-state and out-of-state transaction activity, we compute cross and home border acquisitions, dispositions and overall activity following the procedure from equations 4.2 to 4.4 for samples where REITs make cross and home border transactions respectively.

We also include a set of firm, board, and market-level characteristics as controls. To control for board-level characteristics, we include the size of the board (*BSIZE*), the percentage of independent directors (*IND*), whether the CEO is also the Chairman of the board (*DUAL*), and the tenure of the CEO (*CTENURE*).

To control for firm-level and market-level characteristics, we include the age of the firm (*AGE*), the natural logarithm of total assets (*SIZE*), the level of leverage of the firm (*LEVERAGE*), market to book ratio (*MTB*), return on total assets (*ROA*), capital expenditure (*CAPEX*), the amount of cash (*LIQUIDITY*), and a measure of market return (*RETURN*).

To deal with endogeneity existent in gender studies we utilize an instrumental variable approach. The first stage estimation is as follows:

$$WOMEN_{it} = \alpha + \delta PEERS_{it} + \lambda GEI_{it} + \gamma controls_{it} + \nu_i + \mu_t + \varepsilon_{it} \tag{4.6}$$

where γ represents the vector of coefficients for the control variables ($controls_{it}$) used in equation 4.1. A detailed description of the instruments (i.e. $PEERS_{it}$ and GEI_{it}) is provided in chapter 3 section 3.3.2 of the thesis.

We use the predicted values from the first stage ($\widehat{WOMEN}_{it}$) to estimate the second stage estimation as follows:

$$transaction\ activity_{it} = \alpha + \beta \widehat{WOMEN}_{it} + \gamma controls_{it} + \nu_i + \mu_t + \varepsilon_{it} \quad (4.7)$$

where γ is the vector of coefficients for the same control variables ($controls_{it}$) used in equations 4.1 and 4.6.

For our additional analysis, we use the following model specification:

$$Pr(outcome_{it}) = f\ (\alpha + \beta WOMEN_{it} + \gamma controls_{it} + u_i + v_t + \varepsilon_{it}) \quad (4.8)$$

As outcome variables we include measures to analyse if women on the board make different acquisition (*BB_ACQ*), disposition (*BB_DISP*), and overall (*BB_OVERALL*) activity decisions in bull versus bear market states, and whether they are likely to acquire (*LS_ACQ*), dispose (*LS_DISP*), and acquire plus dispose (*LS_OVERALL*), large versus small properties. The control variables are the same as used for previous model specifications (i.e. equations 4.1, 4.6 and 4.7).

Alternatively, to further validate our results for our additional analysis, we use a logistic regression as follows:

$$lr\ (outcome_{it}) = f\ (\alpha + \beta WOMEN_{it} + \gamma controls_{it} + u_i + v_t + \varepsilon_{it}) \quad (4.9)$$

where we use the same variables as used in equation 4.8.

4.3.2 Summary statistics

Table 4.1 presents the descriptive statistics for our sample. The mean acquisitions for REITs in our sample are 15.17% and the mean dispositions are 5.65% indicating that REITs are more likely to acquire than dispose their properties. The overall transaction activity, i.e. acquisitions plus dispositions, is 17.83%. The average square root of distance to acquisitions, dispositions, and overall activity, is 2.12, 0.20, and 2.32, respectively. REITs in our sample, on average, are more likely to make cross-border acquisitions (6.88%) as compared to acquisitions in states where there are headquartered (1.26%). Cross-border dispositions are higher (0.61%) as compared to home-border dispositions (0.13%), on average. The mean overall activity is greater for cross-border transactions at 7.50% as compared to home-border transactions at 1.39%. REITs in our sample undertake 38701 acquisitions, 6940 dispositions, and 45641 overall transactions in bull and bear market states.

The average board in our sample comprises of 8 members, with an average representation of women at 10.17%. REITs in our sample have more independent directors as compared to insiders with an average of 80.20%. Less than half the REITs in our sample have a CEO who is also the Chairman of the board, with a CEO having an average tenure of 5.6 years. On average, REITs in our sample are 17.29 years old. The mean leverage of REITs is 0.49 which indicates a leverage of less than 50%. The market-to-book ratio and return on assets is 1.37 and 2.75% respectively. REITs on average have a capital expenditure of 31 million with a liquidity of 116 million. The average annualised market return is 0.06.

4.4 Results

4.4.1 Women on the board and property transaction activity

Previous literature suggests that women on average are more risk-averse and less overconfident than men in their investment decisions (for e.g., Croson and Gneezy, 2009;

Barber and Odean, 2001). Although numerous studies have investigated this phenomenon in finance and related fields (for e.g., Schopohl et al., 2021; Faccio et al., 2016; Huang and Kisgen, 2013; Levi et al., 2014), research on women on the board and their effect on REIT investment activity has been limited to one study conducted by Devine et al. (2024) who find gender diverse boards and female executives to lower a REITs trading activity. If women are indeed more risk-averse/ less overconfident than men, we would expect REITs with more women on the board to have lower acquisition, disposition, and overall transaction activity of a REITs assets.

Table 4.2 presents the results for the effect of women on the board (*WOMEN*) on a REITs investment activity as measured by acquisitions (*ACQ*), dispositions (*DISP*), and acquisitions plus dispositions (*OVERALL*). Columns (1), (4), and (7) report the results for the OLS estimations, whereas the remaining columns present the results for the IV estimation. From our OLS specification, we find a positive and significant effect only for *DISP*, where a 1% increase in *WOMEN* results in a 0.14% increase in *DISP*.

It is well known in gender studies that endogeneity such as reverse casualty may result in spurious correlations. To deal with this, we use an instrumental variable approach with fixed effects. We construct two instruments[23] to use in our instrumental variable approach. The first is a gender equality index (*GEI*) as follows:

$$GEI = \sum_{i}^{n} w_i * \text{ gender equality score} \tag{4.10}$$

where w_i is the proportion of assets in a REITs portfolio in a given state and year and the gender equality score is constructed using the method proposed by Sugarman and Straus (1988) and updated by Noia (2002). The index encompasses economic, political and legal spheres which consist of indicators indicating how women are doing relative to men in

[23] A detailed description of the instruments is provided in chapter 3 section 3.3.2 of the thesis.

respective states. The higher the score, the more friendly a state is for women. We manually collect the data for the indicators for our sample period to make the index time variant.

The second instrument we use is *PEERS* (Liu et al., 2014) which is constructed as the total number women on the board in a REITs sub-industry excluding the REIT, divided by the board size in a REITs sub-industry excluding the REIT, expressed as a percentage. This instrument can be viewed as a proxy for a firm's governance and hiring practices. We expect our instruments to be positively and significantly correlated with *WOMEN* and uncorrelated with our outcome variables of interest.

From our first stage results in columns (2), (5), and (8), it is evident that our instruments (i.e., *GEI* and *PEERS*) are significantly and positively related to *WOMEN*.[24] From our second stage IV results in columns (3), (6), and (9), we find that a 1% increase in *WOMEN* results in a 1.1%, 0.6%, and 1.2% decrease in *ACQ*, *DISP*, and *OVERALL*, respectively.

Our results supplement the literature on risk-averse/less overconfident behaviour with evidence than women are indeed more risk-averse/less overconfident than men in their investment decisions as they lower a REITs property transaction activity. Given that our sample is REITs whose primary business is the ownership, operation, and sale of real estate, we are able to uncover the more risk-averse and less overconfident behaviour of women on boards in a granular setting. Our results are in line with studies on general equities - Huang and Kisgen, (2013), Levi et al., (2014), and with the literature on REITs - Devine et al. (2024). Women on the board may lower transaction activity either due to their more risk-averse/ less overconfident investment behaviour (Croson and Gneezy, 2009; Barber and Odean, 2001) or through a monitoring role by enhancing decision-making resulting in improved quality of transactions (Adams and Ferreira, 2009; Robinson and Dechant, 1997). Additionally, women on boards may lower transaction activity as diverse boards are known to take longer to deliberate decisions which may result in improved transaction quality (Levi et al., 2014; Erhardt et al., 2003).

[24] The instruments meet the exogeneity and validity assumptions where we fail to reject the null hypothesis under the Sargan-Hansen test and reject the null hypothesis under the Anderson-canon test.

4.4.2 Traditional vs non-traditional REITs

Our baseline results suggest that REITs with more women on the board lower a REITs transaction activity. REITs are characterised by different sub-industries (for e.g., hotel, retail, residential, etc.). The effects of women on a REITs board on transaction activity could vary depending on the REITs sub-industry. We follow Newell and Peng (2006) and categorise REITs into traditional (i.e. office, industrial, residential and retail) and non-traditional (i.e. healthcare, self-storage and specialty). Traditional REITs are generally considered low risk and are more likely to receive investment from institutional investors who target stable returns. Non-traditional REITs on the other hand are generally considered risker, with a lack of long-term performance measures and unstable/ unpredictable cash flows (Newell and Peng, 2006). Since institutional investors generally act as external monitors, and since women are known to be efficient monitors and often used as a proxy for internal monitoring mechanisms (Adams and Ferreira, 2009), we would expect women on the board to have no effect on traditional REITs due to the presence of monitoring mechanisms in the form of institutional investors, but to have an effect on non-traditional REITs, where the need for internal monitoring would be more so. Additionally, since traditional REITs are less risky than non-traditional REITs, we expect women on the board to have an effect on non-traditional REITs by lowering the overall riskiness of the REIT, as women are more risk-averse/ less overconfident than men in their investment decisions.

Table 4.3 reports the results for the effects of *WOMEN* on *ACQ*, *DISP*, and *OVERALL,* for traditional REITs. Columns (1), (4), and (7), present the results for the OLS estimation and the remaining columns report the results for the IV estimation. For the OLS estimation, we find a positive and significant effect of *WOMEN* on *DISP* and *OVERALL*, where a 1% increase in women on the board results in 0.19% and 0.27% increase in disposition and overall activity respectively. After dealing with endogeneity in the form of reverse causality and omitted

variable bias, from the IV estimation, we find that women on the board have no effect on transaction activity.

Table 4.4 presents the results for the effects of *WOMEN* on *ACQ*, *DISP*, and *OVERALL,* for non-traditional REITs. Columns (1), (4), and (7), present the results for the OLS estimation and the remaining columns report the results for the IV estimation. For the OLS estimation, we find no evidence of women on the board on a REITs transaction activity. From the IV estimation, we find that women on the board lower a REITs acquisition and overall investment activity. Economically speaking, a 1% increase in *WOMEN* results in a 1.58% and 1.55% decrease in *ACQ* and *OVERALL*, respectively. Consistent with our expectations, we find women on the board to lower transaction activity for non-traditional REITs which are risker and not for traditional ones which are considered safer with more stable cash flows.

4.4.3 Women on the board and transaction location of REITs properties

Our primary results uncover that firms with women on the board lower overall investment activity which reveals that women are more risk-averse and less overconfident in their investment making decisions. The location, size, and other property characteristics available for REITs gives us the advantage to further dissect and analyse investment behaviour of REITs with more women on the board.

As mentioned previously, since a REITs primary business activity involves real estate, the location of the properties helps us analyse the risk-taking behaviour of REITs with women on the board. Particularly, if women are indeed less overconfident than men, we would expect REITs with more women on the board to be less likely to transact outside of home states (i.e. states they are less familiar with).

Table 4.5 presents the results for the effects of women on the board on distance of acquisition (*D_ACQ*), disposition (*D_DISP*), and overall (*D_OVERALL*) activity to a REITs headquarter state. Columns (1), (4), and (7) present the results for our OLS estimation. We find

a positive and significant effect only for dispositions, where a one standard deviation increase in *WOMEN* results in a 0.004 increase in *D_DISP*. Although we find a positive effect of women the board with distance to dispositions, these results should be interpreted with caution since endogeneity is known to exist in gender studies. Columns (3), (6), and (9), report the results for our second stage IV estimation. We find a significant and negative relationship for women on the board and acquisition and overall activity but no relationship with dispositions. Economically, a one standard deviation change in *WOMEN* results in a 2.10 and 2.04 decrease in *D_ACQ* and *D_OVERALL* respectively.

Table 4.6 reports the results for the effects of women on the board on acquisition (*C_ACQ*), disposition (*C_DISP*), and overall (*C_OVERALL*) activity, in states where the REIT is not headquartered. Columns (1), (4), and (7) report the results for the OLS estimation and the remaining columns for the IV method. From the OLS estimation, we find a positive and significant effect for women on the board on cross border dispositions, where a 1% increase in *WOMEN* results in 0.05% increase in *C_DISP*. From the IV estimation, we find women on the board lower acquisition and overall transaction activity in states where they are not headquartered. Economically, a 1% increase in *WOMEN* results in a 1.38% and 1.41% decrease in *C_ACQ* and *C_OVERALL*, respectively. Our results further solidify the notion that women more risk-averse/ less overconfident than men in their investment decisions as they are less likely to transact properties in unfamiliar states thereby displaying a home-bias.

Table 4.7 presents the results for the effects of women on the board on acquisition (*H_ACQ*), disposition (*H_DISP*), and overall (*H_OVERALL*) activity in states where the REIT is headquartered. Columns (1), (4), and (7) report the results from the OLS estimation whereas the remaining columns present the results for the IV method. Overall, we find that women on a REITs board have no effect on transaction activity in states where the REIT is headquartered.

Our results help decompose the risk-taking investment behaviour for REITs with more women on the board. REITs with more women on the board lower transaction activity and this reduction stems from reducing activity in unfamiliar states and having no effect in states in

where the REIT is headquartered. These findings confirm the risk-aversion and less overconfident investment behaviour of women on the board as they tend to display a "home-bias" by reducing transaction activity in unfamiliar states. Since out-of-town transactions are known to increase costs due to information asymmetries (Devine et al, 2024; Eichholtz et al., 2016), the superior monitoring/decision-making of women on REIT boards may consequently result in a reduction in expensive out-of-town transactions. Overall, these findings further contribute to the literature on women in top management teams and their effects on a REITs transaction activity. Our findings contribute to the study of Devine et al. (2024) who find that women on boards and female executives increase geographic focus. We provide further evidence by dissecting the transactions of REITs to in-state and out-of-state transactions.

4.4.4 Women on the board and property size

Our initial analysis has revealed that more women on the board leads to less transaction activity and less activity outside of states where a REIT is headquartered. We further investigate if women on the board are more or less likely to transact large or small properties. If women are indeed less overconfident/more risk-averse than men, we would expect REITs with more women on the board to transact larger properties, resulting in a concentration effect.

Columns (1), (2), and (3) in Table 4.8 reports the results from the probit regressions for the effect of women on the board on the above and below median size of acquisition (*LS_ACQ*), disposition (*LS_DISP*), and overall (*LS_OVERALL*) activity, respectively. We find a positive and significant effect for *WOMEN* on *LS_ACQ* and *LS_OVERALL* but not for *LS_DISP.* Economically, a one percentage point increase in *WOMEN* results in a 0.002 and 0.003 increase in the probability of *LS_ACQ* and *LS_OVERALL*, respectively. Our results indicated that REITs with more women on the board are more likely to transact larger properties. Our findings confirm the notion that women are indeed more risk averse/ less overconfident than men, resulting in women concentrating a REITs assets by transacting larger properties.

4.4.5 Women on the board and market states

Overconfident investment behaviour is known to exist when aggregate success of investing is higher than expected. During periods of general market increases, such as bull market conditions, overconfident investors are more likely to attribute success to their own ability. This overconfident behaviour generally results in increased trading activity during such periods which in turn results in a decrease in profits (Gervais and Odean, 2001). On the contrary, during bear market conditions, which are characterised by low prices and poor market performance, managers are less likely to exhibit overconfident investment behaviour stemming from a reduction in managerial power and hubris, in turn improving net present value of projects (Pangarkar and Lie, 2004). Given that existing literature on gender studies posits that women are more risk-averse/ less overconfident than men in their investment decisions (Charness and Gneezy, 2012), we expect REITs with more women on the board to lower investment activity in bull market states and increase activity in bear market states.

We follow the procedure employed by Bry and Boschan (1971) and Pagan and Sossounov (2002) to define bull and bear market states. To identify bull and bear market states, we use monthly price data of the S&P 500 index. We use a dating algorithm which imposes restrictions to identify the respective states. We set the minimum phase of the bull and bear state length to four months and a minimum full cycle length to 16 months. To find the minima and maxima for the market states, we set half size of the rolling window to four months. The conditions imposed for the minimum phase of bull or bear market states is ignored if there is a 20% change in a given month.

Columns (1), (2), and (3) in Table 4.9 reports the probit estimation results for the effect of women on the board on acquisition (*BB_ACQ*), disposition (*BB_DISP*), and overall activity (*BB_OVERALL*) in bull versus bear market states. We find that a one percentage point increase in *WOMEN* results in a 0.04, 0.004, and 0.007 decrease in the probability of *BB_ACQ*,

BB_DISP, and *BB_OVERALL*, respectively. Our findings indicate that REITs with more women on the board exhibit less overconfident behaviour by reducing the probability of transaction activity in bull market states where overconfident investors are known to increase investment activity (Gervais and Odean, 2001) and increasing the probability of activity in bear market states. Overall, these findings contribute the broader literature on overconfidence thereby highlighting the less overconfident behaviour of women on REIT boards.

4.5 Robustness tests

Although in this study we have attempted to deal with endogeneity in the form of omitted variable bias and reverse causality, there may be some limitations and drawbacks to using an instrumental variable approach and there may be some form of bias driving our results. To deal with these potential endogeneity issues and to increase confidence in our results, we utilize a LIML model as used in chapter 3 of the thesis. Alternatively, for the analysis where we used a probit model, we repeat our analysis using a logit model.

4.5.1 Robustness tests for IV estimations

Table 4.10 presents the results for the effects of women on the board on a REITs transaction activity using an LIML approach. Columns (1), (3), and (5) report the results from the first stage estimation and the remaining columns for the second stage estimation.

From the first stage results it is evident that our instruments, *PEERS* and *GEI*, are significantly and positively related to *WOMEN*. Furthermore, we find that our instruments are valid from the Anderson-Canon LM test where we reject the null hypothesis and exogenous using the Sargan-Hansen test of over-identification where we fail to reject the null hypothesis.

From, our second stage results in columns (2), (4), and (6), we find that *WOMEN* is significantly and negatively related to *ACQ*, *DISP*, and *OVERALL*. Economically, a 1% increase in *WOMEN* results in a 1.14%, 0.71%, and 1.28% decrease in *ACQ*, *DISP*, and *OVERALL*, respectively. These findings are consistent with our main analysis and we are further able to strengthen our findings as our instruments meet the validity and exogeneity assumptions when we use an LIML approach.

Table 4.11 and 4.12 reports the results for the effects of women on the board on REIT transaction activity for traditional and non-traditional REITs using an LIML approach. In both tables, columns (1), (3), and (5) present the results for the first stage estimation and the remaining columns for the second stage LIML results. In table 4.11, for traditional REITs, we that *WOMEN* is significantly and positively related to *DISP*, where a 1% increase in *WOMEN* results in a 1.04% decrease in *DISP*. In Table 4.12, for non-traditional REITs, we find that women on the board are significantly and negatively associated with our measures of transaction activity. Economically, a 1% increase in *WOMEN* results in a 1.67% and 1.62% decrease in *ACQ* and *OVERALL,* respectively. Our results are largely consistent with our main analysis where we a two-stage least square estimation.

Table 4.13 reports the results for the effect of women on the board on distance of a REITs properties to its headquartered using an LIML approach. Columns (1), (3), and (5) report the results for the first stage LIML estimation and the remaining columns present the second stage results. From the second stage results, we find that women on the board lower the distance of a REITs transaction activity. Economically speaking, a one standard deviation change in *WOMEN* results in a 2.29 and 2.16 decrease in *D_ACQ* and *D_OVERALL* respectively. Our results from the LIML approach further consolidate our results from our main analysis and indicate that women on a REITs board tend to exhibit a home bias by preferring to transact properties in states where they are headquartered.

To further validate our results from Table 4.13 where we observe a home bias for REITs with more women on the board, we examine the effects of women on the board on transaction

activity by splitting the sample into cross-border and home-border transactions. Table 4.14 and 4.15 present the results for the effects of women on the board on a REITs cross-border and home-border transaction activity using an LIML approach, respectively. Columns (1), (3), and (5) report the results for the first stage estimation and the remaining columns for the second stage results. Overall, we find that women on the board lower cross-border transaction activity and have no effect on home-border transactions. Economically, a 1% increase in *WOMEN* results in a 2.13% and 2.04% decrease in *C_ACQ* and *C_OVERALL*, respectively. Our results strengthen the findings from the main analysis conducted in this study as women on the board seem to exhibit a 'home-bias' as they reduce transaction activity in unfamiliar states.

Overall, our results from the LIML are consistent with the results from our main analysis where we employ a two-stage least squares approach.

4.5.2 Robustness tests for Probit model

In this section, we report the results from logit estimations as a robustness test for our additional analysis where we used a probit estimation model.

Table 4.16 reports the results from the logit model where we analyse the effects of women on the board on the above and below median size of properties transacted by REITs. Column (1) presents the results for above and below median acquisitions, column (2) reports the results for above and below median dispositions, and column (3) for above and below median overall trading activity. Consistent with our main analysis, where use a probit estimation, we find that women on the board are more likely to transact larger properties. Economically, a one percentage point increase in *WOMEN* increases the probability of *LS_ACQ* and *LS_OVERALL* by 0.02 and 0.03, respectively.

In Table 4.17, we report the results for the robustness test using a logit model where we examine the effects of women on the board on transaction activity in bull and bear market states. Column (1) reports the results for bull and bear market acquisitions, column (2) presents the

results for bull and bear market dispositions, and column (3) reports the results for bull and bear market acquisitions and dispositions. We find that a one percentage point increase in *WOMEN* results in a 0.006, 0.005, and 0.009 decrease in probability of *BB_ACQ*, *BB_DISP*, and *BB_OVERALL*, respectively. Our results further solidify our findings from our main analysis with evidence that REITs with more women on the board display less overconfident investment behaviour by reducing transaction activity in bull market states where overconfident investors are known to increase transaction activity.

4.5.3 Location-weighted local factor

Although we have conducted extensive robustness tests using an LIML and logit estimation, we further validate our results by incorporating a REIT location-weighted local factor- *Employment*[25] as a control variable to capture the unobservable local effects as more progressive states in the US have been associated with stronger economic performance and innovation. This allows us to conduct heterogeneity tests as state level local factors could have an effect on transaction activity.

Table 4.18 presents the IV results for the effects of women on the board on a REITs transaction activity. Columns (1), (3), and (5) report the results from the first stage estimation and the remaining columns for the second stage estimation. From the first stage results it is evident that our instruments- *PEERS* and *GEI*, are significantly and positively related to women on the board even after including our REIT specific location-weighted local factor- *Employment*. From the second stage results in columns (2), (4), and (6), we find women on the board to lower a REITs transaction activity- *ACQ*, *DISP*, and *OVERALL*. The sign and order of magnitude are consistent with our main analysis and with our robustness test when using an LIML approach.

[25] A detailed description of *Employment* is presented in chapter 3 section 3.5.3 of this thesis.

Table 4.19 and 4.20 reports the results for the effects of women on the board on REIT transaction activity for traditional and non-traditional REITs. In both tables, columns (1), (3), and (5) present the results for the first stage and the remaining columns for the second stage estimation. For traditional REITs (See Table 4.19), we find that women on the board have no statistically significant effect on a REITs transaction activity. However, for non-traditional REITs (See Table 4.20), we find that women on the board are significantly and negatively associated with our measures of transaction activity. Our results are consistent with our main analysis where we use a two-stage least square and an LIML estimation.

Table 4.21 reports the results for the effect of women on the board on distance of a REITs properties to its headquartered. Columns (1), (3), and (5) present the results for the first stage and the remaining columns present the second stage estimation results. From the second stage estimation, we find that women on the board lower the distance of a REITs transaction activity. Furthermore, when we split our sample to out-of-state (See Table 4.22) and in-state (See Table 4.23) transaction activity, we find similar evidence to our baseline results. From the second stage estimation results in columns (2), (4), and (6), we find that women on the board lower cross-border transaction activity (See Table 4.22) and have no statistically significant effect on home-border transactions (4.23). Overall, the sign and order of magnitude are consistent from our main analysis where we employ a two-stage least squares approach and when using an LIML model.

We further repeat our analysis for our probit model by including *Employment* as a control variable as state level employment could have an effect on transaction activity. Table 4.24 presents the result for the effect of women on the board on transactions above and below the median size of acquisitions, dispositions and overall activity- *LS_ACQ*, *LS_DISP*, and *LS_OVERALL*. Our results are largely consistent with our baseline model and with our robustness test when using a logit estimation. Women on the board acquire and acquire plus dispose larger properties. Similarly, in Table 4.25 we examine the effects of women on the board on transaction activity in bull and bear market states by including *Employment* as a

control variable. Consistent with our baseline results and our robustness tests, women on the board lower transaction activity- *BB_ACQ*, *BB_DISP*, and *BB_OVERALL*, in bull market states. Having controlled for local unobservable factors, the sign and order of magnitude are consistent from our main analysis and our robustness tests.

4.6 Conclusion

Should there be women on the board and to what extent has piqued the interest of several scholars. Such studies are motivated by theories on risk-aversion/ less overconfidence, which propose that women are more risk-averse/ less overconfident than men in their investment decisions. Besides the ample of literature on gender diversity in various corporate settings and industries, very little attention has been given to REITs. Our study aims to fill in this research gap. Our study investigates the implications of board gender diversity on a REITs investment activity.

We document that gender diversity of the board lowers transaction activity for REITs, particularly for non-traditional REITs which are riskier and lack external monitoring mechanisms. Moreover, REITs with more women on the board are less likely to acquire properties in states where they are not headquartered, exhibiting less overconfident investment behaviour. Furthermore, they are more likely to acquire larger properties, thereby creating a concentration effect. Lastly, REITs with more women on the board lower activity in bull market states where overconfident investors are more likely to increase transaction activity.

Although in this study we have attempted to disentangle the effects of women on REIT boards and property transaction activity, just like any study it is subject to limitations. Firstly, although we have attempted to uncover the effects of women on REIT boards on transaction activity, we are unable to examine the announcement returns around property acquisitions and dispositions due to limitations of data. Secondly, although we find women on boards to lower transaction for traditional REITs and not for non-traditional ones, we acknowledge that this

may be due to a self-selection bias where women due to their more risk-averse nature would be more likely to be present on traditional REIT boards. Future research would be required to disentangle the true effects of women on traditional REIT boards and explore this dynamic in more depth.

Table 4.1 Descriptive statistics

This table presents the summary statistics for the sample over the period 2000 to 2018. ACQ is the number or value of acquisitions scaled by the current and previous assets or number of properties. DISP is the number or value of dispositions scaled by the current and previous assets or number of properties. OVERALL is the number or value of acquisitions and dispositions scaled by the current and previous assets or number of properties. D_ACQ is the distance of acquisitions to a REITs headquarters. D_DISP is the distance of dispositions to a REITs headquarters. D_OVERALL is the distance of acquisitions and dispositions to a REITs headquarters. C_ACQ is the number oof acquisitions in states where the REIT is not headquartered scaled by the current and previous number of properties. C_DISP is the number oof dispositions in states where the REIT is not headquartered scaled by the current and previous number of properties. C_OVERALL is the number oof acquisitions and dispositions in states where the REIT is not headquartered scaled by the current and previous number of properties. H_ACQ is the number oof acquisitions in states where the REIT is headquartered scaled by the current and previous number of properties. H_DISP is the number oof dispositions in states where the REIT is headquartered scaled by the current and previous number of properties. H_OVERALL is the number oof acquisitions and dispositions in states where the REIT is headquartered scaled by the current and previous number of properties. LS_ACQ is a dummy equal to 1 if a REIT acquires above median value of properties and 0 otherwise. LS_DISP is a dummy equal to 1 if a REIT disposes above median value of properties and 0 otherwise. LS_OVERALL is a dummy equal to 1 if a REIT acquires or disposes above median value of properties and 0 otherwise. BB_ACQ is a dummy equal to 1 if a REIT acquires a property in bull market states and 0 otherwise. BB_DISP is a dummy equal to 1 if a REIT disposes a property in bull market states and 0 otherwise. BB_OVERALL is a dummy equal to 1 if a REIT acquires or disposes a property in bull market states and 0 otherwise. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. A detailed description of variables is provided in Appendix B Table B1.

	N	Mean	Median	Std. Dev	Min	Max
Dependent variables						
ACQ	1213	15.169	8.875	17.805	0.005	124.657
DISP	1091	5.649	3.468	7.096	0.002	66.227
OVERALL	1378	17.825	11.629	18.373	0.016	130.858
D_ACQ	2070	2.122	0.711	3.888	0.000	39.390
D_DISP	2070	0.199	0.000	0.849	0.000	26.030
D_OVERALL	2070	2.321	0.928	3.958	0.000	39.390
C_ACQ	1912	6.884	2.105	13.934	0.000	152.009
C_DISP	1912	0.614	0.000	2.585	0.000	76.136
C_OVERALL	1912	7.498	2.838	14.138	0.000	152.009
H_ACQ	1912	1.256	0.000	3.844	0.000	58.333
H_DISP	1912	0.131	0.000	0.795	0.000	18.182
H_OVERALL	1912	1.387	0.000	3.941	0.000	58.333
LS_ACQ	19507	0.545	1.000	0.498	0.000	1.000
LS_DISP	3200	0.452	0.000	0.498	0.000	1.000
LS_OVERALL	22707	0.532	1.000	0.499	0.000	1.000
BB_ACQ	38701	0.769	1.000	0.422	0.000	1.000
BB_DISP	6940	0.693	1.000	0.461	0.000	1.000
BB_OVERALL	45641	0.757	1.000	0.429	0.000	1.000
Key independent variables						
WOMEN	2190	10.165	10.000	10.411	0.000	50.000
Control variables						
BSIZE	2190	8.169	8.000	2.093	2.000	17.000
IND	2190	80.178	83.333	10.732	0.000	100.000
DUAL	2190	0.449	0.000	0.497	0.000	1.000
CTENURE	2190	5.580	3.800	5.895	0.000	44.700
AGE	1816	17.286	15.000	13.369	0.000	65.000
SIZE	2187	14.610	14.778	1.412	8.172	17.464
LEVERAGE	2187	0.492	0.496	0.168	0.000	1.381
MTB	1347	1.371	1.275	0.468	0.303	3.991
ROA	2174	2.745	2.692	1.930	-10.225	15.195
CAPEX	2139	30.582	0.000	141.369	0.000	2278.592
LIQUIDITY	1989	116.019	25.185	276.722	0.000	3957.718
RETURN	2190	0.064	0.101	0.163	-0.397	0.308

Table 4.2 Board gender diversity and REIT investment activity

This table reports the results for the effects of percentage of women on the board on REIT transaction activity. ACQ is the number or value of acquisitions scaled by the current and previous assets or number of properties. DISP is the number or value of dispositions scaled by the current and previous assets or number of properties. OVERALL is the number or value of acquisitions and dispositions scaled by the current and previous assets or number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	ACQ	WOMEN	ACQ	DISP	WOMEN	DISP	OVERALL	WOMEN	OVERALL
WOMEN	0.046		-1.095*	0.139**		-0.611*	0.113		-1.244*
	(0.122)		(0.601)	(0.054)		(0.331)	(0.122)		(0.708)
PEERS		0.433***			0.246*			0.366***	
		(0.131)			(0.145)			(0.122)	
GEI		0.324**			0.392***			0.296**	
		(0.127)			(0.133)			(0.120)	
BSIZE	0.318	0.334	0.632	-0.063	0.685**	0.372	0.345	0.578**	1.008
	(0.782)	(0.309)	(0.784)	(0.332)	(0.324)	(0.407)	(0.783)	(0.290)	(0.879)
IND	0.009	-0.021	-0.027	0.032	0.07	0.078	0.120	-0.008	0.096
	(0.165)	(0.065)	(0.161)	(0.072)	(0.070)	(0.079)	(0.159)	(0.059)	(0.159)
DUAL	-3.226	1.127	-2.556	0.540	0.528	0.686	-3.099	0.743	-2.562
	(2.704)	(1.069)	(2.634)	(1.090)	(1.065)	(1.174)	(2.563)	(0.950)	(2.568)
CTENURE	-0.240	-0.181**	-0.417*	0.031	-0.145*	-0.048	-0.234	-0.177**	-0.428*
	(0.203)	(0.080)	(0.214)	(0.082)	(0.080)	(0.096)	(0.200)	(0.074)	(0.223)
AGE	-1.251***	0.791***	0.069	0.100	0.680***	0.821**	-1.049***	0.788***	0.506
	(0.351)	(0.159)	(0.764)	(0.141)	(0.173)	(0.336)	(0.334)	(0.149)	(0.854)
SIZE	-0.643	-1.388	-2.059	-2.750**	0.399	-2.622**	-2.983	-1.513*	-5.284**
	(2.416)	(0.952)	(2.447)	(1.109)	(1.088)	(1.199)	(2.371)	(0.877)	(2.609)
LEVERAGE	-19.864**	-2.76	-23.465***	-0.037	-3.108	-1.477	-17.395**	-3.822	-22.608**
	(8.768)	(3.675)	(9.008)	(4.552)	(4.450)	(4.955)	(8.618)	(3.371)	(9.316)
MTB	4.433	2.527	6.556	-0.978	2.588	0.616	4.164	3.358**	7.718*
	(4.070)	(1.666)	(4.326)	(1.917)	(1.884)	(2.236)	(3.933)	(1.505)	(4.564)
ROA	-5.148***	0.738*	-4.022***	-0.695	0.497	-0.076	-5.648***	0.303	-4.798***
	(1.090)	(0.434)	(1.223)	(0.484)	(0.479)	(0.560)	(1.027)	(0.388)	(1.108)
CAPEX	-0.028	0.006	0.098	0.553***	-0.193	0.892***	0.041	-0.165	1.096
	(0.149)	(0.267)	(0.657)	(0.202)	(0.260)	(0.297)	(0.157)	(0.252)	(0.695)

Table 4.2 Board gender diversity and REIT investment activity (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	ACQ	WOMEN	ACQ	DISP	WOMEN	DISP	OVERALL	WOMEN	OVERALL
LIQUIDITY	-0.008*	-0.004**	-0.014**	0.004**	-0.005***	0	-0.004	-0.005***	-0.011**
	(0.005)	(0.002)	(0.005)	(0.001)	(0.001)	(0.002)	(0.004)	(0.001)	(0.005)
RETURN	8.386*	-2.483	4.966	-0.142	-2.746	-1.863	6.530	-4.118**	1.328
	(5.069)	(2.045)	(5.432)	(2.156)	(2.145)	(2.590)	(4.876)	(1.839)	(6.022)
CONSTANT	78.693**	-15.376	77.774***	36.945**	-53.196***	16.361	96.247***	-14.276	99.461***
	(31.056)	(14.825)	(30.185)	(15.700)	(17.789)	(19.151)	(31.158)	(14.095)	(31.165)
Observations	549	538	538	474	470	470	613	602	602
R^2	0.415		0.680	0.245		0.463	0.357		0.667
Anderson P-val			0.000			0.001			0.000
Hansen's J-test P-val			0.397			0.189			0.518
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Regression type	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV

Table 4.3 Board gender diversity and traditional REIT investment activity

This table reports the results for the effects of percentage of women on the board on REIT transaction activity for a sample of traditional REITs. ACQ is the number or value of acquisitions scaled by the current and previous assets or number of properties. DISP is the number or value of dispositions scaled by the current and previous assets or number of properties. OVERALL is the number or value of acquisitions and dispositions scaled by the current and previous assets or number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	ACQ	WOMEN	ACQ	DISP	WOMEN	DISP	OVERALL	WOMEN	OVERALL
WOMEN	0.190		-0.376	0.189***		-0.611	0.266*		-0.864
	(0.163)		(0.777)	(0.071)		(0.413)	(0.161)		(1.010)
PEERS		0.396**			0.335*			0.335**	
		(0.165)			(0.184)			(0.151)	
GEI		0.303**			0.309**			0.225*	
		(0.140)			(0.136)			(0.130)	
Other controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
CONSTANT	74.377*	10.307	86.519**	34.512*	-0.129	49.533**	89.472**	16.183	119.338***
	(38.995)	(17.849)	(38.309)	(19.786)	(19.906)	(22.103)	(38.592)	(16.446)	(45.040)
Observations	388	388	388	350	350	350	443	443	443
R^2	0.387		0.705	0.296		0.537	0.326		0.674
Anderson P-val			0.001			0.003			0.007
Hansen's J-test P-val			0.688			0.030			0.074
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Regression type	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV

Table 4.4 Board gender diversity and non-traditional REIT investment activity

This table reports the results for the effects of percentage of women on the board on REIT transaction activity for a sample of non-traditional REITs. ACQ is the number or value of acquisitions scaled by the current and previous assets or number of properties. DISP is the number or value of dispositions scaled by the current and previous assets or number of properties. OVERALL is the number or value of acquisitions and dispositions scaled by the current and previous assets or number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	ACQ	WOMEN	ACQ	DISP	WOMEN	DISP	OVERALL	WOMEN	OVERALL
WOMEN	-0.218		-1.580*	0.108		-0.313	-0.148		-1.554*
	(0.189)		(0.833)	(0.078)		(0.316)	(0.193)		(0.924)
PEERS		0.608**			0.319			0.557**	
		(0.257)			(0.269)			(0.245)	
GEI		0.437			0.854**			0.372	
		(0.391)			(0.428)			(0.374)	
Other controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
CONSTANT	147.597***	-60.788**	97.654	22.258	-159.869***	-21.935	145.643***	-63.495**	85.449
	(47.600)	(29.527)	(60.763)	(23.188)	(38.901)	(40.643)	(48.468)	(28.043)	(67.470)
Observations	161	150	150	124	120	120	170	159	159
R^2	0.496		0.721	0.207		0.543	0.440		0.723
Anderson P-val			0.015			0.035			0.023
Hansen's J-test P-val			0.475			0.788			0.555
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Regression type	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV

Table 4.5 Board gender diversity and distance to REIT transaction activity

This table reports the results for the effects of percentage of women on the board on the distance of REIT transaction activity from the state where they are headquartered. D_ACQ is the distance of acquisitions to a REITs headquarters. D_DISP is the distance of dispositions to a REITs headquarters. D_OVERALL is the distance of acquisitions and dispositions to a REITs headquarters. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	D_ACQ	WOMEN	D_ACQ	D_DISP	WOMEN	D_DISP	D_OVERALL	WOMEN	D_OVERALL
WOMEN	-0.018		-0.450**	0.019***		0.01	0.000		-0.442**
	(0.019)		(0.200)	(0.006)		(0.049)	(0.020)		(0.205)
PEERS		0.185*			0.167*			0.185**	
		(0.095)			(0.090)			(0.094)	
GEI		0.225**			0.229**			0.225**	
		(0.100)			(0.100)			(0.100)	
BSIZE	0.098	0.556**	0.324*	-0.030	0.561**	-0.026	0.068	0.556**	0.299
	(0.124)	(0.233)	(0.179)	(0.039)	(0.232)	(0.044)	(0.127)	(0.233)	(0.184)
IND	-0.043**	0.03	-0.027	-0.007	0.031	-0.007	-0.051**	0.03	-0.034
	(0.020)	(0.039)	(0.025)	(0.006)	(0.039)	(0.006)	(0.021)	(0.039)	(0.026)
DUAL	0.712*	-0.779	0.344	0.046	-0.79	0.038	0.756*	-0.78	0.38
	(0.392)	(0.737)	(0.491)	(0.123)	(0.737)	(0.120)	(0.402)	(0.737)	(0.504)
CTENURE	-0.034	-0.160**	-0.096*	0.000	-0.161**	-0.001	-0.034	-0.160**	-0.098*
	(0.034)	(0.064)	(0.049)	(0.011)	(0.064)	(0.012)	(0.035)	(0.064)	(0.050)
AGE	-0.073	0.715***	0.305*	-0.024*	0.728***	-0.017	-0.097**	0.716***	0.29
	(0.045)	(0.101)	(0.181)	(0.014)	(0.099)	(0.045)	(0.046)	(0.101)	(0.186)
SIZE	-0.391	-0.619	-0.640*	0.151	-0.618	0.146	-0.239	-0.618	-0.494
	(0.306)	(0.575)	(0.378)	(0.096)	(0.575)	(0.092)	(0.314)	(0.575)	(0.387)
LEVERAGE	-2.543*	-6.325**	-5.158***	0.029	-6.261**	-0.023	-2.524*	-6.339**	-5.210***
	(1.306)	(2.465)	(1.952)	(0.408)	(2.462)	(0.477)	(1.342)	(2.466)	(2.003)
MTB	0.309	2.597***	1.472*	-0.032	2.682***	-0.009	0.289	2.598***	1.477*
	(0.508)	(0.953)	(0.803)	(0.158)	(0.944)	(0.196)	(0.521)	(0.951)	(0.821)
ROA	-0.583***	0.157	-0.487***	-0.021	0.158	-0.019	-0.603***	0.158	-0.505***
	(0.112)	(0.212)	(0.139)	(0.035)	(0.213)	(0.034)	(0.115)	(0.212)	(0.143)
CAPEX	0.008***	0.003	0.010***	-0.000	0.003	0	0.008***	0.003	0.009***
	(0.002)	(0.003)	(0.002)	(0.000)	(0.003)	(0.000)	(0.002)	(0.003)	(0.002)

Table 4.5 Board gender diversity and distance to REIT transaction activity (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	D_ACQ	WOMEN	D_ACQ	D_DISP	WOMEN	D_DISP	D_OVERALL	WOMEN	D_OVERALL
LIQUIDITY	0.000	-0.004***	-0.002	0.000**	-0.004***	0	0.001	-0.004***	-0.001
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
RETURN	1.031	-2.951**	-0.459	-0.297	-2.832**	-0.326	0.781	-2.934**	-0.75
	(0.745)	(1.419)	(1.113)	(0.233)	(1.423)	(0.270)	(0.761)	(1.416)	(1.139)
CONSTANT	14.722***	-19.340*	11.469**	0.056	-20.256**	-0.01	14.658***	-19.423*	11.331**
	(3.976)	(10.341)	(4.916)	(1.248)	(10.315)	(1.200)	(4.081)	(10.316)	(5.040)
Observations	902	902	902	902	902	902	902	902	902
R^2	0.438		0.415	0.082		0.254	0.428		0.421
Anderson P-val			0.003			0.004			0.003
Hansen's J-test P-val			0.479			0.730			0.566
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Regression type	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV

Table 4.6 Board gender diversity and cross-border REIT transaction activity

This table reports the results for the effects of percentage of women on the board on REIT transaction activity in states where they are not headquartered. C_ACQ is the number oof acquisitions in states where the REIT is not headquartered scaled by the current and previous number of properties. C_DISP is the number oof dispositions in states where the REIT is not headquartered scaled by the current and previous number of properties. C_OVERALL is the number oof acquisitions and dispositions in states where the REIT is not headquartered scaled by the current and previous number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	C_ACQ	WOMEN	C_ACQ	C_DISP	WOMEN	C_DISP	C_OVERALL	WOMEN	C_OVERALL
WOMEN	-0.058		-1.384*	0.051**		-0.022	-0.008		-1.411*
	(0.084)		(0.752)	(0.020)		(0.162)	(0.085)		(0.770)
PEERS		0.238**			0.221**			0.237**	
		(0.102)			(0.100)			(0.101)	
GEI		0.197*			0.199*			0.197*	
		(0.105)			(0.105)			(0.105)	
BSIZE	0.230	0.691***	1.094	-0.005	0.695***	0.042	0.227	0.691***	1.14
	(0.539)	(0.245)	(0.751)	(0.131)	(0.245)	(0.159)	(0.546)	(0.245)	(0.769)
IND	-0.185*	-0.003	-0.189*	-0.019	-0.003	-0.019	-0.205**	-0.003	-0.209*
	(0.103)	(0.047)	(0.109)	(0.025)	(0.047)	(0.023)	(0.104)	(0.047)	(0.112)
DUAL	2.899*	-0.656	1.921	0.051	-0.645	-0.002	2.958*	-0.655	1.921
	(1.728)	(0.787)	(1.913)	(0.421)	(0.788)	(0.402)	(1.751)	(0.787)	(1.962)
CTENURE	-0.133	-0.149**	-0.315*	0.002	-0.149**	-0.008	-0.132	-0.149**	-0.324*
	(0.144)	(0.066)	(0.184)	(0.035)	(0.066)	(0.039)	(0.146)	(0.066)	(0.189)
AGE	-0.379*	0.847***	1.001	-0.097*	0.855***	-0.021	-0.471**	0.848***	0.99
	(0.212)	(0.113)	(0.809)	(0.051)	(0.113)	(0.174)	(0.215)	(0.113)	(0.829)
SIZE	-2.126	-1.669**	-4.269**	0.560	-1.644**	0.442	-1.569	-1.669**	-3.840*
	(1.520)	(0.690)	(2.013)	(0.370)	(0.689)	(0.426)	(1.540)	(0.690)	(2.065)
LEVERAGE	-16.306***	-4.744*	-22.629***	-0.347	-4.735*	-0.698	-16.755***	-4.754*	-23.456***
	(5.843)	(2.680)	(7.145)	(1.422)	(2.681)	(1.512)	(5.923)	(2.680)	(7.329)
MTB	2.672	2.080**	5.742*	0.208	2.198**	0.38	2.901	2.083**	6.130**
	(2.306)	(1.050)	(2.995)	(0.556)	(1.037)	(0.632)	(2.333)	(1.048)	(3.059)
ROA	-3.234***	0.089	-3.026***	-0.061	0.089	-0.05	-3.298***	0.089	-3.077***
	(0.543)	(0.249)	(0.588)	(0.132)	(0.249)	(0.123)	(0.550)	(0.249)	(0.603)

Table 4.6 Board gender diversity and cross-border REIT transaction activity (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	C_ACQ	WOMEN	C_ACQ	C_DISP	WOMEN	C_DISP	C_OVERALL	WOMEN	C_OVERALL
CAPEX	0.020***	0.005	0.026***	-0.001	0.005	-0.001	0.018***	0.005	0.025***
	(0.006)	(0.003)	(0.008)	(0.002)	(0.003)	(0.002)	(0.007)	(0.003)	(0.008)
LIQUIDITY	-0.000	-0.004***	-0.006	0.001*	-0.004***	0.001	0.001	-0.004***	-0.005
	(0.003)	(0.001)	(0.004)	(0.001)	(0.001)	(0.001)	(0.003)	(0.001)	(0.004)
RETURN	1.651	-2.293	-2.408	-0.953	-2.218	-1.173	0.791	-2.286	-3.522
	(3.188)	(1.484)	(4.080)	(0.775)	(1.486)	(0.857)	(3.225)	(1.484)	(4.182)
CONSTANT	74.020***	-4.808	79.857***	-4.150	-5.743	-3.856	69.194***	-4.906	75.423***
	(20.063)	(11.888)	(21.526)	(4.899)	(11.925)	(4.526)	(20.320)	(11.869)	(22.065)
Observations	825	825	825	825	825	825	825	825	825
R^2	0.393		0.449	0.087		0.254	0.390		0.444
Anderson P-val			0.003			0.004			0.003
Hansen's J-test P-val			0.029			0.631			0.045
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Regression type	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV

Table 4.7 Board gender diversity and home-border REIT transaction activity

This table reports the results for the effects of percentage of women on the board on REIT transaction activity in states where they are headquartered.
H_ACQ is the number oof acquisitions in states where the REIT is headquartered scaled by the current and previous number of properties. H_DISP is the number oof dispositions in states where the REIT is headquartered scaled by the current and previous number of properties. H_OVERALL is the number oof acquisitions and dispositions in states where the REIT is headquartered scaled by the current and previous number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	H_ACQ	WOMEN	H_ACQ	H_DISP	WOMEN	H_DISP	H_OVERALL	WOMEN	H_OVERALL
WOMEN	0.002		-0.141	0.002		-0.057	0.004		-0.193
	(0.024)		(0.194)	(0.005)		(0.039)	(0.024)		(0.201)
PEERS		0.219**			0.224**			0.220**	
		(0.101)			(0.099)			(0.101)	
GEI		0.199*			0.198*			0.198*	
		(0.105)			(0.105)			(0.105)	
BSIZE	-0.071	0.692***	0.022	-0.014	0.695***	0.024	-0.082	0.691***	0.045
	(0.154)	(0.245)	(0.189)	(0.029)	(0.245)	(0.039)	(0.156)	(0.245)	(0.196)
IND	0.015	-0.002	0.014	-0.005	-0.003	-0.005	0.010	-0.002	0.009
	(0.029)	(0.047)	(0.027)	(0.006)	(0.047)	(0.006)	(0.030)	(0.047)	(0.028)
DUAL	-0.165	-0.658	-0.273	0.098	-0.649	0.055	-0.063	-0.657	-0.213
	(0.493)	(0.788)	(0.481)	(0.093)	(0.788)	(0.099)	(0.499)	(0.788)	(0.497)
CTENURE	0.017	-0.149**	-0.003	-0.003	-0.149**	-0.011	0.014	-0.149**	-0.013
	(0.041)	(0.066)	(0.047)	(0.008)	(0.066)	(0.010)	(0.042)	(0.066)	(0.048)
AGE	-0.104*	0.852***	0.044	0.010	0.853***	0.071*	-0.092	0.851***	0.111
	(0.061)	(0.113)	(0.207)	(0.011)	(0.113)	(0.042)	(0.062)	(0.113)	(0.214)
SIZE	-0.567	-1.637**	-0.795	-0.066	-1.648**	-0.162	-0.639	-1.637**	-0.952*
	(0.433)	(0.690)	(0.506)	(0.082)	(0.690)	(0.104)	(0.439)	(0.690)	(0.524)
LEVERAGE	-4.051**	-4.705*	-4.728***	0.217	-4.704*	-0.065	-3.828**	-4.708*	-4.761**
	(1.663)	(2.679)	(1.795)	(0.315)	(2.680)	(0.369)	(1.684)	(2.679)	(1.858)
MTB	-0.073	2.199**	0.264	0.019	2.171**	0.155	-0.072	2.201**	0.393
	(0.650)	(1.038)	(0.755)	(0.123)	(1.036)	(0.154)	(0.659)	(1.039)	(0.784)
ROA	-0.394**	0.088	-0.372**	0.013	0.091	0.022	-0.377**	0.087	-0.348**
	(0.155)	(0.249)	(0.147)	(0.029)	(0.250)	(0.030)	(0.157)	(0.249)	(0.152)

Table 4.7 Board gender diversity and home-border REIT transaction activity (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	H_ACQ	WOMEN	H_ACQ	H_DISP	WOMEN	H_DISP	H_OVERALL	WOMEN	H_OVERALL
CAPEX	0.004**	0.005	0.005**	-0.000	0.005	0.000	0.004**	0.005*	0.005**
	(0.002)	(0.003)	(0.002)	(0.000)	(0.003)	(0.000)	(0.002)	(0.003)	(0.002)
LIQUIDITY	-0.000	-0.004***	-0.001	0.000*	-0.004***	-0.000	0.000	-0.004***	-0.001
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
RETURN	0.156	-2.216	-0.268	-0.370**	-2.227	-0.552***	-0.197	-2.230	-0.786
	(0.908)	(1.486)	(1.019)	(0.172)	(1.498)	(0.212)	(0.916)	(1.483)	(1.055)
CONSTANT	19.259***	-5.485	19.912***	1.289	-5.465	1.553	20.468***	-5.411	21.377***
	(5.707)	(11.849)	(5.377)	(1.080)	(11.896)	(1.108)	(5.783)	(11.843)	(5.566)
Observations	825	825	825	825	825	825	825	825	825
R^2	0.359		0.501	0.141		0.144	0.361		0.489
Anderson P-val			0.005			0.004			0.005
Hansen's J-test P-val			0.761			0.964			0.778
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Regression type	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV

Table 4.8 Board gender diversity and large versus small property transaction activity

This table reports the results for the effects of percentage of women on the board on large versus small property transactions. LS_ACQ is a dummy equal to 1 if a REIT acquires above median value of properties and 0 otherwise. LS_DISP is a dummy equal to 1 if a REIT disposes above median value of properties and 0 otherwise. LS_OVERALL is a dummy equal to 1 if a REIT acquires or disposes above median value of properties and 0 otherwise. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)
	LS_ACQ	LS_DISP	LS_OVERALL
WOMEN	0.009**	-0.096	0.013***
	(0.004)	(0.062)	(0.004)
BSIZE	-0.073***	0.952***	-0.041*
	(0.026)	(0.289)	(0.023)
IND	-0.000	0.014	-0.002
	(0.004)	(0.049)	(0.004)
DUAL	-0.202**	-0.259	-0.236***
	(0.087)	(0.872)	(0.078)
CTENURE	-0.009	0.090	-0.009
	(0.007)	(0.082)	(0.006)
AGE	0.101***	0.208*	0.066***
	(0.013)	(0.122)	(0.012)
SIZE	-0.000	1.037	0.089*
	(0.056)	(0.671)	(0.053)
LEVERAGE	-0.024	3.563	-0.112
	(0.344)	(4.607)	(0.330)
MTB	-0.006	-2.007	-0.006
	(0.136)	(1.587)	(0.130)
ROA	0.097***	1.625**	0.060**
	(0.030)	(0.665)	(0.029)
CAPEX	-0.005	12.550	-0.001
	(0.007)	(213.732)	(0.006)
LIQUIDITY	0.000	0.006	0.000
	(0.000)	(0.004)	(0.000)
RETURN	-0.063	6.872***	0.814**
	(0.396)	(1.907)	(0.345)
CONSTANT	-1.158	-32.516**	-2.450***
	(0.733)	(13.607)	(0.691)
Observations	9760	702	10,554
R^2	0.404	0.373	0.390
Regression type	Probit	Probit	Probit

Table 4.9 Board gender diversity and market states

This table reports the results for the effects of percentage of women on the board on transaction activity in bull versus bear market states. BB_ACQ is a dummy equal to 1 if a REIT acquires a property in bull market states and 0 otherwise. BB_DISP is a dummy equal to 1 if a REIT disposes a property in bull market states and 0 otherwise. BB_OVERALL is a dummy equal to 1 if a REIT acquires or disposes a property in bull market states and 0 otherwise. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)
	BB_ACQ	BB_DISP	BB_OVERALL
WOMEN	-0.017**	-0.390**	-0.032***
	(0.007)	(0.157)	(0.007)
BSIZE	-0.086**	-3.142***	-0.121***
	(0.036)	(0.761)	(0.033)
IND	-0.009	-0.214	-0.009
	(0.008)	(0.211)	(0.007)
DUAL	-0.526***	14.308***	-0.474***
	(0.131)	(3.431)	(0.124)
CTENURE	-0.006	-0.548**	0.007
	(0.012)	(0.220)	(0.011)
AGE	-0.168***	-1.390***	-0.190***
	(0.017)	(0.371)	(0.016)
SIZE	0.423***	1.919	0.562***
	(0.081)	(3.173)	(0.075)
LEVERAGE	-2.002***	-55.320***	-1.756**
	(0.726)	(15.089)	(0.686)
MTB	-0.027	43.392***	0.440**
	(0.217)	(8.443)	(0.203)
ROA	-0.028	-12.654***	-0.069
	(0.056)	(2.294)	(0.053)
CAPEX	-0.007	-2.241	-0.007
	(0.007)	(8.220)	(0.007)
LIQUIDITY	0.000	-0.004	0.000
	(0.000)	(0.003)	(0.000)
RETURN	42.405***	41.283***	44.672***
	(1.960)	(9.724)	(1.870)
CONSTANT	1.883*	54.796	0.274
	(1.085)	(348.753)	(0.940)
Observations	5013	2233	5973
R^2	0.407	0.973	0.457
Regression type	Probit	Probit	Probit

Table 4.10 Board gender diversity and REIT investment activity LIML

This table reports the results for the effects of percentage of women on the board on REIT transaction activity using an LIML approach. ACQ is the number or value of acquisitions scaled by the current and previous assets or number of properties. DISP is the number or value of dispositions scaled by the current and previous assets or number of properties. OVERALL is the number or value of acquisitions and dispositions scaled by the current and previous assets or number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	ACQ	WOMEN	DISP	WOMEN	OVERALL
WOMEN		-1.135*		-0.708*		-1.276*
		(0.615)		(0.368)		(0.719)
PEERS	0.433***		0.246*		0.366***	
	(0.131)		(0.145)		(0.122)	
GEI	0.324**		0.392***		0.296**	
	(0.127)		(0.133)		(0.120)	
BSIZE	0.334	0.645	0.685**	0.43	0.578**	1.027
	(0.309)	(0.789)	(0.324)	(0.433)	(0.290)	(0.885)
IND	-0.021	-0.028	0.07	0.083	-0.008	0.096
	(0.065)	(0.162)	(0.070)	(0.083)	(0.059)	(0.160)
DUAL	1.127	-2.533	0.528	0.705	0.743	-2.551
	(1.069)	(2.651)	(1.065)	(1.231)	(0.950)	(2.581)
CTENURE	-0.181**	-0.423*	-0.145*	-0.06	-0.177**	-0.432*
	(0.080)	(0.216)	(0.080)	(0.102)	(0.074)	(0.225)
AGE	0.791***	0.115	0.680***	0.911**	0.788***	0.543
	(0.159)	(0.779)	(0.173)	(0.370)	(0.149)	(0.867)
SIZE	-1.388	-2.106	0.399	-2.590**	-1.513*	-5.334**
	(0.952)	(2.465)	(1.088)	(1.257)	(0.877)	(2.627)
LEVERAGE	-2.76	-23.552***	-3.108	-1.701	-3.822	-22.720**
	(3.675)	(9.065)	(4.450)	(5.203)	(3.371)	(9.369)
MTB	2.527	6.648	2.588	0.87	3.358**	7.813*
	(1.666)	(4.360)	(1.884)	(2.366)	(1.505)	(4.597)
ROA	0.738*	-3.981***	0.497	-0.017	0.303	-4.779***
	(0.434)	(1.236)	(0.479)	(0.592)	(0.388)	(1.115)
CAPEX	0.006	0.098	-0.193	0.870***	-0.165	1.09
	(0.267)	(0.661)	(0.260)	(0.312)	(0.252)	(0.698)
LIQUIDITY	-0.004**	-0.014**	-0.005***	-0.001	-0.005***	-0.012**
	(0.002)	(0.005)	(0.001)	(0.002)	(0.001)	(0.005)
RETURN	-2.483	4.821	-2.746	-2.191	-4.118**	1.17
	(2.045)	(5.480)	(2.145)	(2.746)	(1.839)	(6.074)
CONSTANT	-15.376	77.645**	-53.196***	13.664	-14.276	99.457***
	(14.825)	(30.370)	(17.789)	(20.361)	(14.095)	(31.318)
Observations	538	538	470	470	602	602
R^2		0.676		0.410		0.664
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 4.11 Board gender diversity and traditional REIT investment activity LIML

This table reports the results for the effects of percentage of women on the board on REIT transaction activity for a sample of traditional REITs using an LIML approach. ACQ is the number or value of acquisitions scaled by the current and previous assets or number of properties. DISP is the number or value of dispositions scaled by the current and previous assets or number of properties. OVERALL is the number or value of acquisitions and dispositions scaled by the current and previous assets or number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	ACQ	WOMEN	DISP	WOMEN	OVERALL
WOMEN		-0.383		-1.043*		-1.35
		(0.782)		(0.615)		(1.280)
PEERS	0.396**		0.335*		0.335**	
	(0.165)		(0.184)		(0.151)	
GEI	0.303**		0.309**		0.225*	
	(0.140)		(0.136)		(0.130)	
BSIZE	0.323	0.236	0.797**	0.644	0.604**	0.782
	(0.309)	(0.809)	(0.315)	(0.640)	(0.291)	(1.148)
IND	-0.064	-0.14	-0.017	0.058	-0.067	-0.022
	(0.069)	(0.186)	(0.073)	(0.108)	(0.063)	(0.213)
DUAL	1.585	-5.001	0.16	0.094	0.343	-5.124
	(1.182)	(3.131)	(1.138)	(1.662)	(1.030)	(3.142)
CTENURE	-0.117	-0.303	-0.123	-0.044	-0.153*	-0.481
	(0.089)	(0.233)	(0.090)	(0.143)	(0.084)	(0.296)
AGE	0.759***	-1.118	0.670***	1.346**	0.791***	0.469
	(0.180)	(0.943)	(0.193)	(0.632)	(0.169)	(1.463)
SIZE	-2.172**	1.165	-1.772	-5.450***	-2.444***	-5.133
	(0.994)	(2.959)	(1.127)	(2.050)	(0.910)	(4.300)
LEVERAGE	-11.284***	-36.296***	-13.739**	-13.931	-11.312***	-42.592**
	(4.341)	(13.307)	(5.338)	(10.602)	(3.946)	(17.899)
MTB	0.966	3.867	1.15	-1.879	2.423	4.279
	(1.823)	(4.615)	(2.051)	(3.007)	(1.640)	(5.518)
ROA	0.831*	-5.571***	0.659	1.017	0.309	-4.797***
	(0.470)	(1.407)	(0.501)	(0.837)	(0.426)	(1.395)
CAPEX	0.03	-0.095	-0.124	1.152***	-0.167	1.174
	(0.262)	(0.664)	(0.249)	(0.370)	(0.249)	(0.783)
LIQUIDITY	-0.004**	-0.011*	-0.006***	-0.002	-0.005***	-0.013
	(0.002)	(0.006)	(0.001)	(0.004)	(0.001)	(0.008)
RETURN	-1.084	10.634*	-0.643	0.542	-2.639	5.616
	(2.173)	(5.642)	(2.210)	(3.280)	(1.986)	(7.245)
CONSTANT	10.307	86.666**	-0.129	57.658**	16.183	132.200***
	(17.849)	(38.369)	(19.906)	(27.484)	(16.446)	(51.294)
Observations	388	388	350	350	443	443
R^2		0.704		0.328		0.631
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 4.12 Board gender diversity and non-traditional REIT investment activity LIML

This table reports the results for the effects of percentage of women on the board on REIT transaction activity for a sample of non-traditional REITs using an LIML approach. ACQ is the number or value of acquisitions scaled by the current and previous assets or number of properties. DISP is the number or value of dispositions scaled by the current and previous assets or number of properties. OVERALL is the number or value of acquisitions and dispositions scaled by the current and previous assets or number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	ACQ	WOMEN	DISP	WOMEN	OVERALL
WOMEN		-1.667*		-0.318		-1.621*
		(0.875)		(0.318)		(0.959)
PEERS	0.608**		0.319		0.557**	
	(0.257)		(0.269)		(0.245)	
GEI	0.437		0.854**		0.372	
	(0.391)		(0.428)		(0.374)	
BSIZE	-0.436	0.117	-1.422	0.513	-0.322	1.68
	(1.024)	(2.172)	(1.159)	(0.911)	(0.981)	(2.182)
IND	0.145	0.571	0.505**	-0.019	0.204	0.412
	(0.169)	(0.381)	(0.215)	(0.217)	(0.162)	(0.411)
DUAL	-0.054	0.579	-1.653	2.641	0.696	4.191
	(2.827)	(5.880)	(2.930)	(2.119)	(2.635)	(5.748)
CTENURE	-0.371**	-0.870*	-0.366*	-0.054	-0.375**	-0.79
	(0.187)	(0.482)	(0.194)	(0.156)	(0.173)	(0.498)
AGE	0.68	2.075	0.296	-0.024	0.732*	1.863
	(0.418)	(1.290)	(0.464)	(0.325)	(0.408)	(1.411)
SIZE	-0.296	-12.746**	4.722	1.726	-0.272	-11.355**
	(2.656)	(5.362)	(3.024)	(2.569)	(2.591)	(5.516)
LEVERAGE	6.745	1.236	0.937	-6.744	4.474	-3.178
	(9.506)	(19.136)	(12.058)	(7.826)	(8.890)	(18.189)
MTB	2.891	10.268	2.73	6.149*	2.419	13.557
	(3.927)	(8.560)	(4.629)	(3.248)	(3.640)	(8.315)
ROA	0.275	-0.585	0.047	-2.640***	0.615	-2.126
	(1.155)	(2.379)	(1.309)	(0.886)	(1.028)	(2.434)
CAPEX	0.126	0.827	0.524	-1.031	0.058	0.78
	(0.983)	(1.909)	(1.130)	(0.698)	(0.954)	(1.972)
LIQUIDITY	-0.001	-0.004	-0.002	-0.003	-0.001	-0.009
	(0.008)	(0.016)	(0.008)	(0.005)	(0.007)	(0.016)
RETURN	-7.965	-14.176	-8.765	-4.184	-8.393*	-12.742
	(4.901)	(13.483)	(5.626)	(5.116)	(4.369)	(13.969)
CONSTANT	-60.788**	93.905	-159.869***	-22.436	-63.495**	82.125
	(29.527)	(62.667)	(38.901)	(40.914)	(28.043)	(69.188)
Observations	150	150	120	120	159	159
R^2		0.710		0.540		0.715
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 4.13 Board gender diversity and distance to REIT transaction activity LIML

This table reports the results for the effects of percentage of women on the board on the distance of REIT transaction activity from the state where they are headquartered using an LIML approach. D_ACQ is the distance of acquisitions to a REITs headquarters. D_DISP is the distance of dispositions to a REITs headquarters. D_OVERALL is the distance of acquisitions and dispositions to a REITs headquarters. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	D_ACQ	WOMEN	D_DISP	WOMEN	D_OVERALL
WOMEN		-0.469**		0.01		-0.455**
		(0.208)		(0.050)		(0.210)
PEERS	0.185*		0.167*		0.185**	
	(0.095)		(0.090)		(0.094)	
GEI	0.225**		0.229**		0.225**	
	(0.100)		(0.100)		(0.100)	
BSIZE	0.556**	0.334*	0.561**	-0.026	0.556**	0.306
	(0.233)	(0.184)	(0.232)	(0.044)	(0.233)	(0.187)
IND	0.03	-0.026	0.031	-0.007	0.03	-0.033
	(0.039)	(0.026)	(0.039)	(0.006)	(0.039)	(0.026)
DUAL	-0.779	0.328	-0.79	0.038	-0.78	0.369
	(0.737)	(0.501)	(0.737)	(0.120)	(0.737)	(0.510)
CTENURE	-0.160**	-0.099**	-0.161**	-0.001	-0.160**	-0.100*
	(0.064)	(0.050)	(0.064)	(0.012)	(0.064)	(0.051)
AGE	0.715***	0.321*	0.728***	-0.017	0.716***	0.301
	(0.101)	(0.188)	(0.099)	(0.045)	(0.101)	(0.190)
SIZE	-0.619	-0.651*	-0.618	0.146	-0.618	-0.501
	(0.575)	(0.385)	(0.575)	(0.092)	(0.575)	(0.392)
LEVERAGE	-6.325**	-5.273***	-6.261**	-0.024	-6.339**	-5.286***
	(2.465)	(2.004)	(2.462)	(0.478)	(2.466)	(2.037)
MTB	2.597***	1.524*	2.682***	-0.009	2.598***	1.511*
	(0.953)	(0.825)	(0.944)	(0.196)	(0.951)	(0.836)
ROA	0.157	-0.483***	0.158	-0.019	0.158	-0.502***
	(0.212)	(0.142)	(0.213)	(0.034)	(0.212)	(0.145)
CAPEX	0.003	0.010***	0.003	0	0.003	0.009***
	(0.003)	(0.002)	(0.003)	(0.000)	(0.003)	(0.002)
LIQUIDITY	-0.004***	-0.002	-0.004***	0	-0.004***	-0.001
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
RETURN	-2.951**	-0.525	-2.832**	-0.327	-2.934**	-0.794
	(1.419)	(1.142)	(1.423)	(0.270)	(1.416)	(1.158)
CONSTANT	-19.340*	11.326**	-20.256**	-0.011	-19.423*	11.236**
	(10.341)	(5.014)	(10.315)	(1.201)	(10.316)	(5.105)
Observations	902	902	902	902	902	902
R^2		0.394		0.254		0.407
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 4.14 Board gender diversity and cross-border REIT transaction activity LIML

This table reports the results for the effects of percentage of women on the board on REIT transaction activity in states where they are not headquartered using an LIML approach. C_ACQ is the number oof acquisitions in states where the REIT is not headquartered scaled by the current and previous number of properties. C_DISP is the number oof dispositions in states where the REIT is not headquartered scaled by the current and previous number of properties. C_OVERALL is the number oof acquisitions and dispositions in states where the REIT is not headquartered scaled by the current and previous number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	C_ACQ	WOMEN	C_DISP	WOMEN	C_OVERALL
WOMEN		-2.131*		-0.024		-2.037*
		(1.106)		(0.164)		(1.059)
PEERS	0.238**		0.221**		0.237**	
	(0.102)		(0.100)		(0.101)	
GEI	0.197*		0.199*		0.197*	
	(0.105)		(0.105)		(0.105)	
BSIZE	0.691***	1.58	0.695***	0.043	0.691***	1.547
	(0.245)	(0.984)	(0.245)	(0.160)	(0.245)	(0.960)
IND	-0.003	-0.191	-0.003	-0.019	-0.003	-0.211*
	(0.047)	(0.128)	(0.047)	(0.023)	(0.047)	(0.128)
DUAL	-0.656	1.371	-0.645	-0.003	-0.655	1.459
	(0.787)	(2.307)	(0.788)	(0.403)	(0.787)	(2.290)
CTENURE	-0.149**	-0.418*	-0.149**	-0.008	-0.149**	-0.410*
	(0.066)	(0.235)	(0.066)	(0.039)	(0.066)	(0.231)
AGE	0.847***	1.778	0.855***	-0.019	0.848***	1.643
	(0.113)	(1.176)	(0.113)	(0.176)	(0.113)	(1.129)
SIZE	-1.669**	-5.475**	-1.644**	0.439	-1.669**	-4.854*
	(0.690)	(2.602)	(0.689)	(0.428)	(0.690)	(2.549)
LEVERAGE	-4.744*	-26.187***	-4.735*	-0.706	-4.754*	-26.447***
	(2.680)	(8.992)	(2.681)	(1.517)	(2.680)	(8.853)
MTB	2.080**	7.470*	2.198**	0.383	2.083**	7.572**
	(1.050)	(3.847)	(1.037)	(0.635)	(1.048)	(3.757)
ROA	0.089	-2.908***	0.089	-0.049	0.089	-2.979***
	(0.249)	(0.700)	(0.249)	(0.124)	(0.249)	(0.697)
CAPEX	0.005	0.030***	0.005	-0.001	0.005	0.028***
	(0.003)	(0.010)	(0.003)	(0.002)	(0.003)	(0.010)
LIQUIDITY	-0.004***	-0.009	-0.004***	0.001	-0.004***	-0.008
	(0.001)	(0.006)	(0.001)	(0.001)	(0.001)	(0.006)
RETURN	-2.293	-4.694	-2.218	-1.178	-2.286	-5.447
	(1.484)	(5.217)	(1.486)	(0.860)	(1.484)	(5.120)
CONSTANT	-4.808	83.142***	-5.743	-3.849	-4.906	78.204***
	(11.888)	(25.541)	(11.925)	(4.529)	(11.869)	(25.423)
Observations	825	825	825	825	825	825
R^2		0.234		0.254		0.270
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 4.15 Board gender diversity and home-border REIT transaction activity LIML

This table reports the results for the effects of percentage of women on the board on REIT transaction activity in states where they are headquartered using an LIML approach. H_ACQ is the number oof acquisitions in states where the REIT is headquartered scaled by the current and previous number of properties. H_DISP is the number oof dispositions in states where the REIT is headquartered scaled by the current and previous number of properties. H_OVERALL is the number oof acquisitions and dispositions in states where the REIT is headquartered scaled by the current and previous number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	H_ACQ	WOMEN	H_DISP	WOMEN	H_OVERALL
WOMEN		-0.142		-0.057		-0.194
		(0.195)		(0.039)		(0.202)
PEERS	0.219**		0.224**		0.220**	
	(0.101)		(0.099)		(0.101)	
GEI	0.199*		0.198*		0.198*	
	(0.105)		(0.105)		(0.105)	
BSIZE	0.692***	0.023	0.695***	0.024	0.691***	0.046
	(0.245)	(0.190)	(0.245)	(0.039)	(0.245)	(0.196)
IND	-0.002	0.014	-0.003	-0.005	-0.002	0.009
	(0.047)	(0.027)	(0.047)	(0.006)	(0.047)	(0.028)
DUAL	-0.658	-0.274	-0.649	0.055	-0.657	-0.214
	(0.788)	(0.481)	(0.788)	(0.099)	(0.788)	(0.498)
CTENURE	-0.149**	-0.003	-0.149**	-0.011	-0.149**	-0.013
	(0.066)	(0.047)	(0.066)	(0.010)	(0.066)	(0.048)
AGE	0.852***	0.045	0.853***	0.071*	0.851***	0.113
	(0.113)	(0.208)	(0.113)	(0.042)	(0.113)	(0.215)
SIZE	-1.637**	-0.797	-1.648**	-0.162	-1.637**	-0.955*
	(0.690)	(0.507)	(0.690)	(0.104)	(0.690)	(0.525)
LEVERAGE	-4.705*	-4.734***	-4.704*	-0.065	-4.708*	-4.768**
	(2.679)	(1.797)	(2.680)	(0.369)	(2.679)	(1.861)
MTB	2.199**	0.267	2.171**	0.155	2.201**	0.397
	(1.038)	(0.757)	(1.036)	(0.154)	(1.039)	(0.785)
ROA	0.088	-0.372**	0.091	0.022	0.087	-0.348**
	(0.249)	(0.147)	(0.250)	(0.030)	(0.249)	(0.152)
CAPEX	0.005	0.005**	0.005	0	0.005*	0.005**
	(0.003)	(0.002)	(0.003)	(0.000)	(0.003)	(0.002)
LIQUIDITY	-0.004***	-0.001	-0.004***	0	-0.004***	-0.001
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
RETURN	-2.216	-0.272	-2.227	-0.552***	-2.23	-0.79
	(1.486)	(1.021)	(1.498)	(0.212)	(1.483)	(1.057)
CONSTANT	-5.485	19.918***	-5.465	1.553	-5.411	21.384***
	(11.849)	(5.380)	(11.896)	(1.108)	(11.843)	(5.570)
Observations	825	825	825	825	825	825
R^2		0.501		0.144		0.488
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 4.16 Board gender diversity and large versus small property transaction activity robustness test

This table reports the results for the effects of percentage of women on the board on large versus small property transactions using a probit model. LS_ACQ is a dummy equal to 1 if a REIT acquires above median value of properties and 0 otherwise. LS_DISP is a dummy equal to 1 if a REIT disposes above median value of properties and 0 otherwise. LS_OVERALL is a dummy equal to 1 if a REIT acquires or disposes above median value of properties and 0 otherwise. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)
	LS_ACQ	LS_DISP	LS_OVERALL
WOMEN	0.016**	-0.147	0.022***
	(0.007)	(0.111)	(0.006)
BSIZE	-0.119***	1.582***	-0.070*
	(0.045)	(0.506)	(0.039)
IND	-0.000	0.031	-0.002
	(0.007)	(0.091)	(0.006)
DUAL	-0.353**	-0.412	-0.435***
	(0.152)	(1.514)	(0.136)
CTENURE	-0.011	0.157	-0.014
	(0.012)	(0.139)	(0.010)
AGE	0.173***	0.321	0.112***
	(0.023)	(0.219)	(0.020)
SIZE	-0.009	1.801	0.154
	(0.103)	(1.168)	(0.096)
LEVERAGE	-0.121	6.328	-0.181
	(0.597)	(7.618)	(0.571)
MTB	-0.032	-3.247	-0.038
	(0.237)	(2.759)	(0.225)
ROA	0.172***	2.770**	0.109**
	(0.052)	(1.151)	(0.050)
CAPEX	-0.009	32.490	-0.002
	(0.012)	(1,485.053)	(0.011)
LIQUIDITY	0.000	0.010	0.000
	(0.000)	(0.007)	(0.000)
RETURN	-0.137	12.069***	1.446**
	(0.708)	(3.445)	(0.606)
CONSTANT	-1.875	-56.091**	-4.290***
	(1.343)	(23.525)	(1.253)
Observations	9760	702	10554
R^2	0.404	0.373	0.390
Regression type	Logit	Logit	Logit

Table 4.17 Board gender diversity and market states robustness test

This table reports the results for the effects of percentage of women on the board on transaction activity in bull versus bear market states using a probit model. BB_ACQ is a dummy equal to 1 if a REIT acquires a property in bull market states and 0 otherwise. BB_DISP is a dummy equal to 1 if a REIT disposes a property in bull market states and 0 otherwise. BB_OVERALL is a dummy equal to 1 if a REIT acquires or disposes a property in bull market states and 0 otherwise. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)
	BB_ACQ	BB_DISP	BB_OVERALL
WOMEN	-0.066***	-0.514***	-0.092***
	(0.006)	(0.094)	(0.005)
BSIZE	-0.534***	-1.625***	-0.510***
	(0.036)	(0.422)	(0.033)
IND	0.044***	-0.251*	0.042***
	(0.006)	(0.133)	(0.006)
DUAL	1.375***	8.588***	1.224***
	(0.122)	(2.014)	(0.108)
CTENURE	0.014	-0.204	-0.001
	(0.011)	(0.159)	(0.010)
AGE	-0.266***	-2.106***	-0.293***
	(0.016)	(0.236)	(0.015)
SIZE	1.114***	1.995	1.074***
	(0.080)	(1.951)	(0.080)
LEVERAGE	-1.709***	-54.807***	-3.579***
	(0.505)	(8.303)	(0.500)
MTB	4.954***	61.820***	6.215***
	(0.211)	(5.894)	(0.206)
ROA	-1.213***	-16.647***	-1.528***
	(0.058)	(1.530)	(0.057)
CAPEX	-0.012**	-2.338***	-0.019***
	(0.006)	(0.522)	(0.006)
LIQUIDITY	0.003***	-0.011***	0.004***
	(0.000)	(0.002)	(0.000)
CONSTANT	-14.111***	40.828	-12.057***
	(1.016)	(30.764)	(0.980)
Observations	16506	2233	19116
R^2	0.368	0.927	0.382
Regression type	Logit	Logit	Logit

Table 4.18 Board gender diversity and REIT investment activity location-weighted factor

This table reports the results for the effects of percentage of women on the board on REIT transaction activity including a location-weighted factor- Employment. ACQ is the number or value of acquisitions scaled by the current and previous assets or number of properties. DISP is the number or value of dispositions scaled by the current and previous assets or number of properties. OVERALL is the number or value of acquisitions and dispositions scaled by the current and previous assets or number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	ACQ	WOMEN	DISP	WOMEN	OVERALL
WOMEN		-1.077*		-0.554*		-1.332*
		(0.602)		(0.302)		(0.709)
PEERS	0.412***		0.249*		0.359***	
	(0.132)		(0.143)		(0.124)	
GEI	0.342***		0.419***		0.310**	
	(0.126)		(0.134)		(0.120)	
BSIZE	0.291	0.512	0.690**	0.313	0.549*	0.879
	(0.309)	(0.768)	(0.323)	(0.390)	(0.291)	(0.870)
IND	-0.019	-0.046	0.072	0.07	-0.002	0.103
	(0.065)	(0.159)	(0.070)	(0.077)	(0.059)	(0.158)
DUAL	1.201	-2.208	0.523	0.662	0.78	-2.271
	(1.070)	(2.613)	(1.063)	(1.136)	(0.952)	(2.572)
CTENURE	-0.185**	-0.434**	-0.153*	-0.063	-0.177**	-0.475**
	(0.080)	(0.213)	(0.080)	(0.093)	(0.075)	(0.224)
AGE	0.778***	0.053	0.677***	0.786**	0.769***	0.494
	(0.158)	(0.747)	(0.172)	(0.312)	(0.149)	(0.836)
SIZE	-1.463	-2.893	0.313	-2.958**	-1.485*	-6.063**
	(0.958)	(2.448)	(1.093)	(1.165)	(0.881)	(2.602)
LEVERAGE	-2.866	-22.867**	-2.614	-0.601	-3.848	-21.233**
	(3.678)	(8.908)	(4.452)	(4.783)	(3.382)	(9.321)
MTB	2.322	4.229	1.997	-1.192	3.319**	5.759
	(1.690)	(4.293)	(1.945)	(2.148)	(1.525)	(4.598)
ROA	0.718	-4.100***	0.481	-0.169	0.296	-5.068***
	(0.436)	(1.205)	(0.479)	(0.538)	(0.391)	(1.109)
CAPEX	0.01	0.193	-0.194	0.911***	-0.171	1.097
	(0.267)	(0.650)	(0.259)	(0.286)	(0.253)	(0.696)
LIQUIDITY	-0.004**	-0.013**	-0.005***	0	-0.005***	-0.011**
	(0.002)	(0.005)	(0.001)	(0.002)	(0.001)	(0.005)
RETURN	-2.163	4.885	-2.65	-1.601	-3.747**	1.623
	(2.016)	(5.208)	(2.140)	(2.470)	(1.823)	(5.810)
Employment	0.339	2.216***	0.147	0.885**	0.173	3.100***
	(0.305)	(0.775)	(0.322)	(0.349)	(0.283)	(0.777)

Table 4.18 Board gender diversity and REIT investment activity location-weighted factor (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	ACQ	WOMEN	DISP	WOMEN	OVERALL
Observations	538	538	470	470	602	602
R^2		0.688		0.497		0.667
Anderson P-val		0.000		0.000		0.000
Hansen's J-test P-val		0.372		0.150		0.736
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 4.19 Board gender diversity and traditional REIT investment activity location-weighted factor

This table reports the results for the effects of percentage of women on the board on REIT transaction activity for a sample of traditional REITs including a location-weighted factor- Employment. ACQ is the number or value of acquisitions scaled by the current and previous assets or number of properties. DISP is the number or value of dispositions scaled by the current and previous assets or number of properties. OVERALL is the number or value of acquisitions and dispositions scaled by the current and previous assets or number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	ACQ	WOMEN	DISP	WOMEN	OVERALL
WOMEN		-0.679		-0.606		-1.047
		(0.786)		(0.389)		(0.988)
PEERS	0.387**		0.328*		0.339**	
	(0.167)		(0.180)		(0.152)	
GEI	0.309**		0.332**		0.235*	
	(0.137)		(0.137)		(0.129)	
BSIZE	0.301	0.305	0.802**	0.314	0.594**	0.527
	(0.309)	(0.812)	(0.315)	(0.474)	(0.292)	(1.002)
IND	-0.067	-0.217	-0.015	0.064	-0.064	-0.012
	(0.069)	(0.189)	(0.073)	(0.088)	(0.063)	(0.193)
DUAL	1.728	-3.336	0.174	0.182	0.379	-4.407
	(1.191)	(3.239)	(1.135)	(1.370)	(1.034)	(2.973)
CTENURE	-0.12	-0.37	-0.131	-0.024	-0.154*	-0.500*
	(0.089)	(0.238)	(0.091)	(0.115)	(0.084)	(0.267)
AGE	0.750***	-0.639	0.674***	0.932**	0.762***	0.033
	(0.175)	(0.920)	(0.190)	(0.414)	(0.166)	(1.109)
SIZE	-2.311**	-1.082	-1.879*	-4.927***	-2.445***	-5.491
	(1.004)	(3.078)	(1.135)	(1.589)	(0.913)	(3.637)
LEVERAGE	-11.497***	-38.055***	-13.369**	-8.633	-11.495***	-38.320**
	(4.328)	(13.671)	(5.338)	(7.762)	(3.942)	(15.474)
MTB	0.656	-0.111	0.51	-3.745	2.397	1.107
	(1.854)	(4.757)	(2.135)	(2.539)	(1.655)	(5.096)
ROA	0.779*	-5.346***	0.637	0.625	0.27	-5.522***
	(0.472)	(1.392)	(0.502)	(0.651)	(0.430)	(1.272)
CAPEX	0.04	0.039	-0.129	1.188***	-0.166	1.240*
	(0.263)	(0.676)	(0.249)	(0.303)	(0.250)	(0.731)
LIQUIDITY	-0.004**	-0.012**	-0.006***	0	-0.005***	-0.011
	(0.002)	(0.006)	(0.001)	(0.003)	(0.001)	(0.007)
RETURN	-0.973	8.402	-0.572	0.921	-2.399	6.458
	(2.134)	(5.568)	(2.207)	(2.679)	(1.958)	(6.233)

Table 4.19 Board gender diversity and traditional REIT investment activity location-weighted factor (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	ACQ	WOMEN	DISP	WOMEN	OVERALL
Employment	0.342	2.610***	0.143	0.767*	0.209	3.432***
	(0.329)	(0.899)	(0.342)	(0.418)	(0.305)	(0.915)
CONSTANT	13.778	120.915***	0.08	57.505**	17.046	153.129***
	(18.198)	(41.993)	-20.312	-22.494	-16.635	-46.569
Observations	388	388	350	350	443	443
R^2		0.695		0.543		0.671
Anderson P-val		0.001		0.002		0.005
Hansen's J-test P-val		0.973		0.024		0.084
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 4.20 Board gender diversity and non-traditional REIT investment activity location-weighted factor

This table reports the results for the effects of percentage of women on the board on REIT transaction activity for a sample of non-traditional REITs including.a location-weighted factor- Employment. ACQ is the number or value of acquisitions scaled by the current and previous assets or number of properties. DISP is the number or value of dispositions scaled by the current and previous assets or number of properties. OVERALL is the number or value of acquisitions and dispositions scaled by the current and previous assets or number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	ACQ	WOMEN	DISP	WOMEN	OVERALL
WOMEN		-1.700*		-0.266		-1.763*
		(0.906)		(0.290)		(1.002)
PEERS	0.568**		0.339		0.533**	
	(0.259)		(0.269)		(0.248)	
GEI	0.446		0.892**		0.374	
	(0.391)		(0.428)		(0.374)	
BSIZE	-0.582	-0.31	-1.685	0.332	-0.451	0.853
	(1.032)	(2.229)	(1.177)	(0.905)	(0.999)	(2.295)
IND	0.154	0.595	0.535**	-0.016	0.215	0.501
	(0.169)	(0.387)	(0.216)	(0.208)	(0.163)	(0.430)
DUAL	-0.491	-0.616	-2.329	2.063	0.387	2.41
	(2.852)	(6.027)	(2.977)	(2.120)	(2.675)	(5.956)
CTENURE	-0.363*	-0.858*	-0.370*	-0.039	-0.372**	-0.823
	(0.187)	(0.483)	(0.193)	(0.147)	(0.174)	(0.511)
AGE	0.694	2.057	0.257	-0.074	0.743*	1.978
	(0.418)	(1.302)	(0.464)	(0.303)	(0.409)	(1.453)
SIZE	-0.586	-13.340**	4.356	1.107	-0.448	-12.240**
	(2.667)	(5.404)	(3.031)	(2.365)	(2.608)	(5.665)
LEVERAGE	6.976	3.084	2.691	-5.151	5.047	1.959
	(9.498)	(19.479)	(12.115)	(7.601)	(8.946)	(18.985)
MTB	2.453	9.19	1.798	5.085*	1.996	11.425
	(3.943)	(8.509)	(4.682)	(3.082)	(3.695)	(8.475)
ROA	0.317	-0.467	-0.029	-2.719***	0.646	-1.826
	(1.155)	(2.415)	(1.307)	(0.842)	(1.031)	(2.518)
CAPEX	0.137	0.826	0.767	-0.813	0.049	0.672
	(0.982)	(1.913)	(1.145)	(0.663)	(0.956)	(2.018)
LIQUIDITY	0.001	0.003	0.001	0	0.001	0
	(0.008)	(0.017)	(0.008)	(0.005)	(0.008)	(0.017)
RETURN	-8.426*	-15.305	-8.365	-3.353	-8.603*	-14.956
	(4.913)	(13.948)	(5.621)	(4.737)	(4.389)	(14.571)

Table 4.20 Board gender diversity and non-traditional REIT investment activity (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	ACQ	WOMEN	DISP	WOMEN	OVERALL
Employment	0.832	2.227	0.943	0.927*	0.49	2.909*
	(0.755)	(1.833)	(0.792)	(0.559)	(0.685)	(1.673)
CONSTANT	-57.484*	102.897*	-157.644***	-12.341	-61.247**	89.524
	(29.649)	(61.362)	-38.84	-36.888	-28.28	-69.558
Observations	150	150	120	120	159	159
R^2		0.709		0.580		0.702
Anderson P-val		0.023		0.025		0.031
Hansen's J-test P-val		0.409		0.805		0.489
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 4.21 Board gender diversity and distance to REIT transaction activity location-weighted factor

This table reports the results for the effects of percentage of women on the board on the distance of REIT transaction activity from the state where they are headquartered, including a location-weighted factor- Employment. D_ACQ is the distance of acquisitions to a REITs headquarters. D_DISP is the distance of dispositions to a REITs headquarters. D_OVERALL is the distance of acquisitions and dispositions to a REITs headquarters. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	D_ACQ	WOMEN	D_DISP	WOMEN	D_OVERALL
WOMEN		-0.511**		0.008		-0.505**
		(0.215)		(0.050)		(0.220)
PEERS	0.176*		0.163*		0.177*	
	(0.096)		(0.091)		(0.095)	
GEI	0.226**		0.229**		0.226**	
	(0.100)		(0.100)		(0.100)	
BSIZE	0.543**	0.316*	0.544**	-0.028	0.543**	0.289
	(0.233)	(0.188)	(0.233)	(0.043)	(0.233)	(0.193)
IND	0.031	-0.022	0.032	-0.007	0.031	-0.028
	(0.039)	(0.027)	(0.039)	(0.006)	(0.039)	(0.027)
DUAL	-0.794	0.252	-0.803	0.034	-0.794	0.285
	(0.737)	(0.520)	(0.737)	(0.120)	(0.737)	(0.533)
CTENURE	-0.161**	-0.106**	-0.161**	-0.001	-0.161**	-0.108**
	(0.064)	(0.052)	(0.064)	(0.012)	(0.064)	(0.053)
AGE	0.718***	0.347*	0.726***	-0.016	0.717***	0.332*
	(0.101)	(0.194)	(0.099)	(0.045)	(0.101)	(0.198)
SIZE	-0.638	-0.732*	-0.639	0.141	-0.637	-0.591
	(0.576)	(0.401)	(0.576)	(0.092)	(0.576)	(0.411)
LEVERAGE	-6.266**	-5.298**	-6.225**	-0.026	-6.280**	-5.343**
	(2.468)	(2.061)	(2.463)	(0.477)	(2.469)	(2.113)
MTB	2.492**	1.301	2.538***	-0.031	2.492***	1.28
	(0.966)	(0.839)	(0.962)	(0.193)	(0.965)	(0.857)
ROA	0.152	-0.496***	0.153	-0.02	0.152	-0.515***
	(0.213)	(0.146)	(0.213)	(0.034)	(0.213)	(0.150)
CAPEX	0.003	0.010***	0.003	0	0.003	0.010***
	(0.003)	(0.002)	(0.003)	(0.000)	(0.003)	(0.002)
LIQUIDITY	-0.004***	-0.002	-0.004***	0	-0.004***	-0.001
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
RETURN	-2.957**	-0.612	-2.863**	-0.335	-2.947**	-0.926
	(1.419)	(1.179)	(1.424)	(0.271)	(1.416)	(1.206)

Table 4.21 Board gender diversity and distance to REIT transaction activity location-weighted factor (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	D_ACQ	WOMEN	D_DISP	WOMEN	D_OVERALL
Employment	0.147	0.453***	0.166	0.03	0.145	0.484***
	(0.214)	(0.146)	(0.208)	(0.033)	(0.214)	(0.150)
CONSTANT	-19.118*	12.391**	-19.780*	0.076	-19.161*	12.389**
	(10.350)	(5.165)	-10.335	-1.196	-10.327	-5.291
Observations	902	902	902	902	902	902
R^2		0.351		0.254		0.359
Anderson P-val		0.004		0.004		0.004
Hansen's J-test P-val		0.745		0.696		0.837
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 4.22 Board gender diversity and cross-border REIT transaction activity location-weighted factor

This table reports the results for the effects of percentage of women on the board on REIT transaction activity in states where they are not headquartered, including a location-weighted factor- Employment. C_ACQ is the number oof acquisitions in states where the REIT is not headquartered scaled by the current and previous number of properties. C_DISP is the number oof dispositions in states where the REIT is not headquartered scaled by the current and previous number of properties. C_OVERALL is the number oof acquisitions and dispositions in states where the REIT is not headquartered scaled by the current and previous number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	C_ACQ	WOMEN	C_DISP	WOMEN	C_OVERALL
WOMEN		-1.572**		-0.027		-1.602**
		(0.797)		(0.163)		(0.816)
PEERS	0.230**		0.219**		0.230**	
	(0.103)		(0.100)		(0.102)	
GEI	0.197*		0.198*		0.197*	
	(0.105)		(0.105)		(0.105)	
BSIZE	0.676***	1.088	0.677***	0.031	0.676***	1.124
	(0.246)	(0.777)	(0.246)	(0.158)	(0.246)	(0.796)
IND	-0.002	-0.179	-0.002	-0.018	-0.002	-0.198*
	(0.047)	(0.113)	(0.047)	(0.023)	(0.047)	(0.116)
DUAL	-0.655	1.8	-0.648	-0.007	-0.655	1.796
	(0.788)	(1.986)	(0.788)	(0.403)	(0.788)	(2.037)
CTENURE	-0.149**	-0.344*	-0.150**	-0.009	-0.149**	-0.354*
	(0.066)	(0.193)	(0.066)	(0.039)	(0.066)	(0.197)
AGE	0.846***	1.142	0.851***	-0.02	0.846***	1.129
	(0.113)	(0.850)	(0.114)	(0.174)	(0.113)	(0.870)
SIZE	-1.687**	-4.735**	-1.674**	0.409	-1.687**	-4.327**
	(0.691)	(2.118)	(0.691)	(0.431)	(0.691)	(2.172)
LEVERAGE	-4.691*	-22.926***	-4.686*	-0.682	-4.699*	-23.704***
	(2.682)	(7.414)	(2.683)	(1.511)	(2.683)	(7.605)
MTB	1.947*	4.972	2.005*	0.238	1.949*	5.249*
	(1.069)	(3.080)	(1.066)	(0.625)	(1.067)	(3.148)
ROA	0.086	-3.041***	0.086	-0.052	0.086	-3.094***
	(0.249)	(0.609)	(0.249)	(0.123)	(0.249)	(0.624)
CAPEX	0.005	0.028***	0.005	-0.001	0.005	0.027***
	(0.003)	(0.008)	(0.003)	(0.002)	(0.003)	(0.008)
LIQUIDITY	-0.004***	-0.006	-0.004***	0.001	-0.004***	-0.005
	(0.001)	(0.004)	(0.001)	(0.001)	(0.001)	(0.005)
RETURN	-2.329	-3.094	-2.283	-1.234	-2.325	-4.265
	(1.486)	(4.269)	(1.488)	(0.866)	(1.485)	(4.378)

Table 4.22 Board gender diversity and cross-border REIT transaction activity location-weighted factor (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	C_ACQ	WOMEN	C_DISP	WOMEN	C_OVERALL
Employment	0.153	1.328**	0.17	0.135	0.151	1.436**
	(0.226)	(0.568)	(0.217)	(0.111)	(0.226)	(0.582)
CONSTANT	-4.278	86.432***	-4.857	-3.133	-4.34	82.697***
	(11.918)	(22.571)	-11.982	-4.588	-11.904	-23.154
Observations	825	825	825	825	825	825
R^2		0.408		0.254		0.403
Anderson P-val		0.004		0.004		0.004
Hansen's J-test P-val		0.051		0.620		0.074
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 4.23 Board gender diversity and home-border REIT transaction activity location-weighted factor

This table reports the results for the effects of percentage of women on the board on REIT transaction activity in states where they are headquartered, including a location-weighted factor- Employment. H_ACQ is the number oof acquisitions in states where the REIT is headquartered scaled by the current and previous number of properties. H_DISP is the number oof dispositions in states where the REIT is headquartered scaled by the current and previous number of properties. H_OVERALL is the number oof acquisitions and dispositions in states where the REIT is headquartered scaled by the current and previous number of properties. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	H_ACQ	WOMEN	H_DISP	WOMEN	H_OVERALL
WOMEN		-0.15		-0.057		-0.201
		(0.198)		(0.040)		(0.205)
PEERS	0.213**		0.221**		0.214**	
	(0.101)		(0.099)		(0.101)	
GEI	0.199*		0.198*		0.198*	
	(0.105)		(0.105)		(0.105)	
BSIZE	0.670***	0.016	0.677***	0.024	0.669***	0.04
	(0.246)	(0.189)	(0.247)	(0.039)	(0.247)	(0.195)
IND	-0.001	0.015	-0.001	-0.005	-0.001	0.01
	(0.047)	(0.027)	(0.047)	(0.006)	(0.047)	(0.028)
DUAL	-0.667	-0.283	-0.651	0.055	-0.666	-0.223
	(0.789)	(0.483)	(0.788)	(0.099)	(0.789)	(0.501)
CTENURE	-0.150**	-0.004	-0.149**	-0.011	-0.150**	-0.015
	(0.066)	(0.047)	(0.066)	(0.010)	(0.066)	(0.049)
AGE	0.848***	0.048	0.850***	0.071*	0.847***	0.116
	(0.113)	(0.209)	(0.113)	(0.042)	(0.113)	(0.216)
SIZE	-1.665**	-0.823	-1.678**	-0.162	-1.664**	-0.979*
	(0.691)	(0.515)	(0.691)	(0.105)	(0.691)	(0.533)
LEVERAGE	-4.654*	-4.734***	-4.660*	-0.065	-4.660*	-4.770**
	(2.681)	(1.800)	(2.681)	(0.369)	(2.681)	(1.866)
MTB	2.003*	0.182	1.980*	0.154	2.008*	0.315
	(1.063)	(0.747)	(1.064)	(0.152)	(1.063)	(0.776)
ROA	0.083	-0.375**	0.088	0.022	0.081	-0.350**
	(0.249)	(0.147)	(0.250)	(0.030)	(0.250)	(0.152)
CAPEX	0.005*	0.005**	0.005	0	0.005*	0.005**
	(0.003)	(0.002)	(0.003)	(0.000)	(0.003)	(0.002)
LIQUIDITY	-0.004***	-0.001	-0.004***	0	-0.004***	-0.001
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
RETURN	-2.265	-0.308	-2.289	-0.552**	-2.288	-0.83
	(1.488)	(1.031)	(1.500)	(0.214)	(1.485)	(1.070)

Table 4.23 Board gender diversity and home-border REIT transaction activity location-weighted factor (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	WOMEN	H_ACQ	WOMEN	H_DISP	WOMEN	H_OVERALL
Employment	0.19	0.098	0.173	0.001	0.189	0.095
	(0.221)	(0.136)	(0.217)	(0.027)	(0.221)	(0.141)
CONSTANT	-4.635	20.454***	-4.625	1.556	-4.522	21.911***
	(11.893)	(5.477)	-11.946	-1.123	-11.89	-5.677
Observations	825	825	825	825	825	825
R^2		0.498		0.144		0.485
Anderson P-val		0.005		0.004		0.006
Hansen's J-test P-val		0.789		0.963		0.803
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 4.24 Board gender diversity and large versus small property transaction activity location-weighted factor

This table reports the results for the effects of percentage of women on the board on large versus small property transactions. LS_ACQ is a dummy equal to 1 if a REIT acquires above median value of properties and 0 otherwise. LS_DISP is a dummy equal to 1 if a REIT disposes above median value of properties and 0 otherwise. LS_OVERALL is a dummy equal to 1 if a REIT acquires or disposes above median value of properties and 0 otherwise. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)
	LS_ACQ	LS_DISP	LS_OVERALL
WOMEN	0.009**	-0.147*	0.013***
	(0.004)	(0.076)	(0.004)
BSIZE	-0.073***	1.204***	-0.041*
	(0.026)	(0.350)	(0.023)
IND	0.000	-0.010	-0.002
	(0.004)	(0.051)	(0.004)
DUAL	-0.194**	-0.334	-0.229***
	(0.087)	(0.950)	(0.078)
CTENURE	-0.009	0.124	-0.010
	(0.007)	(0.087)	(0.006)
AGE	0.100***	0.352**	0.064***
	(0.013)	(0.169)	(0.012)
SIZE	0.004	1.033	0.097*
	(0.057)	(0.772)	(0.054)
LEVERAGE	-0.062	2.807	-0.148
	(0.345)	(4.598)	(0.331)
MTB	-0.011	-3.134	-0.010
	(0.136)	(1.984)	(0.130)
ROA	0.104***	2.013***	0.064**
	(0.031)	(0.747)	(0.029)
CAPEX	-0.005	15.274	-0.001
	(0.007)	(242.885)	(0.006)
LIQUIDITY	0.000	0.010**	0.000
	(0.000)	(0.005)	(0.000)
RETURN	-0.218	9.717***	0.684*
	(0.408)	(2.753)	(0.358)
Employment	-0.116	1.109	-0.097
	(0.075)	(0.681)	(0.071)
CONSTANT	-0.960	-36.447**	-2.339***
	(0.750)	(15.188)	(0.701)

Table 4.24 Board gender diversity and large versus small property transaction activity location-weighted factor (Continued)

	(1)	(2)	(3)
	LS_ACQ	LS_DISP	LS_OVERALL
Observations	9760	702	10554
R^2	0.404	0.377	0.390
Regression type	Probit	Probit	Probit

Table 4.25 Board gender diversity and market states location-weighted factor

This table reports the results for the effects of percentage of women on the board on transaction activity in bull versus bear market states including a location-weighted factor- Employment. BB_ACQ is a dummy equal to 1 if a REIT acquires a property in bull market states and 0 otherwise. BB_DISP is a dummy equal to 1 if a REIT disposes a property in bull market states and 0 otherwise. BB_OVERALL is a dummy equal to 1 if a REIT acquires or disposes a property in bull market states and 0 otherwise. WOMEN is the percentage of women on a REITs board. BSIZE is the total number of board members on a REITs board. IND is the percentage of independent directors on a REITs board. DUAL is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CTENURE is the number of years since the CEO has been appointed. AGE is the years since the REIT has been listed on the stock exchange. SIZE is the natural logarithm of book value of assets. LEVERAGE is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. CAPEX is capital expenditure. LIQUIDITY cash and equivalents. RETURN is a value-weighted market return portfolio. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. A detailed description of variables is provided in Appendix B Table B1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)
	BB_ACQ	BB_DISP	BB_OVERALL
WOMEN	-0.017**	-0.079***	-0.032***
	(0.007)	(0.008)	(0.007)
BSIZE	-0.088**	-0.636***	-0.121***
	(0.036)	(0.052)	(0.033)
IND	-0.008	-0.009	-0.008
	(0.008)	(0.012)	(0.007)
DUAL	-0.540***	2.280***	-0.480***
	(0.132)	(0.229)	(0.125)
CTENURE	-0.003	0.089***	0.008
	(0.012)	(0.017)	(0.012)
AGE	-0.166***	0.001	-0.189***
	(0.018)	(0.007)	(0.016)
SIZE	0.418***	0.280***	0.560***
	(0.081)	(0.093)	(0.075)
LEVERAGE	-1.997***	-2.615***	-1.757**
	(0.723)	(0.807)	(0.685)
MTB	-0.015	3.596***	0.443**
	(0.217)	(0.414)	(0.202)
ROA	-0.029	-1.148***	-0.069
	(0.055)	(0.114)	(0.053)
CAPEX	-0.008	-0.045***	-0.007
	(0.007)	(0.008)	(0.007)
LIQUIDITY	0.000	0.001*	0.000
	(0.000)	(0.000)	(0.000)
RETURN	41.962***	24.356***	44.536***
	(2.014)	(1.368)	(1.905)
Employment	0.131	-1.715***	0.049
	(0.139)	(0.165)	(0.134)
CONSTANT	1.464	6.112***	0.117
	(1.171)	(1.746)	(1.032)
Observations	5013	2602	5973
R^2	0.407	0.786	0.457
Regression type	Probit	Probit	Probit

5 Women on the Board and their Moderating Role in Mitigating Stock Price Crash Risk: Evidence from US Real Estate Investment Trusts

5.1 Introduction

There are extant of studies which have investigated the phenomenon known as stock price crash risk. The literature finds that female CFOs (Li and Zeng, 2019), bank deregulation (Dang et al., 2022), corporate social responsibility (Kim et al., 2014), and religiosity (Callen and Fang, 2015) reduce stock price crash risk, whereas, CEO overconfidence (Kim et al., 2015), stock liquidity (Chang et al., 2017), corporate tax avoidance (Kim et al., 2011), powerful CEOs (Mamun et al., 2020), and non-transparent financial reporting has a positive effect on stock price crash risk (Jin et al., 2006; Hutton et al., 2009). Such studies are motivated by the literature which posits that managers tend to withhold bad news for personal gains which results in a negative stock price reaction once such information is absorbed by the market (Kothari et al., 2009).

Women are known to be efficient monitors as they increase the attendance of the board (Adams and Ferreira, 2009). Additionally, the literature posits that outside directors are known to mitigate agency issues and since women don't belong to the old boys' club, they could be considered as true outsiders and could be used as an internal monitoring mechanism (Carter et al., 2003). Additionally, the literature finds that women are more transparent in their accounting practices (Francis et al., 2015), and more risk-averse and less overconfident in their investment decisions (for e.g., Charness and Gneezy, 2012; Barber and Odean, 2001). Hence, we would expect gender diversity of the board to lower stock price crash risk as they would reduce bad news hoarding given the monitoring role that women play (i.e., as an internal monitoring

mechanism). Furthermore, they are less likely to engage in value-destructive projects and are more likely to terminate negative net present value projects given their more risk-averse\ less overconfident investment behaviour which would prevent the need for bad news hoarding in the first place.

We for the first time, investigate the effects of women on the board on US Equity REITs stock price crash risk over a period of 2000 to 2018. We use REITs as our sample for the following reasons. Firstly, REITs are relatively homogenous, and this helps extract the true effects of board gender diversity on stock price crash risk. Secondly, since a REITs property level information is known (for e.g., location, property size, property type, tenants, etc.,), we are able to analyse the monitoring role of women on the board when REITs deploy different property level strategies and its effects on stock price crash risk. Lastly, given that the location of properties of REITs is known, we are able to create strong and reliable instruments to deal with the endogeneity which is a concern in gender studies.

Using a novel IV approach with instruments constructed utilizing the unique information available for REITs (i.e. location of properties), we for the first time find that women on the board have no effect on stock price crash risk which is in contrast to the literature on gender diversity and stock price crash risk which find a negative relationship (Li and Zeng, 2019; Qayyum, et al., 2021). However, we find that women on the board lower crash risk for internally managed REITs where the management of the REIT is part of the REIT itself and not for externally managed REITs where the executive functions lie in the hands of executives of external asset management firms (Capozza and Seguin, 2000; Nicholson and Stevens, 2022). Furthermore, we find that women on the board act as a moderator in mitigating stock price crash risk when REITs deploy different portfolio strategies. When REITs without women on the board increase the concentration of their portfolios and acquire larger properties (which is considered a high-risk strategy), we find that they increase stock price crash risk when compared to REITs that have women on the board where such strategies do not result in a stock price crash risk. Lastly, we find that when REITs without women on the board increase their

exposure to states with high religiosity, which acts as a monitoring mechanism by mitigating bad news hoarding, we find that such a strategy lowers stock price crash risk. However, when REITs have women on the board, exposure to highly religious states increases crash risk, as these REITs have internal monitoring mechanisms in the form of women on the board already present which results in over-monitoring.

Remainder of the study is organised as follows. Section 5.2 reviews the literature and develops testable hypotheses on stock price crash risk and on the effects of various portfolio strategies employed by REITs. Section 5.3 describes the data and methodology employed. Section 5.4 reports the results for the statistical and economic significance of board gender diversity on stock price crash risk and for the moderating role of women on the board when REITs deploy several portfolio specific strategies. Section 5.5 presents the robustness tests to validate the findings from the study. Section 5.6 summarizes and concludes the study.

5.2 Literature review and hypotheses development

5.2.1 Board gender diversity and stock price crash risk

The literature on crash risk proposes that managers have a tendency to withhold bad news (Habib et al., 2018). Managers are incentivised to withhold bad news up to a certain threshold for career concerns, and this withholding of information eventually results in a negative stock price reaction once the information is disclosed (Kothari et al., 2009).

Empirical evidence on stock price crash proposes that opacity and lack of transparency of financial statements increases stock price crash risk (Jin et al., 2006; Hutton et al., 2009). Furthermore, evidence from the literature posits that stock liquidity (Chang et al., 2017), corporate tax avoidance (Kim et al., 2011), excess perks (Xu at al., 2014), CEO overconfidence (Kim et al., 2015), and powerful CEOs (Mamun et al., 2020) increase stock price crash risk. On

the contrary, intrastate bank deregulation (Dang et al., 2022), corporate social responsibility (Kim et al., 2014), religiosity at the county level (Callen and Fang, 2015), and female CFOs (Li and Zeng, 2019), lowers stock price crash risk.

Literature posits that women are more risk-averse and less overconfident than men in their investment decisions (for e.g., Charness and Gneezy, 2012; Barber and Odean, 2001). Furthermore, they are often used as a proxy for internal monitoring mechanisms as they are efficient monitors (Adams and Ferreira, 2009), and are more likely to provide transparent accounting information (Francis et al., 2015). Hence, we would expect gender diversity of the board to lower stock price risk as the literature proposes than women are less likely to take on value destructive projects (Huang and Kisgen, 2013; Levi et al., 2014), alleviate agency issues as they are efficient monitors (Adams and Ferreira, 2009), and more likely to be transparent in their practices (Francis et al., 2015), which indicates that they are less likely to hoard bad news. Therefore, we hypothesize that:

Hypothesis 1: Board gender diversity lowers stock price crash risk.

5.2.2 Portfolio concentration strategies, crash risk, and the moderating role of women on the board

Literature in finance dictates that higher risk translates to higher return and vice-e-versa (Bodie et al., 2020). Montgomery (1994) summarises the literature on corporate diversification and firm outcomes and concludes that diversification does not lead to improved performance; rather, diversified firms experience a discount when compared to concentrated firms. These findings reinforce the literature from finance which dictates that diversification lowers risk (Bodie et al., 2020) and if it does, we would expect a higher return for concentrated firms to account for the added risk. Building on the work of Montgomery (1994), several studies have

documented a discount in firm value when diversifying across different industries (for e.g., Berger and Ofek, 1995; Bielstein et al., 2018).

A branch of literature has further investigated the effects of diversification on corporate value for real estate firms and REITs. Capozza and Seguin (1999) examine the effects of diversification on REIT value and find that a diversification discount exists. Although diversified REITs experience higher cash flows, such gains are offset by higher expenses. Additionally, Cronqvist et al. (2001) examine the presence of a diversification discount by property type and geography on a sample of real estate companies and find that a diversification discount exists and is due to the presence of agency costs. Furthermore, Campbell et al. (2003) investigate the effects of geographic focus on wealth gains from REIT portfolio acquisitions and find that acquirers with a geographically concentrated asset base experience higher returns. Hartzell et al. (2014) further add to the existing literature and find that a REITs which diversified by geography experience a lower value. However, institutional ownership as a proxy for external monitoring mechanisms lowers the discount for diversified REITs.

Although majority of the literature on concentration in the form of geography, property type, or tenant, focus on a diversification discount, there are a few studies which have examined the relationship between concentration and risk. Ro and Ziobrowski (2009) find that specialised REITs are associated with a higher market risk as compared to diversified REITs. Furthermore, Zhu and Li (2022) find evidence that REITs with concentrated portfolios are subject to higher stock return volatility as compared to REITs which have diversified portfolios.

In the case of gender diversity, Devine et al. (2024) find that REITs with more gender diversity in the upper echelons have a more geographically concentrated asset base. In chapter 3 of the thesis, we find that REITs with more women on the board concentrate their properties closer to states where they are headquartered, and this concentration effect results in an increase in total volatility. Since concentration increases risk, we could expect REITs which concentrate their portfolios to be more prone to a stock price crash risk, especially if the REIT is not transparent with its investment practices and when the managers hoard relevant information.

However, given that women are efficient monitors (Adams and Ferreira, 2009), more likely to disclose accounting information (Francis et al., 2015) thereby creating transparency, and more efficient with their invest practices (for e.g., Huang and Kisgen, 2013; Levi et al., 2014), we would expect REITs without women on the board to be prone to crash risk as compared to REITs with women on the board when concentrating their asset portfolios. More specifically:

Hypothesis 2: Concentration (i.e. by geography, property size, property type, and tenant) of a REITs portfolio increases stock price crash for firms without women on the board and not for firms with women on the board.

5.2.3 Religiosity, crash risk, and the moderating role of women on the board

Guthrie (1996) review the literature on religion and argue that there is no general theory which describes religion. Attempts to define religion generally function on three groups: cognitive, wishful thinking, and symbolist. In the case of wishful thinking, attempts to define religion posit that individuals conform to religious beliefs for comfort. The literature attempting to define religion using a symbolist approach collectively argue that the purpose of religion is restricted to society and serves as a means of order. Theorists using the cognitive approach define religion as a means to control the world and to explain it.

Callen and Fang (2015) draw on the literature on psychology (for e.g., Miller and Hoffmann, 1995; Smith, 2003; Lehrer, 2004) and ethics (for e.g., Cunnigham, 1988; Kennedy and Lawton, 1998) and argue that individuals who have strong religious beliefs make more morally correct decisions, having ethical intentions, and more likely to have self-control and discipline. Overall, they find that firms which are headquartered in counties in the US with higher religiosity experience lower stock price crash risk as bad news hoarding would be less likely since individuals would be less likely to engage in unethical behaviours. Additionally,

Adhikari and Agarwal (2016) find that banks which headquarter in areas with high religiosity experience lower crash risk, idiosyncratic risk, and stock price return volatility.

Since religion acts as a monitoring mechanism by influencing an individual's behaviour by making them less suspectable to immoral behaviours, we would expect REITs which have their properties more exposed to states with high religiosity to exhibit lower stock price crash risk. However, we would expect this effect only for REITs which do not have other forms of monitoring mechanisms (for e.g., women on the board) in place. REITs which already have monitoring mechanisms in place, such as, women on the board, could result in no effect of a REITs exposure to states with high religiosity. Alternatively, Adams and Ferreira (2009) find that when firms already have monitoring mechanisms in place, having more women on the board could result in a negative effect as a result of over-monitoring. Hence, it is difficult to ascertain ex ante what the effect of women on the board as a moderator would be. In other words:

Hypothesis 3: REITs with properties more exposed to states with high religiosity experience a lower stock price crash risk when internal monitoring mechanisms in the form of women on the board don't exist.

Hypothesis 4: REITs with properties more exposed to states with high religiosity experience a higher stock price crash risk when internal monitoring mechanisms in the form of women on the board are already present.

5.3 Data and methodology

5.3.1 Data

The sample includes all listed US equity REITs from the year 2000 to 2018 to avoid survivorship bias. Our sample begins from the year 2000 as firm-year observations at the board level are available on Wharton Research Data Services (WRDS) from this date. Data for stock price crash risk is obtained from CRSP and firm financial information is obtained from COMPUSTAT and S&P Global Market Intelligence database. We winsorise the dependent variables at the 1 and 99 percentile and all independent variables in the model are lagged by one period. The number of observations vary depending on the estimation method employed.

5.3.2 Variables and summary statistics

We use two measures widely used in the literature to measure REIT specific stock price crash risk (for e.g., Chen et al., 2001; Li and Zeng, 2019): (1) $NSKEW_t$ is the negative coefficient of skewness of a REITs weekly returns in a fiscal year; (2) $DUVOL_t$ is the down-to-up volatility of a REITs weekly returns in a given fiscal year.

Following the literature (for e.g., Li and Zeng, 2019), we use an extended market index model with two lead and lag terms to account for non-synchronous trading and estimate the residual REIT weekly returns in a given fiscal year as:

$$r_{it} = \alpha_i + \beta_{1,i} r_{m,t-2} + \beta_{2,i} r_{m,t-1} + \beta_{3,i} r_{m,t} + \beta_{4,i} r_{m,t+1} + \beta_{4,i} r_{m,t+2} + \varepsilon_{it} \qquad (5.1)$$

where r_{it} is the REITs weekly returns and $r_{m,t}$ is the weekly CRSP value weighted market return index. For each REIT, we compute the residual returns from the market index model as: $X_{it} = \ln(1 + \varepsilon_{it})$.

Our baseline measure of stock price crash risk, $NSKEW_t$, is calculated as the negative of the third moment scaled by the standard deviation raised to the power of three. Hence, for each REIT in a fiscal year we have:

$$NSKEW_{iT} = -\frac{n_{iT}(n_{it}-1)^{\frac{3}{2}}\sum_{t=1}^{n_{iT}} X_{it}^3}{(n_{iT}-1)(n_{iT}-2)(\sum_{t=1}^{n_{iT}} X_{it}^2)^{\frac{3}{2}}} \quad (5.2)$$

where X_{it} are de-meaned weekly returns of REIT *i* in a fiscal year *T* and n_{iT} are the number of REIT specific weekly returns in a given fiscal year. The negative sign indicates that an increase in $NSKEW_t$ corresponds to an increase in crash risk.

Our second measure, $DUVOL_t$, is computed as the natural logarithm of standard deviation of returns in weeks below the mean, scaled by the standard deviation of returns in weeks above the mean in a given fiscal year for each REIT. Thus, we have:

$$DUVOL_{iT} = \ln\left(\frac{(n_{uiT}-1)\sum_{t=1}^{n_{diT}} X_{it}^2}{(n_{dit}-1)\sum_{t=1}^{n_{uit}} X_{it}^2}\right) \quad (5.3)$$

where n_{uiT} is the number of up weeks for REIT *i* in fiscal year *T* and n_{dit} is the number of down weeks for REIT *i* in fiscal year *T*.

The key variable of interest in our study is the gender diversity of the board ($WOMEN_{t-1}$). We follow the literature and use the percentage of women on the board as our measure of board gender diversity. Alternatively, in order to measure the moderating effect of $WOMEN_{t-1}$ on stock price crash risk, we use the Herfindahl index to measure a REITs portfolio strategies as:

$$HI = \sum_{i=1}^{n} Prop_i^2 \quad (5.4)$$

where HI is measured as geographic ($HHI\ G_{t-1}$), property-type ($HHI\ P_{t-1}$), and tenant ($HHI\ T_{t-1}$) concentration. Additionally, as a REITs portfolio strategies, we use the median property size ($PROP_{t-1}$). Furthermore, we compute a property weighted religiosity score as:

$$RELIGION_{it} = \sum_{j=0}^{50} w_{ijt} * \text{ religious score}_{jt} \quad (5.5)$$

where, $RELIGION_{it}$ ($RELIGION_{t-1}$) is the lagged property weighted religiosity score. The $\text{religious score}_{jt}$ (Lipka and Wormald, 2016) is for each of the 50 states of the US which measures the religiosity or religious strength of each state.

Following the literature (for e.g., Li and Zeng, 2019), we include a set of control variables known to have an effect on crash risk. We include the size the board ($BSIZE_{t-1}$), the size of the firm ($SIZE_{t-1}$), leverage of the firm ($LEVERAGE_{t-1}$), the market to book ratio (MTB_{t-1}), the return on total assets (ROA_{t-1}), the standard deviation of weekly REIT returns ($VOLATILITY_{t-1}$), and the average stock market turnover ($TURNOVER_{t-1}$). The key independent and control variables are lagged by one period.[26]

Table 5.1 presents the descriptive statistics for our sample. The mean $NSKEW_t$ and $DUVOL_t$ in our sample are 0.087 and 0.090, respectively. $NSKEW_t$ has more extreme values with a maximum of 2.30 and minimum of negative 1.65 as compared to $DUVOL_t$ which has a maximum of 1.73 and a minimum of negative 1.43. This is consistent with the literature as $DUVOL_t$ by construct is less sensitive to outliers or weeks with extreme returns (Chen et al., 2001). The average percentage of women on the board is 9.54% and the average board comprises of around 8 members. The average leverage for REITs in our sample is less than 50%, with a market to book ratio and return to total assets being 1.38 and 2.79%, respectively. The standard deviation of average weekly returns for REITs is 0.03 with an average difference in turnover of 0.002.

[26] A detailed description of all variables is provided in Appendix C Table C1.

5.3.3 Methodology

Following is our model specification:

$$dependent_{it} = \alpha + \beta independent_{it-1} + \gamma controls_{it-1} + \emptyset_i + \mu_t + \varepsilon_{it} \quad (5.6)$$

where $\emptyset_i$ is REIT fixed effects and μ_t captures the unobservable variation over time. The dependent, independent, and control variables used in the estimation are described in section 5.3.2.[27]

To deal with concerns of endogeneity in the form of reverse causality and omitted variable bias, we employ an IV approach. The first stage estimation model is represented as follows:

$$WOMEN_{it-1} = \alpha + \delta PEERS_{it-1} + \lambda GEI_{it-1} + \gamma controls_{it-1} + \varepsilon_{it} \quad (5.7)$$

where $PEERS_{it-1}$ and GEI_{it-1}[28] are instruments for $WOMEN_{it-1}$ and γ represents the vector of coefficients for the same control variables ($controls_{it-1}$) used in model 5.6. We then use the predicted values from the first stage ($\widehat{WOMEN}_{it-1}$) to estimate the second stage model as follows:

$$outcome_{it} = \alpha + \beta \widehat{WOMEN}_{it-1} + \gamma controls_{it-1} + \emptyset_i + \mu_t + \varepsilon_{it} \quad (5.8)$$

where the control variables ($controls_{it-1}$) are the same as used in equations 5.6 and 5.7.

[27] A description of the variables is provided in Appendix C Table C1.
[28] A detailed description of the instruments is provided in chapter 3 section 3.3.2 of the thesis.

5.4 Analysis

5.4.1 Board gender diversity and stock price crash risk

Table 5.2 presents the baseline results for the effects of women on the board on stock price crash risk. Columns (1) to (3) present the results where $NSKEW_t$ is the measure for stock price crash risk and columns (4) to (6) report the results for $DUVOL_t$ as a measure of crash risk. Columns (1) and (4) are the results from the OLS estimation and the remaining columns are results from our IV estimation. From our OLS estimation, we find no significant effect for $WOMEN_{t-1}$ on our measures of crash risk (i.e. $NSKEW_t$ and $DUVOL_t$).

To deal with the endogeneity existent in the gender studies in the form of reverse causality and omitted variable bias, we employ an instrumental variable approach. We use two instruments - GEI_{t-1} and $PEERS_{t-1}$[29] for $WOMEN_{t-1}$. GEI_{t-1} is the property weighted exposure to a gender equality index. The gender equality index measures the friendliness of each of the 50 states in the US towards women and is created following Sugarman and Straus (1988) and Noia (2002). The higher the score, the friendlier the state. We create this measure for each of the 50 states in the US from the year 2000 to 2018. Our second measure - $PEERS_{t-1}$, is the total women on the board in a REIT sub-industry, scaled by the total board size in a REITs sub-industry, excluding the REIT itself. This instrument can be seen as a proxy for peer pressure, where a REIT would be more likely to follow the hiring practices of their peers. We believe our instruments are truly exogenous and have an effect on $WOMEN_{t-1}$ but not on our outcome variable of interest.

[29] A detailed description of the instruments is provided in chapter 3 section 3.3.2 of the thesis.

From columns (2) and (5) in our first stage IV, we find that our instruments are positively and significantly related with women on the board. Furthermore, the f-statistic from the first stage IV is over 10 which indicates the instruments are strong.[30]

From our second stage IV results in columns (3) and (6), we find that $WOMEN_{t-1}$ have no effect on $NSKEW_t$ and $DUVOL_t$. Our findings are contrary to the existing literature on finance and general corporations (for e.g, Li and Zeng, 2019; Qayyum, et al., 2021) which find that female executives and women on the board lower stock price crash risk.

To further validate our results and our instruments, we include a location-weighted local factor- $EMPLOYMENT_{t-1}$[31]. $EMPLOYMENT_{t-1}$ is the property weighted change in employment for each of the states in the US constructed for each REIT in each year. Consistent with our main analysis, we find no evidence of a significant effect of women on the board on stock price crash risk.[32]

Given our findings that women on the board have no effect on tail-specific risk, we split our sample into internally and externally managed REITs to examine if the effect of women on the board varies by the management structure of a REIT. Internally managed REITs, as the name suggests are REITs which are managed by directors and executives who are a part of the REIT itself. Externally managed REITs, however, hire an external firm such as an asset management firm to run the operations of the REIT and receive a management fee for the same (Capozza and Seguin, 2000; Nicholson and Stevens, 2022).

Table 5.3 reports the results for the effects of gender diversity of the board on stock price crash risk for REITs which are managed internally. Columns (1) to (3) present the results where $NSKEW_t$ is our measure of crash risk and the remaining columns present the results where $DUVOL_t$ is a measure for crash risk. From columns (1) and (4), which are the results from the

[30] Throughout our analysis, on average, our instruments have an f-statistic over 10 thereby eliminating the issue of weak instruments. Furthermore, our instruments largely meet the validity and exogeneity assumptions where we reject the null hypothesis under the Anderson-Canon LM test and fail to reject the null hypothesis under the Sargan-Hansen test.

[31] A detailed description of $EMPLOYMENT_{t-1}$ is presented in chapter 3 Section 3.5.3 of the thesis where $EMPLOYMENT_{t-1}$ is *Employment.*

[32] Results are presented in Appendix C Table C2.

OLS estimation, we find that women on the board have no effect on stock price crash risk. The results from the second stage IV in columns (3) and (6) reveal that board gender diversity lowers stock price crash risk for internally managed REITs.[33] Economically speaking, an increase of one standard deviation in $WOMEN_{t-1}$ results in a 0.44 decrease in $NSKEW_t$ and $DUVOL_t$, respectively.

Table 5.4 presents the results for the effects of women on a REITs board on our crash risk measures for REITs which follow an externally managed structure. From the OLS estimation results in columns (1) and (4), we find that $WOMEN_{t-1}$ have a positive and significant effect on $NSKEW_t$ and $DUVOL_t$. However, after dealing with the endogeneity existent in gender studies using an IV approach, we find that women on the board have no effect on our measures of stock price crash risk.[34]

As expected, our findings posit that woman on the board lower stock price crash for internally managed and not for externally managed REITs. Since internally managed REITs have boards which are part of the REIT itself and partake in executive functions, it is expected that women on the board have the power to monitor and influence decisions for the REITs. However, for externally managed REITs which hire external asset management firms for executive functions for a fee, the board of the REIT itself has very little power or influence over decisions (Capozza and Seguin, 2000; Nicholson and Stevens, 2022).

5.4.2 REIT portfolio strategies, crash risk, and the moderating role of women on the board

Table 5.5 presents the results for the effects of geographic concentration of a REITs portfolio on stock price crash risk for REITs with and without women on the board. Columns

[33] We find consistent results after including a location-weighted factor- $EMPLOYMENT_{t-1}$ (See Table C3 in Appendix C.
[34] Results are consistent after including a location-weighted factor- $EMPLOYMENT_{t-1}$ (See Table C4 in Appendix C.

(1) and (2) present the results for the effect of geographic concentration measured using a Herfindahl index with $NSKEW_t$ as our measure of crash risk for REITs with and without women on the board respectively. The remaining columns report the results where $DUVOL_t$ is used as a measure for crash risk. For REITs with women on the board, in columns (1) and (3), we find that an increase in geographic concentration of a REITs portfolio has no effect on our measures of stock price crash risk. However, for REITs without women on the board, in columns (2) and (4), we find that an increase in concentration of a REITs properties by location increase stock price crash risk. Economically, an increase of one standard deviation in $HHI\ G_{t-1}$ results in a 12.85 and 10 increase in $NSKEW_t$ and $DUVOL_t$, respectively.

Table 5.6 and Table 5.7 present the results for the effect of property type and tenant concentration on our measures of crash risk for REITs with and without women on the board. Columns (1) and (2) report the results where $NSKEW_t$ is a measure of crash risk and the columns (3) and (4) for when $DUVOL_t$ is a measure of crash risk. Overall, from the OLS specification, we find that $HHI\ P_{t-1}$ and $HHI\ T_{t-1}$ have no significant effect on $NSKEW_t$ and $DUVOL_t$, respectively.

Table 5.8 presents the results for the effect of average property size in a REITs portfolio on stock price crash risk for REITs with and without women on the board. Our findings from columns (1) and (3) reveal that when REITs with women on the board increase the average size of the property in their portfolio it has no effect on crash risk. However, when REITs without women on the board increase the average size of the properties, it results in an increase in stock price crash risk. Economically speaking, from columns (2) and (4), an increase of one standard deviation in $PROP_{t-1}$ results in a 2.14 and 1.72 increase in $NSKEW_t$ and $DUVOL_t$, respectively.

Overall, our results further contribute to the literature with evidence of the monitoring role of women on the board. Since increasing geographic focus is considered a high-risk strategy (Ro and Ziobrowski, 2009; Zhu and Li, 2022), we would expect REITs without women on the board to increase stock price crash risk when concentrating their properties. However,

with the superior monitoring role of women, REITs with women on the board would not result in a stock price crash risk when increasing geographic focus.

5.4.3 Religiosity, crash risk, and the moderating role of board gender diversity

Table 5.9 presents the results for the effects of property weighted exposure of a REITs portfolio to states with different levels of religious strength on stock price crash risk, for REITs with and without women on the board. Columns (1) and (3) report the results where $NSKEW_t$ and $DUVOL_t$ are the measures of crash risk for REITs with women on the board and the remaining columns report the results for REITs without women on the board.

Our findings reveal that an increase in a REITs portfolio to states with higher levels of religious strength has a positive effective on $NSKEW_t$ and $DUVOL_t$ as a measure of crash risk, for a sample of REITs with women on the board. Economically, an increase of one standard deviation in $RELIGION_{t-1}$, results in 8.29 and 10.12 increase in $NSKEW_t$ and $DUVOL_t$, respectively.

From columns (2) and (4), which are a sample of REITs without women on the board, we find that an increase in a REITs exposure to states with higher religious strength results in a decrease in stock price crash risk, where a one standard deviation increase in $RELIGION_{t-1}$ results in a 22.10 and 21.30 decrease in $NSKEW_t$ and $DUVOL_t$, respectively.

Our findings further contribute to the literature by revealing the monitoring role of women on the board. Since religion is expected to lower bad news hoarding (Callen and Fang, 2015), we would expect REITs without women on the board to benefit from locating in states with higher religiosity. However, for REITs which have internal monitoring mechanisms in the form of women on the board, it seems to result in over-monitoring which leads to an increase in crash risk.

5.5 Robustness tests

5.5.1 Robustness tests using alternative instrument

To further consolidate our results, in our IV estimation, we replace our instrument GEI_{t-1} with $RIGHTS_{t-1}$ which is a property weighed gay rights score for each REIT.[35] The gay rights index is for each of the 50 states of the US, where a higher score indicates higher gender friendliness/ awareness. Table 5.10 reports the results for our alternative IV estimation, where we examine the effects of women on the board on a REITs crash risk. Columns (1) and (3) present the first stage IV results and columns (2) and (4) report the results for the second stage estimation. Overall, and consistent with our main analysis, we find that $WOMEN_{t-1}$ have no effect on $NSKEW_t$ and $DUVOL_t$, respectively.

Table 5.11 and Table 5.12 reports the results for the effects of women on the board on our measures of crash risk for internally and externally managed REITs, respectively. In both tables, Columns (1) and (3) present the results for the first stage IV results and columns (2) and (4) for the second stage IV. Overall, we find consistent results to our main estimation, where a one standard deviation change in $WOMEN_{t-1}$ results in a 0.52 and 0.50 decrease in $NSKEW_t$ and $DUVOL_t$, respectively for internally managed REITs and no effect on our measures of crash risk for externally managed REITs.

5.5.2 Robustness tests using a limited information likelihood model

[35] A detailed description of the instruments is provided in chapter 3 section 3.3.2 of the thesis, where $RIGHTS_{t-1}$ is *Gay Rights*.

Despite using alternative instruments to validate our IV estimation results, it is possible that there may be some form of endogeneity driving the results. To further strengthen our findings from our IV estimations, we employ an LIML model.

Table 5.13 reports the results for the effects of women on the board on our measures of stock price crash risk using a LIML model and where we use $PEERS_{t-1}$ and GEI_{t-1} as instruments for $WOMEN_{t-1}$. Columns (1) and (3) present the results for the first stage estimation and columns (2) and (4) for the second stage. From our first stage results, it is evident that our instruments are significant and positively related to women on the board, which is consistent with our findings from our main analysis. From the second stage results, we find that $WOMEN_{t-1}$ have no effect on $NSKEW_t$ and $DUVOL_t$. This is consistent with our main analysis where we use an instrumental variable approach and helps support our findings. In Table 5.14, we repeat our analysis using an LIML approach with the exception that we replace GEI_{t-1} with $RIGHTS_{t-1}$. Similar to Table 5.13, columns (1) and (3) present our results for the first stage estimation and the remaining columns for the second stage estimation. From our second stage, we further corroborate the findings in this study with evidence that $WOMEN_{t-1}$ have no effect on $NSKEW_t$ and $DUVOL_t$, respectively.

Table 5.15 reports the results for the effects of women on the board on our measures of crash risk for a sample of internally managed REITs using an LIML approach. Columns (1) and (3) present the results for the first stage estimation where we use $PEERS_{t-1}$ and GEI_{t-1} as instruments for $WOMEN_{t-1}$. Columns (2) and (4) present the results from the second stage estimation. From our second stage, we find that $WOMEN_{t-1}$ have a negative effect on $NSKEW_t$ and $DUVOL_t$, where a one standard deviation change in $WOMEN_{t-1}$ results in a 0.48 and 0.46 decrease in $NSKEW_t$ and $DUVOL_t$, respectively. In Table 5.16, we repeat our analysis by replacing GEI_{t-1} with $RIGHTS_{t-1}$. Consistent with our findings, from the second stage results in columns (2) and (4), we find that a one standard deviation increase in $WOMEN_{t-1}$ results in a 0.55 and 0.51 decrease in $NSKEW_t$ and $DUVOL_t$, respectively.

In Table 5.17, we examine the effects of women on the board on crash risk for a sample of externally managed REITs using an LIML model. Columns (1) and (3) present the results for the first stage estimation, where we use $PEERS_{t-1}$ and GEI_{t-1} as instruments for $WOMEN_{t-1}$, and the second stage results are presented in columns (2) and (4). From the second stage results, and consistent with our previous findings, we find that $WOMEN_{t-1}$ have no effect on our measures of crash risk (i.e. $NSKEW_t$ and $DUVOL_t$). In Table 5.18, we repeat our analysis and replace GEI_{t-1} with $RIGHTS_{t-1}$. Columns (1) and (3) present the first stage results and columns (2) and (4) report the results for the second stage estimation. Consistent with our findings when we use GEI_{t-1} as an instrument, we find that women on the board have no effect on stock price crash risk.

Overall, we find consistent results as our main analysis when using alternative instruments and when using an LIML approach. This further strengthens our findings and validates our results.

5.6 Conclusion

In this study, we examine the effects of women on the board on tail specific risk (i.e. stock price crash risk) for a sample of US Equity REITs over the period of 2000 to 2018. Previous studies have focussed on finance and general corporations leaving REITs largely ignored in the literature. Our study is motivated by evidence in the literature that women act as an internal monitoring mechanism by improving board attendance (Adams and Ferreira, 2009), acting as outside directors (Carter et al., 2003), improving accounting transparency (Francis et al., 2015), and being less likely to engage in value destructive projects given their more risk-averse/ less overconfident investment behaviour (Charness and Gneezy, 2012; Barber and Odean, 2001), which in turn makes them less likely to hoard bad news.

We, for the first time, contribute to the literature with evidence that women on the board have no effect on a REITs stock price crash risk. However, board gender diversity lowers stock

price crash risk for internally managed REITs where the executive functions are vested with the directors of the REIT and not for externally managed REITs which outsource their executive functions to asset management firms for a fee (Capozza and Seguin, 2000; Nicholson and Stevens, 2022). Furthermore, we for the first time, find that women on the board act as a moderator in mitigating the effects of a REITs portfolio strategies on stock price crash risk. Specifically, we find that when REITs deploy risky portfolio strategies by concentrating their assets and acquiring larger properties, they increase stock price crash risk when they don't have women on the board. However, when REITs with women on the board engage in such risky portfolio strategies, they have no effect on stock price crash risk. Lastly, we find that when REITs without women on the board increase their exposure to states with high religiosity, they lower the stock price crash risk as religion is found to mitigate board news hoarding activities. However, when REITs do have women on the board, we find an increase in stock price crash risk as a result of over monitoring. Our study sheds light on the effects of women on the board on a REITs stock price crash risk and the moderating role that women play by acting as an internal monitoring mechanism.

Besides the robust results presented in this study using different measures of crash risk and different model specifications, there are some limitations. Firstly, we are only able to observe the boards of the REIT itself. Meaning, when we observe women on REIT boards to lower crash risk for internally managed REITs and not for externally managed ones could be due to an inability to measure the effects of women on the board of external managed firms on a REITs crash risk. Future research could be conducted on a sample of externally managed REITs taking the board structure of the external management firm to identify the possible effects on crash risk. Secondly, another limitation could be because more religious states are also states with more or less innovation. Taking these factors into account could help further analyse the moderating role of innovation. Lastly, although measures of property level strategies have been utilised, additional proxies could be used to further validate these findings.

Table 5.1 Summary statistics

This table presents the descriptive statistics for the sample period 2000 to 2018. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. HHI G_{t-1} is a lagged Herfindahl index which measures the concentration of a REITs properties by geography. HHI P_{t-1} is a lagged Herfindahl index which measures the concentration of a REITs properties by property-type. HHI T_{t-1} is a lagged Herfindahl index which measures the concentration of a REITs properties by tenants. $PROP_{t-1}$ is the lagged median property size for a REIT. $RELIGION_{t-1}$ is a lagged property weighted religious score for each REIT. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1.

	N	Mean	Median	Std. Dev	Min	Max
Dependent variables						
$NSKEW_t$	2167	0.087	0.071	0.62	-1.647	2.298
$DUVOL_t$	2167	0.090	0.083	0.628	-1.433	1.732
Key independent variables						
$WOMEN_{t-1}$	1990	9.538	10.000	10.131	0.000	50.000
Concentration variables						
HHI G_{t-1}	1901	0.200	0.132	0.198	0.007	1.000
HHI P_{t-1}	1901	0.718	0.782	0.262	0.154	1.000
HHI T_{t-1}	982	0.047	0.010	0.103	0.001	1.000
$PROP_{t-1}$	1621	16.096	16.541	2.102	9.210	19.446
$RELIGION_{t-1}$	1783	3.991	4.005	0.102	3.479	4.290
Control variables						
$BSIZE_{t-1}$	1990	8.202	8.000	2.076	2.000	17.000
$SIZE_{t-1}$	1988	14.610	14.751	1.357	9.224	17.322
$LEVERAGE_{t-1}$	1988	0.491	0.497	0.167	0.000	1.381
MTB_{t-1}	1184	1.382	1.284	0.465	0.303	3.954
ROA_{t-1}	1978	2.785	2.748	1.935	-10.225	15.195
$VOLATILITY_{t-1}$	1989	0.033	0.026	0.02	0.003	0.240
$TURNOVER_{t-1}$	1809	0.002	0.002	0.084	-1.015	0.497

Table 5.2 Board gender diversity and stock price crash risk

This table presents the results for the effects of percentage of women on the board on stock price crash risk. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. GEI_{t-1} is the lagged property weighted gender equality index. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	$NSKEW_t$	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$	$WOMEN_{t-1}$	$DUVOL_t$
$WOMEN_{t-1}$	0.001		-0.024	0.001		-0.028
	(0.004)		(0.018)	(0.003)		(0.017)
$PEERS_{t-1}$		0.387***			0.395***	
		(0.078)			(0.077)	
GEI_{t-1}		0.171**			0.170**	
		(0.081)			(0.081)	
$BSIZE_{t-1}$	0.037*	0.039	0.033*	0.047**	0.044	0.043**
	(0.020)	(0.199)	(0.019)	(0.020)	(0.199)	(0.019)
$SIZE_{t-1}$	-0.016	2.396***	0.09	-0.013	2.359***	0.104
	(0.044)	(0.487)	(0.077)	(0.044)	(0.488)	(0.076)
$LEVERAGE_{t-1}$	-0.514**	-4.349**	-0.611***	-0.359*	-4.346**	-0.437*
	(0.214)	(2.146)	(0.229)	(0.212)	(2.147)	(0.229)
MTB_{t-1}	0.027	4.530***	0.196	0.008	4.478***	0.213*
	(0.079)	(0.822)	(0.130)	(0.078)	(0.822)	(0.128)
ROA_{t-1}	0.005	-0.793***	-0.015	0.007	-0.787***	-0.018
	(0.016)	(0.166)	(0.023)	(0.016)	(0.166)	(0.022)
$VOLATILITY_{t-1}$	-1.726	6.032	-1.216	-1.932*	6.083	-1.207
	(1.160)	(12.613)	(1.238)	(1.149)	(12.618)	(1.238)
$TURNOVER_{t-1}$	0.210	-0.382	0.283	0.058	-0.412	0.136
	(0.249)	(2.468)	(0.240)	(0.246)	(2.467)	(0.240)
$CONSTANT_{t-1}$	0.177	-35.166***	-1.105	-0.066	-34.748***	-1.49
	(0.686)	(9.241)	(0.973)	(0.679)	(9.246)	(0.964)
Observations	1051	974	974	1051	974	974
R^2	0.102		0.228	0.116		0.232
F-statistic		15.420			15.940	
Anderson (p-val)			0.000			0.000
Sargan (p-val)			0.098			0.254
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES
Regression type	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV

Table 5.3 Board gender diversity and stock price crash risk internally managed REITs

This table reports the results for the effects of percentage of women on the board on stock price crash risk for REITs which are internally managed. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. GEI_{t-1} is the lagged property weighted gender equality index. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	$NSKEW_t$	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$	$WOMEN_{t-1}$	$DUVOL_t$
$WOMEN_{t-1}$	-0.003		-0.043**	-0.002		-0.043**
	(0.004)		(0.018)	(0.004)		(0.018)
$PEERS_{t-1}$		0.465***			0.476***	
		(0.101)			(0.101)	
GEI_{t-1}		0.182*			0.181*	
		(0.100)			(0.100)	
$BSIZE_{t-1}$	0.026	-0.034	0.017	0.041*	-0.029	0.031
	(0.021)	(0.229)	(0.021)	(0.021)	(0.229)	(0.022)
$SIZE_{t-1}$	-0.002	1.903***	0.149*	0.005	1.858***	0.152*
	(0.047)	(0.595)	(0.078)	(0.048)	(0.595)	(0.079)
$LEVERAGE_{t-1}$	-0.302	-5.684*	-0.513*	-0.153	-5.639*	-0.363
	(0.260)	(2.904)	(0.296)	(0.264)	(2.902)	(0.300)
MTB_{t-1}	0.081	4.931***	0.392***	0.053	4.849***	0.371**
	(0.087)	(1.002)	(0.151)	(0.088)	(1.003)	(0.152)
ROA_{t-1}	-0.013	-1.227***	-0.068**	-0.003	-1.221***	-0.061*
	(0.019)	(0.220)	(0.032)	(0.019)	(0.220)	(0.033)
$VOLATILITY_{t-1}$	-4.284***	1.542	-5.140***	-4.183***	0.904	-4.646***
	(1.377)	(18.496)	(1.692)	(1.394)	(18.469)	(1.720)
$TURNOVER_{t-1}$	0.566**	0.299	0.714***	0.354	0.298	0.498*
	(0.255)	(2.806)	(0.260)	(0.259)	(2.805)	(0.264)
$CONSTANT_{t-1}$	0.082	-25.885**	-1.493	-0.311	-25.261**	-1.827*
	(0.745)	(11.769)	(0.990)	(0.755)	(11.770)	(1.000)
Observations	825	762	762	825	762	762
R^2	0.109		0.160	0.132		0.191
F-statistic		13.150			13.670	
Anderson (p-val)			0.000			0.000
Sargan (p-val)			0.089			0.194
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV

Table 5.4 Board gender diversity and stock price crash risk externally managed REITs

This table presents the results for the effects of percentage of women on the board on stock price crash risk for REITs that are externally managed. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. GEI_{t-1} is the lagged property weighted gender equality index. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	$NSKEW_t$	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$	$WOMEN_{t-1}$	$DUVOL_t$
$WOMEN_{t-1}$	0.020*		0.068	0.018*		0.039
	(0.011)		(0.092)	(0.011)		(0.085)
$PEERS_{t-1}$		0.132			0.128	
		(0.111)			(0.111)	
GEI_{t-1}		0.129			0.128	
		(0.146)			(0.145)	
$BSIZE_{t-1}$	0.054	0.48	0.031	0.038	0.541	0.032
	(0.058)	(0.410)	(0.071)	(0.055)	(0.412)	(0.068)
$SIZE_{t-1}$	-0.003	1.806	-0.062	0.011	1.647	0.017
	(0.149)	(1.188)	(0.252)	(0.141)	(1.189)	(0.220)
$LEVERAGE_{t-1}$	-0.849*	-4.206	-0.692	-0.608	-4.221	-0.51
	(0.436)	(3.376)	(0.579)	(0.412)	(3.371)	(0.528)
MTB_{t-1}	-0.127	4.383**	-0.381	-0.177	4.484**	-0.247
	(0.228)	(1.937)	(0.493)	(0.215)	(1.936)	(0.460)
ROA_{t-1}	0.027	0.186	0.024	0.016	0.209	0.017
	(0.039)	(0.275)	(0.042)	(0.037)	(0.275)	(0.039)
$VOLATILITY_{t-1}$	2.614	17.884	1.64	1.540	20.13	1.202
	(2.232)	(15.611)	(2.750)	(2.120)	(15.684)	(2.645)
$TURNOVER_{t-1}$	-1.443	-1.704	-1.21	-1.431*	-1.529	-1.196
	(0.902)	(6.517)	(0.926)	(0.852)	(6.512)	(0.836)
$CONSTANT_{t-1}$	-0.030	-42.260**	1.185	-0.107	-41.057**	-0.093
	(1.826)	(18.059)	(3.826)	(1.727)	(18.042)	(3.413)
Observations	212	198	198	212	198	198
R^2	0.144		0.237	0.111		0.267
F-statistic		1.180			1.140	
Anderson (p-val)			0.231			0.243
Sargan (p-val)			0.396			0.761
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	OLS	1st stage IV	2nd stage IV	OLS	1st stage IV	2nd stage IV

Table 5.5 Moderating role of board gender diversity for geographic concentration on crash risk

This table reports the results for the moderating effect of percentage of women on the board for geographic concentration of a REITs portfolio on stock price crash risk. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. HHI G_{t-1} is a lagged Herfindahl index which measures the concentration of a REITs properties by geography. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$NSKEW_t$	$NSKEW_t$	$DUVOL_t$	$DUVOL_t$
	$WOMEN_{t-1} = 1$	$WOMEN_{t-1} = 0$	$WOMEN_{t-1} = 1$	$WOMEN_{t-1} = 0$
HHI G_{t-1}	0.879	1.268**	0.458	0.987*
	(0.758)	(0.592)	(0.780)	(0.563)
$BSIZE_{t-1}$	0.028	0.107**	0.038	0.108**
	(0.022)	(0.054)	(0.023)	(0.051)
$SIZE_{t-1}$	0.010	0.141	-0.000	0.127
	(0.062)	(0.097)	(0.064)	(0.092)
$LEVERAGE_{t-1}$	-0.206	-0.981**	-0.039	-0.764*
	(0.285)	(0.425)	(0.294)	(0.404)
MTB_{t-1}	0.197*	-0.027	0.174	-0.065
	(0.109)	(0.173)	(0.112)	(0.165)
ROA_{t-1}	-0.011	0.003	-0.010	0.005
	(0.025)	(0.029)	(0.025)	(0.028)
$VOLATILITY_{t-1}$	0.011	-0.639	-1.095	-0.857
	(1.986)	(2.106)	(2.043)	(2.008)
$TURNOVER_{t-1}$	0.616**	-0.926*	0.690**	-1.317***
	(0.308)	(0.518)	(0.318)	(0.492)
$CONSTANT_{t-1}$	-0.649	-2.842**	-0.620	-2.667*
	(1.032)	(1.429)	(1.063)	(1.358)
Observations	589	385	589	385
R^2	0.164	0.066	0.195	0.071
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Regression type	OLS	OLS	OLS	OLS

Table 5.6 Moderating role of board gender diversity for property type concentration on crash risk

This table reports the results for the moderating effect of percentage of women on the board for property type concentration of a REITs portfolio on stock price crash risk. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. HHI P_{t-1} is a lagged Herfindahl index which measures the concentration of a REITs properties by property-type. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$NSKEW_t$	$NSKEW_t$	$DUVOL_t$	$DUVOL_t$
	$WOMEN_{t-1} = 1$	$WOMEN_{t-1} = 0$	$WOMEN_{t-1} = 1$	$WOMEN_{t-1} = 0$
HHI P_{t-1}	-0.157	-0.152	-0.009	-0.054
	(0.515)	(0.571)	(0.530)	(0.541)
$BSIZE_{t-1}$	0.029	0.093*	0.039*	0.098*
	(0.022)	(0.055)	(0.023)	(0.052)
$SIZE_{t-1}$	0.005	0.091	-0.003	0.087
	(0.062)	(0.095)	(0.064)	(0.090)
$LEVERAGE_{t-1}$	-0.238	-1.145***	-0.053	-0.895**
	(0.286)	(0.422)	(0.294)	(0.400)
MTB_{t-1}	0.204*	-0.010	0.175	-0.052
	(0.111)	(0.175)	(0.114)	(0.166)
ROA_{t-1}	-0.013	0.010	-0.010	0.010
	(0.025)	(0.029)	(0.025)	(0.028)
$VOLATILITY_{t-1}$	-0.083	-0.048	-1.128	-0.385
	(1.991)	(2.104)	(2.046)	(2.001)
$TURNOVER_{t-1}$	0.642**	-0.901*	0.699**	-1.296***
	(0.311)	(0.522)	(0.319)	(0.495)
$CONSTANT_{t-1}$	-0.411	-1.367	-0.497	-1.567
	(1.014)	(1.363)	(1.043)	(1.292)
Observations	589	385	589	385
R^2	0.162	0.051	0.195	0.061
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Regression type	OLS	OLS	OLS	OLS

Table 5.7 Moderating role of board gender diversity for tenant concentration on crash risk

This table reports the results for the moderating effect of percentage of women on the board for tenant concentration on stock price crash risk. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. HHI T_{t-1} is a lagged Herfindahl index which measures the concentration of a REITs properties by tenants. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$NSKEW_t$	$NSKEW_t$	$DUVOL_t$	$DUVOL_t$
	$WOMEN_{t-1} = 1$	$WOMEN_{t-1} = 0$	$WOMEN_{t-1} = 1$	$WOMEN_{t-1} = 0$
HHI T_{t-1}	0.556	-0.026	-0.000	-0.125
	(1.268)	(1.321)	(1.264)	(1.367)
$BSIZE_{t-1}$	0.042	0.113*	0.052	0.122**
	(0.038)	(0.058)	(0.038)	(0.060)
$SIZE_{t-1}$	-0.060	0.138	-0.049	0.151
	(0.104)	(0.117)	(0.104)	(0.122)
$LEVERAGE_{t-1}$	0.127	1.575*	0.101	1.467*
	(0.506)	(0.808)	(0.504)	(0.835)
MTB_{t-1}	0.131	0.086	0.205	0.004
	(0.188)	(0.254)	(0.187)	(0.263)
ROA_{t-1}	-0.023	0.079	-0.025	0.082*
	(0.060)	(0.048)	(0.060)	(0.049)
$VOLATILITY_{t-1}$	-0.307	-2.942	-1.315	-2.988
	(3.441)	(3.415)	(3.431)	(3.537)
$TURNOVER_{t-1}$	0.624	-1.067**	0.682	-1.534***
	(0.437)	(0.514)	(0.435)	(0.532)
$CONSTANT_{t-1}$	0.556	-0.026	0.035	-4.103**
	(1.268)	(1.321)	(1.536)	(2.009)
Observations	0.399	-3.921**	318	182
R^2	(1.540)	(1.943)	0.268	0.281
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Regression type	OLS	OLS	OLS	OLS

Table 5.8 Moderating role of board gender diversity for property size on crash risk

This table reports the results for the moderating effect of percentage of women on the board for the average property size on stock price crash risk. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $PROP_{t-1}$ is the lagged median property size for a REIT. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$NSKEW_t$	$NSKEW_t$	$DUVOL_t$	$DUVOL_t$
	$WOMEN_{t-1} = 1$	$WOMEN_{t-1} = 0$	$WOMEN_{t-1} = 1$	$WOMEN_{t-1} = 0$
$PROP_{t-1}$	0.082	0.211**	0.066	0.170*
	(0.096)	(0.105)	(0.100)	(0.102)
$BSIZE_{t-1}$	0.001	0.085	0.015	0.091*
	(0.026)	(0.057)	(0.027)	(0.055)
$SIZE_{t-1}$	-0.047	-0.032	-0.061	-0.003
	(0.077)	(0.111)	(0.081)	(0.108)
$LEVERAGE_{t-1}$	-0.045	-0.604	0.161	-0.397
	(0.335)	(0.451)	(0.351)	(0.438)
MTB_{t-1}	0.145	-0.119	0.197	-0.161
	(0.132)	(0.173)	(0.138)	(0.168)
ROA_{t-1}	-0.017	0.041	-0.030	0.033
	(0.039)	(0.032)	(0.041)	(0.031)
$VOLATILITY_{t-1}$	0.259	-0.504	0.046	-0.981
	(2.449)	(2.447)	(2.562)	(2.384)
$TURNOVER_{t-1}$	0.605*	-0.852	0.664**	-1.227**
	(0.311)	(0.517)	(0.326)	(0.502)
$CONSTANT_{t-1}$	-0.702	-2.531	-0.514	-2.571*
	(1.515)	(1.575)	(1.582)	(1.529)
Observations	469	321	469	321
R^2	0.179	0.092	0.207	0.092
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Controls	YES	YES	YES	YES
Regression type	OLS	OLS	OLS	OLS

Table 5.9 Moderating role of board gender diversity for religion on crash risk

This table reports the results for the moderating effect of percentage of women on the board for religion on stock price crash risk. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $RELIGION_{t-1}$ is a lagged property weighted religious score for each REIT. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, * and † denote statistical significance at the 1%, 5%, 10% and 15% respectively.

	(1)	(2)	(3)	(4)
	$NSKEW_t$	$NSKEW_t$	$DUVOL_t$	$DUVOL_t$
	$WOMEN_{t-1} = 1$	$WOMEN_{t-1} = 0$	$WOMEN_{t-1} = 1$	$WOMEN_{t-1} = 0$
$RELIGION_{t-1}$	0.818†	-2.178*	0.999*	-2.102*
	(0.565)	(1.243)	(0.588)	(1.186)
$BSIZE_{t-1}$	0.034	0.077	0.041*	0.087*
	(0.023)	(0.055)	(0.024)	(0.053)
$SIZE_{t-1}$	0.006	0.103	-0.007	0.107
	(0.062)	(0.101)	(0.065)	(0.096)
$LEVERAGE_{t-1}$	-0.163	-0.972**	-0.000	-0.698*
	(0.295)	(0.437)	(0.307)	(0.417)
MTB_{t-1}	0.098	0.074	0.130	-0.008
	(0.123)	(0.193)	(0.128)	(0.184)
ROA_{t-1}	0.029	-0.008	0.024	0.001
	(0.030)	(0.034)	(0.031)	(0.032)
$VOLATILITY_{t-1}$	0.480	-0.362	-0.606	-0.744
	(1.991)	(2.156)	(2.072)	(2.065)
$TURNOVER_{t-1}$	0.459	-0.737	0.524*	-1.224**
	(0.303)	(0.541)	(0.315)	(0.516)
$CONSTANT_{t-1}$	-3.846	7.183	-4.538*	6.607
	(2.418)	(4.987)	(2.516)	(4.758)
Observations	534	358	534	358
R^2	0.157	0.083	0.188	0.086
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Controls	YES	YES	YES	YES
Regression type	OLS	OLS	OLS	OLS

Table 5.10 Board gender diversity and stock price crash risk robustness test

This table presents the results for the effects of percentage of women on the board on stock price crash risk using $RIGHTS_{t-1}$ as an instrument. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. $RIGHTS_{t-1}$ is the lagged property weighted gender awareness score. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$WOMEN_{t-1}$	$NSKEW_t$	$WOMEN_{t-1}$	$DUVOL_t$
$WOMEN_{t-1}$		-0.025		-0.028
		(0.019)		(0.018)
$PEERS_{t-1}$	0.406***		0.414***	
	(0.078)		(0.078)	
$RIGHTS_{t-1}$	0.133		0.131	
	(0.106)		(0.106)	
$BSIZE_{t-1}$	0.031	0.033*	0.037	0.043**
	(0.199)	(0.019)	(0.199)	(0.019)
$SIZE_{t-1}$	2.486***	0.096	2.448***	0.106
	(0.486)	(0.080)	(0.487)	(0.079)
$LEVERAGE_{t-1}$	-4.140*	-0.619***	-4.140*	-0.439*
	(2.162)	(0.232)	(2.162)	(0.231)
MTB_{t-1}	4.595***	0.204	4.542***	0.215
	(0.822)	(0.134)	(0.823)	(0.132)
ROA_{t-1}	-0.804***	-0.016	-0.797***	-0.019
	(0.169)	(0.023)	(0.169)	(0.023)
$VOLATILITY_{t-1}$	4.764	-1.202	4.819	-1.203
	(12.620)	(1.243)	(12.625)	(1.241)
$TURNOVER_{t-1}$	-0.491	0.284	-0.522	0.136
	(2.471)	(0.241)	(2.471)	(0.241)
$CONSTANT_{t-1}$	-31.998***	-1.163	-31.517***	-1.508
	(9.913)	(1.002)	(9.916)	(0.989)
Observations	974	974	974	974
R^2		0.223		0.231
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Controls	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 5.11 Board gender diversity and stock price crash risk internally managed REITs robustness test

This table reports the results for the effects of percentage of women on the board on stock price crash risk for REITs which are internally managed using $RIGHTS_{t-1}$ as an instrument. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. $RIGHTS_{t-1}$ is the lagged property weighted gender awareness score. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$WOMEN_{t-1}$	$NSKEW_t$	$WOMEN_{t-1}$	$DUVOL_t$
$WOMEN_{t-1}$		-0.051***		-0.049**
		(0.020)		(0.019)
$PEERS_{t-1}$	0.489***		0.500***	
	(0.101)		(0.101)	
$RIGHTS_{t-1}$	0.102		0.101	
	(0.141)		(0.141)	
$BSIZE_{t-1}$	-0.039	0.015	-0.034	0.029
	(0.230)	(0.022)	(0.230)	(0.022)
$SIZE_{t-1}$	1.969***	0.176**	1.923***	0.174**
	(0.596)	(0.084)	(0.596)	(0.083)
$LEVERAGE_{t-1}$	-5.861**	-0.569*	-5.819**	-0.407
	(2.950)	(0.309)	(2.948)	(0.310)
MTB_{t-1}	5.011***	0.447***	4.928***	0.413**
	(1.005)	(0.163)	(1.005)	(0.161)
ROA_{t-1}	-1.215***	-0.079**	-1.209***	-0.070**
	(0.223)	(0.035)	(0.222)	(0.035)
$VOLATILITY_{t-1}$	-1.2	-5.069***	-1.825	-4.595***
	(18.496)	(1.750)	(18.468)	(1.764)
$TURNOVER_{t-1}$	0.129	0.722***	0.131	0.503*
	(2.810)	(0.268)	(2.809)	(0.271)
$CONSTANT_{t-1}$	-19.501	-1.762*	-18.866	-2.037*
	(12.955)	(1.046)	(12.951)	(1.046)
Observations	762	762	762	762
R^2		0.103		0.150
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 5.12 Board gender diversity and stock price crash risk externally managed REITs robustness test

This table presents the results for the effects of percentage of women on the board on stock price crash risk for REITs that are externally managed using $RIGHTS_{t-1}$ as an instrument. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. $RIGHTS_{t-1}$ is the lagged property weighted gender awareness score. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$WOMEN_{t-1}$	$NSKEW_t$	$WOMEN_{t-1}$	$DUVOL_t$
$WOMEN_{t-1}$		0.09		0.074
		(0.110)		(0.105)
$PEERS_{t-1}$	0.142		0.138	
	(0.111)		(0.111)	
$RIGHTS_{t-1}$	0.077		0.068	
	(0.157)		(0.157)	
$BSIZE_{t-1}$	0.45	0.021	0.508	0.014
	(0.409)	(0.078)	(0.411)	(0.078)
$SIZE_{t-1}$	1.89	-0.107	1.719	-0.05
	(1.213)	(0.287)	(1.215)	(0.256)
$LEVERAGE_{t-1}$	-3.67	-0.608	-3.657	-0.374
	(3.302)	(0.642)	(3.297)	(0.600)
MTB_{t-1}	4.334**	-0.478	4.423**	-0.407
	(1.943)	(0.569)	(1.943)	(0.547)
ROA_{t-1}	0.16	0.02	0.186	0.01
	(0.282)	(0.045)	(0.282)	(0.043)
$VOLATILITY_{t-1}$	17.344	1.253	19.665	0.491
	(15.701)	(3.038)	(15.781)	(3.020)
$TURNOVER_{t-1}$	-1.586	-1.179	-1.396	-1.151
	(6.531)	(0.976)	(6.528)	(0.894)
$CONSTANT_{t-1}$	-38.725**	1.952	-36.830*	1.102
	(19.095)	(4.431)	(19.081)	(4.068)
Observations	198	198	198	198
R^2		0.158		0.168
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 5.13 Board gender diversity and stock price crash risk LIML 1

This table presents the results for the effects of percentage of women on the board on stock price crash risk using GEI_{t-1} as an instrument and using a limited information maximum likelihood approach. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. GEI_{t-1} is the lagged property weighted gender equality index. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$WOMEN_{t-1}$	$NSKEW_t$	$WOMEN_{t-1}$	$DUVOL_t$
$WOMEN_{t-1}$		-0.026		-0.029
		(0.018)		(0.018)
$PEERS_{t-1}$	0.387***		0.395***	
	(0.078)		(0.077)	
GEI_{t-1}	0.171**		0.170**	
	(0.081)		(0.081)	
$BSIZE_{t-1}$	0.039	0.033*	0.044	0.043**
	(0.199)	(0.019)	(0.199)	(0.019)
$SIZE_{t-1}$	2.396***	0.098	2.359***	0.108
	(0.487)	(0.079)	(0.488)	(0.077)
$LEVERAGE_{t-1}$	-4.349**	-0.622***	-4.346**	-0.442*
	(2.146)	(0.232)	(2.147)	(0.230)
MTB_{t-1}	4.530***	0.207	4.478***	0.219*
	(0.822)	(0.134)	(0.822)	(0.130)
ROA_{t-1}	-0.793***	-0.017	-0.787***	-0.019
	(0.166)	(0.023)	(0.166)	(0.023)
$VOLATILITY_{t-1}$	6.032	-1.197	6.083	-1.197
	(12.613)	(1.244)	(12.618)	(1.242)
$TURNOVER_{t-1}$	-0.382	0.284	-0.412	0.136
	(2.468)	(0.241)	(2.467)	(0.241)
$CONSTANT_{t-1}$	-35.166***	-1.183	-34.748***	-1.531
	(9.241)	(0.997)	(9.246)	(0.975)
Observations	974	974	974	974
R^2		0.221		0.228
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 5.14 Board gender diversity and stock price crash risk LIML 2

This table presents the results for the effects of percentage of women on the board on stock price crash risk using RIGHTS $_{t-1}$ as an instrument and using a limited information maximum likelihood approach. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. $RIGHTS_{t-1}$ is the lagged property weighted gender awareness score. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$WOMEN_{t-1}$	$NSKEW_t$	$WOMEN_{t-1}$	$DUVOL_t$
$WOMEN_{t-1}$		-0.03		-0.031
		(0.020)		(0.019)
$PEERS_{t-1}$	0.406***		0.414***	
	(0.078)		(0.078)	
$RIGHTS_{t-1}$	0.133		0.131	
	(0.106)		(0.106)	
$BSIZE_{t-1}$	0.031	0.033*	0.037	0.043**
	(0.199)	(0.020)	(0.199)	(0.019)
$SIZE_{t-1}$	2.486***	0.114	2.448***	0.116
	(0.486)	(0.086)	(0.487)	(0.082)
$LEVERAGE_{t-1}$	-4.140*	-0.645***	-4.140*	-0.454*
	(2.162)	(0.239)	(2.162)	(0.234)
MTB_{t-1}	4.595***	0.233	4.542***	0.232*
	(0.822)	(0.144)	(0.823)	(0.137)
ROA_{t-1}	-0.804***	-0.02	-0.797***	-0.021
	(0.169)	(0.025)	(0.169)	(0.024)
$VOLATILITY_{t-1}$	4.764	-1.155	4.819	-1.176
	(12.620)	(1.260)	(12.625)	(1.251)
$TURNOVER_{t-1}$	-0.491	0.284	-0.522	0.136
	(2.471)	(0.244)	(2.471)	(0.242)
$CONSTANT_{t-1}$	-31.998***	-1.358	-31.517***	-1.617
	(9.913)	(1.064)	(9.916)	(1.021)
Observations	974	974	974	974
R^2		0.205		0.219
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 5.15 Board gender diversity and stock price crash risk internally managed REITs LIML 1

This table reports the results for the effects of percentage of women on the board on stock price crash risk for REITs which are internally managed using GEI_{t-1} as an instrument and using a limited information maximum likelihood approach. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. GEI_{t-1} is the lagged property weighted gender equality index. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$WOMEN_{t-1}$	$NSKEW_t$	$WOMEN_{t-1}$	$DUVOL_t$
$WOMEN_{t-1}$		-0.047**		-0.045**
		(0.019)		(0.019)
$PEERS_{t-1}$	0.465***		0.476***	
	(0.101)		(0.101)	
GEI_{t-1}	0.182*		0.181*	
	(0.100)		(0.100)	
$BSIZE_{t-1}$	-0.034	0.016	-0.029	0.03
	(0.229)	(0.022)	(0.229)	(0.022)
$SIZE_{t-1}$	1.903***	0.163**	1.858***	0.160**
	(0.595)	(0.082)	(0.595)	(0.081)
$LEVERAGE_{t-1}$	-5.684*	-0.541*	-5.639*	-0.379
	(2.904)	(0.304)	(2.902)	(0.304)
MTB_{t-1}	4.931***	0.420***	4.849***	0.386**
	(1.002)	(0.159)	(1.003)	(0.156)
ROA_{t-1}	-1.227***	-0.074**	-1.221***	-0.064*
	(0.220)	(0.034)	(0.220)	(0.033)
$VOLATILITY_{t-1}$	1.542	-5.104***	0.904	-4.628***
	(18.496)	(1.721)	(18.469)	(1.735)
$TURNOVER_{t-1}$	0.299	0.718***	0.298	0.500*
	(2.806)	(0.264)	(2.805)	(0.266)
$CONSTANT_{t-1}$	-25.885**	-1.63	-25.261**	-1.902*
	(11.769)	(1.024)	(11.770)	(1.018)
Observations	762	762	762	762
R^2		0.133		0.177
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 5.16 Board gender diversity and stock price crash risk internally managed REITs LIML 2

This table reports the results for the effects of percentage of women on the board on stock price crash risk for REITs which are internally managed using $RIGHTS_{t-1}$ as an instrument and using a limited information maximum likelihood approach. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. $RIGHTS_{t-1}$ is the lagged property weighted gender awareness score. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$WOMEN_{t-1}$	$NSKEW_t$	$WOMEN_{t-1}$	$DUVOL_t$
$WOMEN_{t-1}$		-0.054***		-0.050**
		(0.021)		(0.020)
$PEERS_{t-1}$	0.489***		0.500***	
	(0.101)		(0.101)	
$RIGHTS_{t-1}$	0.102		0.101	
	(0.141)		(0.141)	
$BSIZE_{t-1}$	-0.039	0.015	-0.034	0.029
	(0.230)	(0.022)	(0.230)	(0.022)
$SIZE_{t-1}$	1.969***	0.187**	1.923***	0.178**
	(0.596)	(0.087)	(0.596)	(0.085)
$LEVERAGE_{t-1}$	-5.861**	-0.590*	-5.819**	-0.416
	(2.950)	(0.315)	(2.948)	(0.313)
MTB_{t-1}	5.011***	0.467***	4.928***	0.422***
	(1.005)	(0.168)	(1.005)	(0.163)
ROA_{t-1}	-1.215***	-0.083**	-1.209***	-0.072**
	(0.223)	(0.036)	(0.222)	(0.035)
$VOLATILITY_{t-1}$	-1.2	-5.043***	-1.825	-4.585***
	(18.496)	(1.773)	(18.468)	(1.773)
$TURNOVER_{t-1}$	0.129	0.725***	0.131	0.505*
	(2.810)	(0.272)	(2.809)	(0.272)
$CONSTANT_{t-1}$	-19.501	-1.860*	-18.866	-2.079**
	(12.955)	(1.072)	(12.951)	(1.057)
Observations	762	762	762	762
R^2		0.080		0.141
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 5.17 Board gender diversity and stock price crash risk externally managed REITs LIML 1

This table reports the results for the effects of percentage of women on the board on stock price crash risk for REITs which are externally managed using GEI_{t-1} as an instrument and using a limited information maximum likelihood approach. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. GEI_{t-1} is the lagged property weighted gender equality index. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$WOMEN_{t-1}$	$NSKEW_t$	$WOMEN_{t-1}$	$DUVOL_t$
$WOMEN_{t-1}$		0.084		0.04
		(0.109)		(0.086)
$PEERS_{t-1}$	0.132		0.128	
	(0.111)		(0.111)	
GEI_{t-1}	0.129		0.128	
	(0.146)		(0.145)	
$BSIZE_{t-1}$	0.48	0.024	0.541	0.031
	(0.410)	(0.077)	(0.412)	(0.069)
$SIZE_{t-1}$	1.806	-0.094	1.647	0.015
	(1.188)	(0.284)	(1.189)	(0.222)
$LEVERAGE_{t-1}$	-4.206	-0.633	-4.221	-0.507
	(3.376)	(0.633)	(3.371)	(0.532)
MTB_{t-1}	4.383**	-0.45	4.484**	-0.251
	(1.937)	(0.563)	(1.936)	(0.466)
ROA_{t-1}	0.186	0.021	0.209	0.017
	(0.275)	(0.045)	(0.275)	(0.040)
$VOLATILITY_{t-1}$	17.884	1.365	20.13	1.187
	(15.611)	(2.999)	(15.684)	(2.665)
$TURNOVER_{t-1}$	-1.704	-1.188	-1.529	-1.195
	(6.517)	(0.961)	(6.512)	(0.837)
$CONSTANT_{t-1}$	-42.260**	1.73	-41.057**	-0.067
	(18.059)	(4.383)	(18.042)	(3.456)
Observations	198	198	198	198
R^2		0.184		0.265
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

Table 5.18 Board gender diversity and stock price crash risk externally managed REITs LIML 2

This table reports the results for the effects of percentage of women on the board on stock price crash risk for REITs which are externally managed using $RIGHTS_{t-1}$ as an instrument and using a limited information maximum likelihood approach. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. $RIGHTS_{t-1}$ is the lagged property weighted gender awareness score. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	$WOMEN_{t-1}$	$NSKEW_t$	$WOMEN_{t-1}$	$DUVOL_t$
$WOMEN_{t-1}$		0.375		0.216
		(0.573)		(0.314)
$PEERS_{t-1}$	0.142		0.138	
	(0.111)		(0.111)	
$RIGHTS_{t-1}$	0.077		0.068	
	(0.157)		(0.157)	
$BSIZE_{t-1}$	0.45	-0.11	0.508	-0.061
	(0.409)	(0.299)	(0.411)	(0.187)
$SIZE_{t-1}$	1.89	-0.705	1.719	-0.323
	(1.213)	(1.269)	(1.215)	(0.654)
$LEVERAGE_{t-1}$	-3.67	0.504	-3.657	0.182
	(3.302)	(2.501)	(3.297)	(1.415)
MTB_{t-1}	4.334**	-1.759	4.423**	-1.061
	(1.943)	(2.662)	(1.943)	(1.504)
ROA_{t-1}	0.16	-0.032	0.186	-0.02
	(0.282)	(0.142)	(0.282)	(0.089)
$VOLATILITY_{t-1}$	17.344	-3.876	19.665	-2.414
	(15.701)	(11.647)	(15.781)	(7.274)
$TURNOVER_{t-1}$	-1.586	-0.758	-1.396	-0.969
	(6.531)	(2.401)	(6.528)	(1.475)
$CONSTANT_{t-1}$	-38.725**	12.119	-36.830*	5.978
	(19.095)	(21.032)	(19.081)	(11.206)
Observations	198	198	198	198
R^2		-3.585		-1.146
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	1st stage IV	2nd stage IV

6 Conclusion

Corporate governance and its need for organizations has been an extensively researched topic in academia. Shleifer and Vishny (1997) define corporate governance as the method by which investors/ providers of finance guarantee a return on their investment from corporations. On the contrary, Gillan and Starks (1998) define corporate governance as a product of rules and laws which assist in controlling the operations of an organisation. Despite the ambiguity in its definition, we can assume that governance can be used to protect investors' interest through a variety of rules, laws, and strategies. Given the importance of corporate governance, several mechanisms have been developed for firms to better deal with their governance practices. These mechanisms broadly fall into two categories: those external and those which are internal to the organisation.

There is ample of literature which has investigated the effects of external monitoring mechanisms which firms use to deal with governance issues. There are numerous studies examining the implications of anti-takeover measures and their effects on shareholders wealth (for e.g., Straska and Waller, 2014), the monitoring role of institutional investors and block holders (for e.g., Elyasiani and Jia, 2010), and competition in product (for e.g., Hart, 1983; Nalebuff and Stiglitz, 1983; Aggarwal and Samwick, 1999) and labour (for e.g., Jensen and Meckling, 1976; Fama and Jensen, 1983) markets. These studies find that anti-takeover measures, institutional investors, and competition in product and labour markets act as effective external governance mechanisms.

In addition to external mechanisms, there are several internal governance mechanisms in a firms' arsenal that they can deploy to deal with governance issues. For instance, the literature on capital structure argues that debt serves as a monitoring mechanism. Firms that take on debt are less likely to engage in value-destructive projects as debt lowers the amount of free cash flow available to firms due to periodic interest payments which adds

discipline to organizations thereby alleviating agency issues by aligning the interest of managers and stakeholders (for e.g., Jensen, 1986; Ghosh and Sirmans, 2003). Studies on internal governance mechanisms are not limited to the capital structure of firms. A multitude of studies have delved into the effects of managerial incentives in alleviating agency issues inherent in organizations. Most of the studies argue that stock compensation helps align the interests of managers and shareholders by linking their compensation with the performance of the organization (for e.g., Fama and Jensen, 1983; Florin et al., 2010; Jensen and Murphy, 1990).

In addition to the capital structure and managerial incentives as an internal monitoring mechanism, a popular research area as a governance mechanism in the literature has been the board of directors. The board of directors are the apex of organizations with a duty to monitor the activities of organizations ensuring the interests of managers and shareholders are aligned (Fama and Jensen, 1983). Much of the literature has focussed on the effects of board structure on firm value. These studies examine the effects of board size, independence, activity, and CEO duality where the CEO is also the Chairman of the board (for e.g. Feng et al., 2005; Ghosh and Sirmans, 2003; Ghosh and Sirmans, 2005; Ghosh and Sirmans, 2006). These studies find that smaller boards, more independent directors, and when the CEO is not the Chairman of board increases firm value, thereby highlighting the influential role the directors and top executives play in organisations.

Given the importance of directors in organisations, a large attention in academia has been given to the diversity of directors, particularly gender diversity of the board. Studies have examined the effects of gender diversity of directors and executives on a firm's performance and risk. The literature on firm performance is motivated by two main theories: the agency theory and the resource dependence theory. These theories argue that gender diversity in the upper echelons can help improve firm performance either through a monitoring or from a resources-based perspective. Specifically, through a monitoring role, women on the board can help alleviate agency issues by aligning the interests of managers and stakeholders through their

superior monitoring as evidenced in the literature that they help improve board attendance and influence the payment decisions of executives (Adams and Ferreira, 2009). In a resources-based perspective, women on the board can bring with them unique resources such as superior counsel and advice, and a better understanding of the diverse marketplace (Pfeffer and Salancik, 1978; Hillman and Dalziel, 2003; Robinson and Dechant, 1997). Studies on firm risk are motivated by the literature which argues that women are more risk-averse and less overconfident than men in their investment decisions (Charness and Gneezy, 2012). Studies which have explored the effects of board of directors and executives on firm performance and risk find contrasting results leaving the relationship inconclusive owing to endogeneity issues.

This thesis extends the literature by taking advantage of the unique laboratory of REITs and examines the effects of board gender diversity on REIT performance, risk, risk-adjusted returns, and risk management strategies. Furthermore, drawing from the literature which argues that women are more risk-averse and less overconfident than men in their investment decisions, this thesis utilizes the unique information of REITs to examine the effects of board gender diversity on a REITs investment activity and the monitoring role they play in mitigating stock price crash risk and when REITs deploy different property level strategies. Section 6.1 presents a summary of the key findings followed by its implications. Section 6.2 proposes potential future research which could build on the key findings of this thesis.

6.1 Conclusion recapitulation and implications

In this thesis, we have explored the effects of gender diversity of the board on a REITs performance, risk and portfolio management strategies with the perspective of the monitoring role of women, their more risk-averse and less overconfident behaviour, and their ability to bring in resources as diverse directors. At first in this section, we provide a summary of findings from the three studies in this thesis followed by the implications of the key findings.

Firstly, in chapter 3 we examine the effects of board gender diversity on performance, risk, and risk-adjusted returns on a sample of 179 US Equity REITs over a period of 2000 to 2018. Using an instrumental variable approach by utilizing novel instruments created using a REITs unique property level information (i.e. location), we find evidence that women on the board increase firm performance but also increase firm risk. Hence, this results in no risk-adjusted returns. Upon further investigation, we uncover that women on the board seem to exhibit less overconfident investment behaviour as they seem to concentrate their assets and display a home bias by preferring to acquiring properties closer to the REITs headquarters. These results are robust to different instruments, variables, and alternative model specifications.

Secondly, building on this evidence, in chapter 4 we extend the scope to further dissect and analyse the investment decisions made by women on the board in a REIT setting. To briefly summarize, we extend the findings to further uncover the less overconfident investment behaviour of women on the board on a sample of US Equity REITs over a period of 2000 to 2018. Utilizing the instruments we constructed in chapter 3 in an instrumental variable setting, we find that women on the board lower a REITs transaction activity (i.e. acquisition, disposition, and overall trading) which is in line with the literature on risk-aversion and overconfidence. We for the first time, find that women on the board lower transaction activity in states where there are not headquartered displaying a home bias and by transacting larger properties which further consolidates our findings from chapter 3. Furthermore, we find evidence that women on the board lower transaction activity in bull market states and lower transaction activity for non-traditional REITs and not for traditional ones. These findings are robust to using alternative model specifications.

Lastly, given the superior monitoring role that women on the board play in organisations, chapter 5 of the thesis investigates the effects of women on the board on tail-specific risk and the moderating role of women on the board when REITs deploy property-level strategies. To summarize, we explore the monitoring and moderating role of women on the board on stock price crash risk for a sample of US Equity REITs over the period of 2000 to

2018. We, for the first time, find that women on the board have no effect on crash risk but lower crash risk for internally managed REITs and not for externally managed ones. Furthermore, women on the board act as a moderator for REIT-specific portfolio strategies. When REITs without women on the board concentrate their properties by geography and property size, they increase crash risk. This however is not the case when REITs with women on the board employ such strategies. When REITs without women on the board increase their exposure to states with high religious strength, they lower crash risk but when REITs with women on the board increase their exposure, it increases stock price crash risk. The results of this study are robust to different instruments, variables, and alternative model specifications.

Overall, the findings of the studies in this thesis have implications on: REIT managers and investors; and on policy decisions. Firstly, our findings from chapter 3 indicate that women on the board increase performance and risk, which results in no risk-adjusted returns. Taking this asset pricing view by jointly examining performance and risk reveals that women fit in the risk-return spectrum, where contrary to popular belief they increase the risk rather than lower it which seems to be divergent from the view that women are more risk-averse and less overconfident than men in their investment decisions (Charness and Gneezy, 2012). However, upon further investigation, we identify the sources of risk in chapter 3 where women on the board concentrate their portfolios by location and display a home bias which in turn increases a REITs risk. These findings are further re-enforced in chapter 4 where we find women on the board to lower transaction activity, display a home bias by transacting less in unfamiliar states, transacting larger properties, and by lowering activity in overconfident market states, such as bull market states where overconfident investors increase transaction activity, thereby displaying their less overconfident behaviour.

If managers simply take the view that women on the board lower risk as the theory dictates that they are more risk-averse and less overconfident, they will rather end up increasing the risk for REITs and not lowering it. Hence, the findings in this thesis are essential for REIT managers to consider both performance and risk where they could achieve higher returns with

an increase in risk. For investors, they could benefit from the superior monitoring of women on the board and help them achieve higher returns, however, at the cost of an increase in risk.

Additionally, REIT managers need to consider their portfolio allocation choices when having women on the board. Having more women on the board would result in a concentration effect of a REITs asset base which would increase the risk and in-turn the performance of the REIT. However, although women on the board seem to increase the overall risk of the REITs, they help in lowering the tail-specific risk, especially for internally managed REITs, as evidenced from chapter 5. This highlights several important implications. Firstly, having women on the board would increase the risk but also provide the REIT with an increased return. However, secondly, this increase in risk would not result in an adverse negative effect such as a crash risk but would rather help lower it. This reduction in tail-specific risk only for internally managed REITs has important implications. Since REIT managers have more power and control in internally managed REITs and not in externally managed ones which are governed by external asset managed firms (Capozza and Seguin, 2000; Nicholson and Stevens, 2022), the benefits of increased representation of women on the board would only be realised for internally managed REITs. This highlights the importance of management structure of REITs which managers need to consider in their diversity decisions in top management teams.

Furthermore, having women on the board helps in mitigating the potential negative effects of a REITs portfolio strategies. When REITs without women on the board increase property level risky strategies (i.e. concentrating by location or property size) they can experience an increase in crash risk. This is not the case for REITs with women on the board where such risky strategies do not result in a crash risk owing to their superior monitoring and their superior investment decisions. If REIT managers do wish to adopt risky property level strategies, they can do so by having women on the board which would help them achieve higher returns at a higher risk but without the negative effects of tail-specific risk.

However, REIT managers should be cautious when increasing board diversity as having existing monitoring mechanisms in place could have adverse effects in the form of an increase

in crash risk due to a phenomenon known as over-monitoring, as evidenced from the results in chapter 5 where we find an increase in exposure to highly religious states would increase crash for REITs with women on the board.

Lastly, this thesis provides evidence of important implications for policy decisions. Although certain countries have resorted to having quotas for minimum representation of women on boards (for e.g., Italy, Norway, and France) (Sila et al., 2016) such policies should be introduced with caution. Given the evidence that the effect of having women on REIT boards seems to be affected by the management structure, type of REIT (i.e. whether they are traditional or non-traditional), policy decisions should scrutinize the business case for diversity on boards and suggest quotas of minimum representation accordingly. Any policy decision should take into consideration existing monitoring mechanisms in place and test the effects of having women on the board which could enhance monitoring or result in over-monitoring if mechanisms are already in place. Policy decisions may consider a staggered approach to having women on the board rather than a one size fits all solution. However, this thesis makes a strong case for having women on corporate boards and presents a business case for their increased representation.

Overall, this thesis contributes to the existing body of literature on board gender diversity by extending the scope to a sample of US Equity REITs. This thesis makes novel contributions to the literature on monitoring mechanisms and risk-averse/ less overconfident behaviour and sheds lights on the dynamics of having women on the board. These findings have implications not just to corporations which hire directors and executives, but also has policy implications where the government would need to consider both performance and risk and the monitoring role of women when introducing quotas for minimum representation. The puzzle of women on the board is discovered to be more complex than a mere issue of equal representation and requires an in-depth scrutiny for its effective implementation.

6.2 Future research

This thesis has attempted to uncover the effects of board gender diversity on a sample of US Equity REITs. The studies in this thesis have laid the foundation taking gender diversity at the board level into account. Future research could build on the findings of the thesis and examine the effects of female CEO's and female CFOs on performance, risk, and risk management strategies. Furthermore, the studies could be further extended to include co-opted gender leadership which could examine the joint effects of executives and directors. Future research using a sample of REITs can also go beyond gender diversity and explore the effects of ethnicity, age, or other characteristics of directors and executives such as qualifications, experience, network, etc, on a REITs investment decisions. Going beyond the research questions addressed in this thesis, future research could extend the scope by examining a REITs exposure to climate risk and the moderating role of women on the board and female executives.

Given the existing findings of this thesis on risk-aversion and overconfidence where women display a home-bias and concentrate their investments, future research could further investigate this phenomenon in urban capital flows using mergers and acquisitions as a proxy for capital flow. The sample could be extended to include real estate operating companies. Building on the risk-aversion and overconfidence theory, future research could further examine global transaction activity for a sample of REITs or real estate operating companies.

Lastly, given that having women on the board could have a positive effect with superior monitoring and a negative effect in the form of over-monitoring when mechanisms are already in place, future research could test the added value of having women on the board on proxies of internal and external governance mechanisms which could help guide policy decisions for representation of women on the board.

Appendix A

Table A1 Variable description

Variable	Definition	Source
Board characteristics		
% Women	The percentage of women on the board in a fiscal year.	Boardex
Board Size	The number of directors on the board in a fiscal year.	Boardex
% Independent	The percentage of independent directors on the board in a fiscal year.	Boardex
Duality	A dummy equal to one if CEO is also the Chairman of the board and zero otherwise in a fiscal year.	Boardex
CEO Tenure	The number of years since the CEO's position in a fiscal year.	Boardex
Firm characteristics		
Firm Age	The number of years since the firm has been listed on the stock exchange in a fiscal year.	S&P Capital IQ
Ln(Assets)	The natural logarithm of book value of assets in a fiscal year.	S&P Capital IQ
Leverage	The ratio of total debt divided by total assets in a fiscal year.	S&P Capital IQ
Performance variables		
MTB	Market value of total assets divided by the book value of total assets in a fiscal year.	Compustat
ROA	The percentage of net income divided by total assets in a fiscal year.	S&P Capital IQ
ROE	The percentage of net income to shareholders equity in a fiscal year.	S&P Capital IQ
Risk variables		
IVOL	Standard deviation of the residuals times the square root of 52 in a fiscal year obtained by regressing the monthly excess returns on Fama and French three factor, five factor, and a real estate factor model.	CRSP
SVOL	Obtained by subtracting IVOL from TVOL in a fiscal year.	CRSP
TVOL	Standard deviation of the monthly excess returns times the square root of 52 in a fiscal year.	CRSP
Diversification variables		
HHI G	Herfindahl index as a measure of geographic diversification in a fiscal year.	S&P Capital IQ
DIST	Square root of distance of properties to headquarters divided by the total number of properties in a fiscal year.	S&P Capital IQ
HHI P	Herfindahl index as a measure of property type diversification in a fiscal year.	S&P Capital IQ
HHI T	Herfindahl index as a measure of tenant diversification computed using the top 30 tenants in a fiscal year.	S&P Capital IQ
Risk-adjusted return variables		
Alpha 3	The alpha coefficient obtained by regressing the monthly excess returns on Fama and French three factors in a fiscal year.	CRSP
Alpha 5	The alpha coefficient obtained by regressing the monthly excess returns on Fama and French five factors in a fiscal year.	CRSP
Alpha RE	The alpha coefficient obtained by regressing the monthly excess returns on Fama and French three factors with an additional real estate factor in a fiscal year.	CRSP

Table A2 Gender Equality Index indicators

Variables	Description
Economic Sphere	
Civilian labor force participation	Percentage of women relative to men in the labor force.
Civilian labor force in managerial and administrative positions	Percentage of women in managerial and administrative positions relative to men in non-farm occupations.
Civilian labor force members rates of employment	Percentage of employed women relative to men in the labor force.
Median income	Median income of full-time female workers relative to men.
Political Sphere	
State house offices held	Percentage of members of state house who are women relative to men.
State senate offices held	Percentage of members of state senate who are women relative to men.
Legal Sphere	
Fair Employment Practices Law	State has passed the Fair Employment Practices Act.
Fair Employment Personal Suits	Women can personally file a lawsuit under the state's Fair Employment Practices Act.
Equal Pay Law	State has passed Equal Pay Laws.
Equal Pay Personal Suits	Women can personally file a lawsuit under equal pay laws.
Public Accommodation Law	States have sex discrimination laws in public accommodations.
Housing Law	States have sex discrimination laws in housing.
Financing Law	States have sex discrimination laws in areas of financing.
Education Law	States have sex discrimination laws in education.
Civil relief for victims	Statutes that provide civil relief to victims who have been through abuse.
Abuse a crime	Statutes that define physical abuse as a criminal offense of a family member.
Warrantless Arrests	Statutes which allow warrantless arrests on probable cause of domestic violence.
M&Atory Reporting	Statutes which require reporting of family violence by relevant agencies.
Funds for shelters	Statutes that provide funds for shelters of family violence victims.
Paid Leave	Statutes which provide maternity paid leave for women.

Table A3 Board gender diversity, risk, and risk-adjusted returns FF3 factor 1

This table reports the results for the effect of women on the board on our measures of risk and risk-adjusted returns where risk and risk-adjusted returns are computed using the Fama and French 3 factor model. PEERS and GEI are used as instruments for % Women. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. TVOL is total risk and is measured as the standard deviation of a REITs excess stock price returns. IVOL is idiosyncratic risk and is measured as the standard deviation of a REITs residuals from the RE factor model. SVOL is the difference between TVOL and IVOL. Alpha RE is Jenson's alpha which is obtained from the RE factor model. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	1st Stage	**2nd Stage**		
		Risk		***Risk-Adj. Return***
	% Women	SVOL	IVOL	Alpha 3
% Women		0.005*	0.006	0.005
		(0.003)	(0.004)	(0.004)
PEERS	0.209**			
	(0.085)			
GEI	0.243**			
	(0.096)			
Board Size	0.326	0	-0.003	-0.002
	(0.219)	(0.002)	(0.003)	(0.003)
% Independent	0.061*	0	0.001	-0.000
	(0.036)	(0.000)	(0.001)	(0.000)
Duality	-0.382	0.002	-0.001	0.010
	(0.706)	(0.007)	(0.01)	(0.008)
CEO Tenure	-0.081	-0.001	0	-0.000
	(0.056)	(0.001)	(0.001)	(0.001)
Firm Age	0.748***	-0.004	-0.007*	-0.004
	(0.094)	(0.003)	(0.004)	(0.004)
Ln(Assets)	-1.083**	-0.005	0.01	0.006
	(0.528)	(0.006)	(0.009)	(0.009)
Leverage	-4.004*	0.013	0.044	0.007
	(2.360)	(0.026)	(0.037)	-0.027
MTB	1.438	-0.032***	-0.051***	
	(0.874)	(0.010)	(0.014)	
ROA	0.273	-0.012***	-0.016***	
	(0.195)	(0.002)	(0.003)	
Constant	-15.6	0.195***	0.09	0.015
	(9.800)	(0.072)	-0.103	(0.086)
Observations	990	990	990	1750

Table A3 Board gender diversity, risk, and risk-adjusted returns FF3 factor 1 (Continued)

	1st Stage	2nd Stage		
		Risk		*Risk-Adj. Return*
	% Women	SVOL	IVOL	Alpha 3
R^2		0.412	0.424	0.268
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES

Table A4 Board gender diversity, risk, and risk-adjusted returns FF3 factor 2

This table reports the results for the effect of women on the board on our measures of risk and risk-adjusted returns where risk and risk-adjusted returns are computed using the Fama and French 3 factor model. PEERS and Gay Rights are used as instruments for % Women. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. Gay Rights is the property weighted gender awareness score. TVOL is total risk and is measured as the standard deviation of a REITs excess stock price returns. IVOL is idiosyncratic risk and is measured as the standard deviation of a REITs residuals from the RE factor model. SVOL is the difference between TVOL and IVOL. Alpha RE is Jenson's alpha which is obtained from the RE factor model. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	1st Stage	**2nd Stage**		
		Risk		***Risk-Adj. Return***
Dependent Variable	% Women	SVOL	IVOL	Alpha 3
% Women		0.005*	0.009**	0.003
		(0.003)	(0.005)	(0.004)
PEERS	0.221***			
	(0.085)			
Gay Rights	0.254**			
	(0.116)			
Board Size	0.334	-0.001	-0.004	-0.001
	(0.220)	(0.002)	(0.004)	(0.003)
% Independent	0.056	0	0	-0.000
	(0.036)	(0.000)	(0.001)	(0.000)
Duality	-0.386	0.003	0	0.011
	(0.707)	(0.007)	(0.011)	(0.007)
CEO Tenure	-0.074	-0.001	0	-0.000
	(0.056)	(0.001)	(0.001)	(0.001)
Firm Age	0.790***	-0.005	-0.010**	-0.003
	(0.093)	(0.003)	(0.004)	(0.004)
Ln(Assets)	-1.070**	-0.004	0.014	0.004
	(0.528)	(0.007)	(0.010)	(0.008)
Leverage	-3.233	0.015	0.057	0.004
	(2.347)	(0.027)	(0.041)	-0.026
MTB	1.357	-0.033***	-0.056***	
	(0.875)	(0.010)	(0.015)	
ROA	0.242	-0.013***	-0.018***	
	(0.197)	(0.002)	(0.004)	
Constant	-14.032	0.196***	0.096	0.026
	(10.062)	(0.074)	(0.112)	(0.083)

Table A4 Board gender diversity, risk, and risk-adjusted returns FF3 factor 2 (Continued)

	1st Stage	**2nd Stage**		
		Risk		***Risk-Adj. Return***
Dependent Variable	% Women	SVOL	IVOL	Alpha 3
Observations	990	990	990	1750
R^2		0.373	0.314	0.299
Firm FE	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES

Table A5 Board gender diversity, performance, risk, and risk-adjusted returns LIML Gay Rights

This table presents the results for the impact of board gender diversity on REIT performance, risk, and risk-adjusted returns using an LIML approach. PEERS and Gay Rights are used as instruments. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. Gay Rights is the property weighted gender awareness score. ROA is return on assets which is the ratio of net income to total assets. ROE is return on equity which is measured as the ratio of net income to shareholders equity. TVOL is total risk and is measured as the standard deviation of a REITs excess stock price returns. IVOL is idiosyncratic risk and is measured as the standard deviation of a REITs residuals from the RE factor model. SVOL is the difference between TVOL and IVOL. Alpha RE is Jenson's alpha which is obtained from the RE factor model. % Women is the percentage of women on a REITs board. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are significance at the 1%, 5%, and 10% respectively.

	1st Stage	**2nd Stage**					
		Performance			**Risk**		**Risk-adj. return**
Dependent Variable	% Women	ROA	ROE	TVOL	SVOL	IVOL	Alpha RE
% Women		0.292***	1.118**	0.015**	0.010**	0.006	0
		(0.088)	(0.482)	(0.007)	(0.005)	(0.004)	(0.007)
PEERS	0.165***						
	(0.064)						
Gay Rights	0.222***						
	(0.085)						
Board Size	0.372**	-0.261***	-0.682**	-0.004	-0.002	-0.003	0.000
	(0.146)	(0.056)	(0.304)	(0.005)	(0.004)	(0.003)	(0.004)
% Independent	0.019	-0.011	0.023	0	0	0	-0.001
	(0.026)	(0.009)	(0.045)	(0.001)	(0.001)	(0.001)	(0.001)
Duality	0.084	0.159	0.41	0.003	0.002	0.003	0.000
	(0.477)	(0.155)	(0.818)	(0.016)	(0.011)	(0.009)	(0.012)
CEO Tenure	-0.046	0.013	0.154**	-0.001	-0.001	0	0.000
	(0.036)	(0.012)	(0.065)	(0.001)	(0.001)	(0.001)	(0.001)

Table A5 Board gender diversity, performance, risk, and risk-adjusted returns LIML Gay Rights (Continued)

	1st Stage	2nd Stage					
		Performance		Risk			Risk-adj. return
Dependent Variable	% Women	ROA	ROE	TVOL	SVOL	IVOL	Alpha RE
Firm Age	0.960***	-0.336***	-1.013**	-0.014**	-0.010**	-0.006	0.002
	(0.069)	(0.096)	(0.470)	(0.006)	(0.004)	(0.004)	(0.006)
Ln(Assets)	-1.566***	0.712***	2.258**	0.01	0.007	0.004	-0.017
	(0.380)	(0.186)	(1.031)	(0.014)	(0.010)	(0.008)	(0.013)
Leverage	-0.566	1.033*	-4.351	0.07	0.023	0.052	-0.013
	(1.647)	(0.536)	(2.878)	(0.058)	(0.040)	(0.034)	(0.041)
MTB				-0.088***	-0.040***	-0.055***	
				(0.021)	(0.015)	(0.013)	
ROA				-0.030***	-0.021***	-0.010***	
				(0.005)	(0.003)	(0.003)	
Constant	-9.597	-0.342	-13.939	0.268*	0.171	0.131	0.248*
	(7.590)	(1.679)	(9.807)	(0.158)	(0.108)	(0.093)	(0.131)
Observations	1749	1749	1746	990	990	990	1750
R^2		0.685	0.192	0.802	0.643	0.786	0.140
Firm FE	YES	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES	YES

Table A6 Board gender diversity and measures of concentration LIML Gay Rights

This table presents the results for the impact of board gender diversity on our measures of concentration using an LIML approach. PEERS and Gay Rights are used as instruments for % Women. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. Gay Rights is the property weighted gender awareness score. HHI G is a Herfindahl index which measures the concentration of a REITs properties by geography. DIST is the average square root of distance of a REITs properties to its headquarters. HHI P is a Herfindahl index which measures the concentration of a REITs properties by property type. HHI T is a Herfindahl index which measures the concentration of a REITs tenants based on the top 30 tenants. % Women is the percentage of women on a REITs board. PEERS is the percentage of women in a REITs sub-industry excluding the REIT itself. GEI is the property weighted gender equality index. Board Size is the total number of board members on a REITs board. % Independent is the percentage of independent directors on a REITs board. Duality is a dummy equal to 1 if the CEO is also the Chairman of the board and 0 otherwise. CEO Tenure is the number of years since the CEO has been appointed. Firm Age is the years since the REIT has been listed on the stock exchange. Ln(Assets) is the natural logarithm of book value of assets. Leverage is the ratio of total debt to total assets. MTB is the market to book ratio measured as the ratio of market value to book value of assets. ROA is return on assets which is the ratio of net income to total assets. A detailed description of variables is provided in Appendix A Table A1. Standard errors are significance at the 1%, 5%, and 10% respectively.

	1st Stage	**2nd Stage**			
Dependent Variable	% Women	HHI G	DIST	HHI P	HHI T
% Women		0.037***	-1.841**	-0.001	0.002
		(0.014)	(0.784)	(0.003)	(0.003)
PEERS	0.224***				
	(0.085)				
Gay Rights	0.258**				
	(0.117)				
Board Size	0.341	-0.016*	0.822*	-0.001	-0.001
	(0.219)	(0.009)	(0.484)	(0.002)	(0.002)
% Independent	0.055	-0.001	0.072	0.001***	0
	(0.036)	(0.002)	(0.076)	(0.000)	(0.000)
Duality	-0.592	0.019	0.038	0.012	0.017***
	(0.704)	(0.026)	(1.270)	(0.007)	(0.006)
CEO Tenure	-0.07	0.002	-0.114	0	0
	(0.056)	(0.002)	(0.118)	(0.001)	(0.001)

Table A6 Board gender diversity and measures of concentration LIML Gay Rights (Continued)

	1st Stage		2nd Stage		
Dependent Variable	% Women	HHI G	DIST	HHI P	HHI T
Firm Age	0.781***	-0.035***	1.855**	0.006**	-0.001
	(0.094)	(0.013)	(0.747)	(0.003)	(0.003)
Ln(Assets)	-1.068**	0.022	-2.297*	-0.012*	-0.033***
	(0.526)	(0.024)	(1.293)	(0.006)	(0.005)
Leverage	-3.472	0.05	-6.302	-0.091***	-0.077***
	(2.341)	(0.100)	(5.631)	(0.027)	(0.026)
MTB	1.798**	-0.061	2.417	0.003	-0.002
	(0.851)	(0.038)	(1.972)	(0.010)	(0.012)
ROA	0.269	-0.011	0.577	0.005**	-0.009*
	(0.197)	(0.009)	(0.467)	(0.002)	(0.005)
Constant	-13.9	0.837***	15.347	0.999***	0.562***
	(10.061)	(0.250)	(12.623)	(0.081)	(0.056)
Observations	996	996	982	996	515
R^2		0.494	0.866	0.994	0.766
Firm FE	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES

Appendix B

Table B1 Variable description

Variable	Definition	Source
Dependent variables		
ACQ	The percentage of acquisitions scaled by the average assets in the current and previous year.	S&P Capital IQ
DISP	The percentage of dispositions scaled by the average assets in the current and previous year.	S&P Capital IQ
OVERALL	The percentage of acquisitions plus dispositions scaled by the average assets in the current and previous year.	S&P Capital IQ
D_ACQ	The square root of distance to acquisitions scaled by the number of properties in a given year.	S&P Capital IQ
D_DISP	The square root of distance to dispositions scaled by the number of properties in a given year.	S&P Capital IQ
D_OVERALL	The square root of distance to acquisitions plus dispositions scaled by the number of properties in a given year.	S&P Capital IQ
C_ACQ	The percentage of acquisitions in states where the REIT is not headquartered scaled by the average assets in the current and previous year.	S&P Capital IQ
C_DISP	The percentage of dispositions in states where the REIT is not headquartered scaled by the average assets in the current and previous year.	S&P Capital IQ
C_OVERALL	The percentage of acquisitions plus dispositions in states where the REIT is not headquartered scaled by the average assets in the current and previous year.	S&P Capital IQ
H_ACQ	The percentage of acquisitions in states where the REIT is headquartered scaled by the average assets in the current and previous year.	S&P Capital IQ
H_DISP	The percentage of dispositions in states where the REIT is headquartered scaled by the average assets in the current and previous year.	S&P Capital IQ
H_OVERALL	The percentage of acquisitions plus dispositions in states where the REIT is headquartered scaled by the average assets in the current and previous year.	S&P Capital IQ
LS_ACQ	A dummy equal to 1 if a REIT acquires above median size of property and 0 if below median in a given year.	S&P Capital IQ
LS_DISP	A dummy equal to 1 if a REIT disposes above median size of property and 0 if below median in a given year.	S&P Capital IQ
LS_OVERALL	A dummy equal to 1 if a REIT acquires or disposes above median size of property and 0 if below median in a given year.	S&P Capital IQ
BB_ACQ	A dummy equal to 1 if a REIT acquires in a bull market state and 0 if a bear market state.	S&P Capital IQ
BB_DISP	A dummy equal to 1 if a REIT divests in a bull market state and 0 if a bear market state.	S&P Capital IQ
BB_OVERALL	A dummy equal to 1 if a REIT acquires or divests a property in a bull market state and 0 if a bear market state.	S&P Capital IQ
Key independent variables		
WOMEN	The percentage of women on a REITs board in a fiscal year.	Boardex
Control variables		
BSIZE	The number of directors on a REITs board in a fiscal year.	Boardex
IND	The percentage of independent directors on a REITs board in a fiscal year.	Boardex
DUAL	A dummy equal to 1 if the CEO is the Chairman of a REITs board and 0 otherwise in a fiscal year.	Boardex
CTENURE	Years since the CEO's position in a fiscal year	Boardex

Table B1 Variable description (Continued)

Variable	Definition	Source
Dependent variables		
AGE	Years since the firm has been listed on the stock exchange in a fiscal year.	S&P Capital IQ
SIZE	The natural logarithm of book value of assets in a fiscal year.	S&P Capital IQ
LEVERAGE	Total debt scaled by total assets in a fiscal year.	S&P Capital IQ
MTB	Market value of a REITs assets scaled by the book value of assets in a fiscal year.	Compustat
ROA	Net income scaled by total assets in a fiscal year expressed as a percentage.	S&P Capital IQ
CAPEX	The dollar amount of capital expenditure for a REIT in a fiscal year.	S&P Capital IQ
LIQUIDITY	The dollar amount of cash and equivalents for a REIT in a fiscal year.	Compustat
RETURN	A value-weighted market return portfolio in a fiscal year.	CRSP

Appendix C

Table C1 Variable description

Variable	Definition	Source
Dependent variables		
$NSKEW_t$	The negative coefficient of skewness of REIT specific weekly returns in a fiscal year.	CRSP
$DUVOL_t$	The natural logarithm of the standard deviation of REIT specific weekly returns for down weeks scaled by the standard deviation of REIT specific weekly returns for up weeks in a fiscal year.	CRSP
Key independent variables		
$WOMEN_{t-1}$	The lagged percentage of women on a REITs board in a fiscal year.	Boardex
HHI G_{t-1}	Lagged measure of geographic concentration created using the Herfindahl index for each REIT in a fiscal year.	S&P Capital IQ
HHI P_{t-1}	Lagged measure of property-type concentration created using the Herfindahl index for each REIT in a fiscal year.	S&P Capital IQ
HHI T_{t-1}	Lagged measure of tenant concentration created using the Herfindahl index for each REIT in a fiscal year.	S&P Capital IQ
$PROP_{t-1}$	Lagged measure of the natural logarithm of average property size for each REIT in a fiscal year.	S&P Capital IQ
$RELIGION_{t-1}$	Lagged measure of the property weighted religiosity score for each REIT in a fiscal year for each of the 50 states in the US.	S&P Capital IQ; Pew Research
Control variables		
$BSIZE_{t-1}$	The lagged number of directors on a REITs board in a fiscal year.	Boardex
$SIZE_{t-1}$	The lagged natural logarithm of book value of assets in a fiscal year.	S&P Capital IQ
$LEVERAGE_{t-1}$	Lagged total debt scaled by total assets in a fiscal year.	S&P Capital IQ
MTB_{t-1}	Lagged market value of a REITs assets scaled by the book value of assets in a fiscal year.	Compustat
ROA_{t-1}	Lagged net income scaled by total assets in a fiscal year expressed as a percentage.	S&P Capital IQ
$VOLATILITY_{t-1}$	Lagged standard deviation of a REITS stock returns in a fiscal year.	CRSP
$TURNOVER_{t-1}$	Lagged average monthly stock turnover in fiscal year t minus in year t-1.	Compustat

Table C2 Board gender diversity and stock price crash risk location-weighted factor

This table presents the results for the effects of percentage of women on the board on stock price crash risk including a location-weighted factor- $EMPLOYMENT_{t-1}$. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. GEI_{t-1} is the lagged property weighted gender equality index. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$
		Panel A: GEI_{t-1}			***Panel B: $RIGHTS_{t-1}$***	
$WOMEN_{t-1}$		-0.024	-0.028		-0.025	-0.028
		(0.018)	(0.017)		(0.018)	(0.018)
$PEERS_{t-1}$	0.387***			0.407***		
	(0.078)			(0.078)		
GEI_{t-1}	0.170**					
	(0.081)					
$RIGHTS_{t-1}$				0.133		
				(0.106)		
$BSIZE_{t-1}$	0.038	0.033*	0.043**	0.031	0.033*	0.043**
	(0.199)	(0.019)	(0.019)	(0.199)	(0.019)	(0.019)
$SIZE_{t-1}$	2.377***	0.097	0.11	2.465***	0.103	0.112
	(0.491)	(0.077)	(0.076)	(0.489)	(0.080)	(0.079)
$LEVERAGE_{t-1}$	-4.326**	-0.619***	-0.444*	-4.114*	-0.627***	-0.447*
	(2.148)	(0.229)	(0.228)	(2.164)	(0.232)	(0.230)
MTB_{t-1}	4.474***	0.214*	0.231*	4.532***	0.224*	0.234*
	(0.837)	(0.130)	(0.128)	(0.838)	(0.134)	(0.132)
ROA_{t-1}	-0.787***	-0.017	-0.02	-0.797***	-0.018	-0.021
	(0.167)	(0.023)	(0.022)	(0.170)	(0.023)	(0.023)
$VOLATILITY_{t-1}$	8.669	-2.087	-2.04	7.693	-2.068	-2.033
	(14.537)	(1.430)	(1.427)	(14.554)	(1.437)	(1.431)
$TURNOVER_{t-1}$	-0.64	0.368	0.218	-0.777	0.368	0.218
	(2.568)	(0.250)	(0.250)	(2.571)	(0.251)	(0.251)
$EMPLOYMENT_{t-1}$	0.077	-0.025	-0.024	0.085	-0.025	-0.024
	(0.211)	(0.021)	(0.021)	(0.211)	(0.021)	(0.021)
$CONSTANT_{t-1}$	-35.011***	-1.144	-1.527	-31.871***	-1.207	-1.55
	(9.256)	(0.971)	(0.963)	(9.923)	(1.000)	(0.988)
Observations	974	974	974	974	974	974
R^2		0.229	0.233		0.224	0.231
F-statistic	15.400			13.950		
Anderson (p-val)		0.000	0.000		0.000	0.000
Sargan (p-val)		0.093	0.244		0.021	0.083

Table C2 Board gender diversity and stock price crash risk location-weighted factor (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$
	Panel A: GEI_{t-1}			***Panel B: $RIGHTS_{t-1}$***		
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	2nd stage IV	1st stage IV	2nd stage IV	2nd stage IV

Table C3 Board gender diversity and stock price crash risk internally managed REITs location-weighted factor

This table reports the results for the effects of percentage of women on the board on stock price crash risk for REITs which are internally managed including a location-weighted factor- $EMPLOYMENT_{t-1}$. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. GEI_{t-1} is the lagged property weighted gender equality index. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$
		Panel A: GEI_{t-1}			***Panel B: $RIGHTS_{t-1}$***	
$WOMEN_{t-1}$		-0.045**	-0.044**		-0.053***	-0.050**
		(0.018)	(0.018)		(0.020)	(0.020)
$PEERS_{t-1}$	0.462***			0.486***		
	(0.101)			(0.101)		
GEI_{t-1}	0.182*					
	(0.100)					
$RIGHTS_{t-1}$				0.104		
				(0.142)		
$BSIZE_{t-1}$	-0.036	0.016	0.03	-0.041	0.015	0.029
	(0.230)	(0.021)	(0.022)	(0.230)	(0.022)	(0.022)
$SIZE_{t-1}$	1.954***	0.167**	0.168**	2.021***	0.195**	0.190**
	(0.601)	(0.080)	(0.080)	(0.602)	(0.086)	(0.085)
$LEVERAGE_{t-1}$	-5.639*	-0.508*	-0.36	-5.811**	-0.565*	-0.404
	(2.906)	(0.297)	(0.300)	(2.952)	(0.311)	(0.311)
MTB_{t-1}	5.056***	0.436***	0.410***	5.137***	0.493***	0.454***
	(1.023)	(0.156)	(0.156)	(1.025)	(0.168)	(0.166)
ROA_{t-1}	-1.246***	-0.075**	-0.068**	-1.235***	-0.087**	-0.077**
	(0.222)	(0.033)	(0.033)	(0.225)	(0.035)	(0.035)
$VOLATILITY_{t-1}$	-4.668	-6.993***	-6.319***	-7.479	-6.988***	-6.325***
	(21.030)	(1.931)	(1.962)	(21.031)	(1.999)	(2.013)
$TURNOVER_{t-1}$	0.898	0.893***	0.661**	0.736	0.906***	0.673**
	(2.968)	(0.276)	(0.282)	(2.973)	(0.286)	(0.289)
$EMPLOYMENT_{t-1}$	-0.163	-0.049**	-0.044*	-0.166	-0.050**	-0.046*
	(0.263)	(0.025)	(0.025)	(0.264)	(0.026)	(0.026)
$CONSTANT_{t-1}$	-26.286**	-1.624	-1.945*	-19.973	-1.901*	-2.161**
	(11.792)	(1.000)	(1.010)	(12.983)	(1.059)	(1.059)
Observations	762	762	762	762	762	762
R^2		0.155	0.187		0.095	0.144
F-statistic	12.990			11.540		
Anderson (p-val)		0.000	0.000		0.000	0.000

Table C3 Board gender diversity and stock price crash risk internally managed REITs location-weighted factor (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$
		Panel A: GEI_{t-1}			***Panel B: $RIGHTS_{t-1}$***	
Sargan (p-val)		0.084	0.186		0.195	0.366
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	2nd stage IV	1st stage IV	2nd stage IV	2nd stage IV

Table C4 Board gender diversity and stock price crash risk externally managed REITs location-weighted factor

This table presents the results for the effects of percentage of women on the board on stock price crash risk for REITs that are externally managed including a location-weighted factor- $EMPLOYMENT_{t-1}$. $NSKEW_t$ is the negative conditional skewness of REIT specific weekly returns in a given year and is a measure of stock price crash risk. $DUVOL_t$ is the ratio of the natural logarithm of standard deviation of REIT specific weekly returns for down weeks to the standard deviation of returns in up weeks and is a measure of crash risk. $PEERS_{t-1}$ is the lagged percentage of women in a REITs sub-industry excluding the REIT itself. GEI_{t-1} is the lagged property weighted gender equality index. $WOMEN_{t-1}$ is the lagged percentage of women on a REITs board. $BSIZE_{t-1}$ is the lagged total number of board members on a REITs board. $SIZE_{t-1}$ is the lagged natural logarithm of book value of assets. $LEVERAGE_{t-1}$ is the lagged ratio of total debt to total assets. MTB_{t-1} is the lagged market to book ratio measured as the ratio of market value to book value of assets. ROA_{t-1} is the lagged return on assets which is the ratio of net income to total assets. $VOLATILITY_{t-1}$ is the lagged standard of deviation of REIT weekly returns in a given year. $TURNOVER_{t-1}$ is the lagged difference in average monthly stock turnover in the current and previous period. A detailed description of variables is provided in Appendix C Table C1. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$
		Panel A: GEI_{t-1}			***Panel B: $RIGHTS_{t-1}$***	
$WOMEN_{t-1}$		0.072	0.046		0.095	0.077
		(0.101)	(0.092)		(0.112)	(0.106)
$PEERS_{t-1}$	0.131			0.139		
	(0.111)			(0.111)		
GEI_{t-1}	0.1					
	(0.147)					
$RIGHTS_{t-1}$				0.078		
				(0.156)		
$BSIZE_{t-1}$	0.418	0.037	0.035	0.397	0.028	0.02
	(0.412)	(0.070)	(0.068)	(0.410)	(0.076)	(0.075)
$SIZE_{t-1}$	1.68	-0.05	0.017	1.764	-0.096	-0.039
	(1.189)	(0.257)	(0.224)	(1.213)	(0.281)	(0.249)
$LEVERAGE_{t-1}$	-3.432	-0.768	-0.557	-3.029	-0.692	-0.454
	(3.423)	(0.564)	(0.517)	(3.323)	(0.608)	(0.565)
MTB_{t-1}	3.786*	-0.312	-0.208	3.725*	-0.403	-0.334
	(1.988)	(0.479)	(0.448)	(1.985)	(0.525)	(0.503)
ROA_{t-1}	0.157	0.028	0.019	0.127	0.024	0.014
	(0.276)	(0.042)	(0.039)	(0.282)	(0.045)	(0.042)
$VOLATILITY_{t-1}$	29.542	-0.13	-0.358	29.925*	-0.853	-1.369
	(18.049)	(4.009)	(3.763)	(18.044)	(4.384)	(4.209)
$TURNOVER_{t-1}$	-2.81	-1.033	-1.036	-2.865	-0.967	-0.957
	(6.561)	(0.968)	(0.874)	(6.575)	(1.028)	(0.935)
$EMPLOYMENT_{t-1}$	0.426	-0.063	-0.053	0.461	-0.074	-0.067
	(0.333)	(0.066)	(0.058)	(0.329)	(0.072)	(0.065)
$CONSTANT_{t-1}$	-38.824**	1.109	-0.006	-37.470*	1.914	1.033
	(18.222)	(3.981)	(3.547)	(19.057)	(4.389)	(4.003)
Observations	198	198	198	198	198	198
R^2		0.234	0.260		0.144	0.162
F-statistic	0.990			0.880		
Anderson (p-val)		0.290	0.298		0.331	0.355

Table C4 Board gender diversity and stock price crash risk externally managed REITs location-weighted factor (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$	$WOMEN_{t-1}$	$NSKEW_t$	$DUVOL_t$
		Panel A: GEI_{t-1}			***Panel B: $RIGHTS_{t-1}$***	
Sargan (p-val)		0.310	0.651		0.082	0.162
Firm FE	YES	YES	YES	YES	YES	YES
Time Effects	YES	YES	YES	YES	YES	YES
Regression type	1st stage IV	2nd stage IV	2nd stage IV	1st stage IV	2nd stage IV	2nd stage IV

References

Adams, R. B., and Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94, 291-309.

Adams, R. B., and Ragunathan, V., (2017). Lehman sisters. SSRN. Available at: http://dx.doi.org/10.2139/ssrn.3046451 [Accessed Dec 2019].

Adhikari, B. K. and Agarwal, A. (2016). Does local religiosity matter for bank risk-taking? *Journal of Corporate Finance*, 38, 272-293.

Aggarwal, R.K. and Samwick, A.A. (1999). Executive Compensation, Strategic Competition, and Relative Performance Evaluation: Theory and Evidence. *The Journal of Finance*, 54(6), 1999-2043.

Ahmed, Y., Song, Y. and Elsayed, M. (2022). On the likelihood and type of merger and acquisition in the US listed companies: the role of females on the board. *International Journal of Accounting and Information Management*, 30(3), 391-407.

Alicke, M. D., Klotz, M. L., Breitenbecher, D. L.,Yurak, T. J., and Vredenburg, D. S. (1995). Personal contact, individuation, and the better-than-average effect. *Journal of Personality and Social Psychology*, 68(5), 804-825.

Anderson, T. W. (2005). Origins of the limited information maximum likelihood and two-stage least squares estimators. *Journal of Econometrics*, 127, 1-16.

Arano, K., Parker, C., and Terry, R. (2010). Gender-Based Risk Aversion and Retirement Asset Allocation. *Economic Enquiry*, 48(1), 147-155.

Barber, B. M., and Odean, T. (2001). Boys Will be Boys: Gender, Overconfidence, and Common Stock Investment. *The Quarterly Journal of Economics*, 116 (1), 261- 292.

Bauer, R., Eichholtz, P, and Kok, N. (2010). Corporate Governance and Performance: The REIT Effect. *Real Estate Economics*, 38(1), 1-29.

Becker, G. (1964). Human capital. Chicago, IL: *University of Chicago Press.*

Bengtsson, C., Persson, M., and Willenhag, P. (2005). Gender and overconfidence. *Economics Letters*, 86(2), 199-203.

Berger, A. N., Kick, T., Schaeck, K. (2014). Executive board composition and bank risk taking. *Journal of Corporate Finance*, 28, 48-65.

Berger, P. G. and Ofek, E. (1995). Diversification's effect on firm value. *Journal of Financial Economics*, 37, 39-65.

Bernasek, A. and Shwiff, S. (2001). Gender, Risk, and Retirement. *Journal of Economic Issues*, 35(2), 345-356.

Bernile, G., Bhagwat, V. and Yonker, S. (2018). Board diversity, firm risk, and corporate policies. *Journal of Financial Economics*, 127, 588-612.

Bianco, C., Ghosh, C., and Sirmans, C.F. (2007). The Impact of Corporate Governance on the Performance of REITs. *Journal of Portfolio Management*, 33, 175-191.

Bielstein, P., Fischer, M., and Kaserer, C. (2018). The cost of capital effect of M&A transactions: disentangling coinsurance from the diversification discount. *European Financial Management*, 24, 650-679.

Billig, M., and Tajfel, H. (1973). Social categorization and similarity in intergroup behaviour. *European Journal of Social Psychology*, 3, 27-52.

Bodie, Z., Kane, A., and Marcus, A. J. (2020). Investments. *12th ed. Boston: McGraw-Hill Education*.

Brounen, D., Eichholtz, P., and Ling, D. C. (2007). Trading Intensity and Real Estate Performance. *The Journal of Real Estate Finance and Economics*, 35, 449-474.

Bry, G. and Boschan, C. (1971). Cyclical Analysis of Time Series: Selected Procedures and Computer Programs. *NBER*.

Callen, J. L. and Fang, X. (2015). Religion and Stock Price Crash Risk. *Journal of Financial and Quantitative Analysis*, 50(1-2), 169-195.

Campbell, K. and Minguez-Vera, A. (2008). Gender diversity in the boardroom and firm financial performance. *Journal of Business Ethics*, 83, 435-451.

Campbell, R. D., Petrova, M., and Sirmans, C. F. (2003). Wealth effects of diversification and financial deal structuring: evidence from REIT property portfolio acquisitions. *Real Estate Economics*, 31(3), 347-366.

Campbell, R. D., Petrova, M., and Sirmans, C.F. (2006). Value Creation in REIT Property Sell-Offs. *Real Estate Economics*, 34(2), 329-342.

Capozza, D. R. and Seguin, P. J. (1999). Focus, Transparency and Value: The REIT Evidence. *Real Estate Economics*, 27(4), 587-619.

Capozza, D. R. and Seguin, P. J. (2000). Debt, Agency, and Management Contracts in REITs: The External Advisor Puzzle. *Journal of Real Estate Finance and Economics*, 20(2), 91-116.

Capozza, D.R. and Seguin, P. J. (2003). Inside Ownership, Risk Sharing and Tobin's q-Ratios: Evidence from REITs. *Real Estate Economics*, 31, 367-404.

Carter, D. A., Simkins, B. J., and Simpson, W. G. (2003). Corporate governance, board diversity, and firm value. *Financial Review*, 38, 33-53.

Carter, D., D'Souza, F., Simkins, B. and Simpson, W. (2010). The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance. *Corporate Governance: An International Review*, 18(5), 396-414.

Chang, X., Chen, Y., and Zolotoy, L. (2017). Stock Liquidity and Stock Price Crash Risk. *Journal of Financial and Quantitative Analysis*, 52(4), 1605-1637.

Charness, G. and Gneezy, U. (2012). Strong Evidence for Gender Differences in Risk Taking. *Journal of Economic Behaviour and Organisation*, 83, 50-58.

Chen, G., Crossland, C., and Huang, S. (2016). Female Board Representation and Corporate Acquisition Intensity. *Strategic Management Journal*, 37, 303–313.

Chen, J., Hong, H., and Stein, J. C. (2001). Forecasting crashes: trading volume, past returns, and conditional skewness in stock prices. *Journal of Financial Economics*, 61, 345-381.

Chuang, W. and Lee, B. (2006). An empirical evaluation of the overconfidence hypothesis, *Journal of Banking and Finance*, 30(9), 2489-2515.

Cox, T. and Blake, S. (1991). Managing Cultural Diversity: Implications for Organizational Competitiveness. *The Executive*, 5(3), 45-56.

Cox, T., Lobel, S., and McLeod, P. (1991). Effects of ethnic group cultural differences on cooperative and competitive behaviour on a group task. *Academy of Management Journal*, 34, 827-847.

Cronqvist, H., Hogfeldt, P., and Nilssion, M. (2001). Why Agency Costs Explain Diversification Discounts. *Real Estate Economics*, 29(1), 85-126.

Croson, R. and Gneezy, U. (2009). Gender Differences in Preferences. *Journal of Economic Literature*, 47(2), 448-474.

Cunnigham, C. P. (1988). The Golden Rule as Universal Ethical Norm. *Journal of Business Ethics*, 17, 105-109.

Dang, V. A., Lee, E., Liu, Y., and Zeng, C. (2022). Bank deregulation and stock price crash risk. *Journal of Corporate Finance*, 72, 102148.

Datta, S. and Iskandar-Datta, M. E. (1996). Who Gains from Corporate Asset Sales. *The Journal of Financial Research*, 19(1), 41-58.

Datta, S., Iskandar-Datta, M., and Raman, K. (2003). Value creation in corporate asset sales: The role managerial performance and lender monitoring. *Journal of Banking and Finance*, 27, 351-375.

Deaux, A. and Farris, E. (1977). Attributing causes for one's own performance: The effects of sex, norms, and outcome. *Journal of Research in Personality*, 11(1), 59-72.

Devine, A., Jolin, I., Kok, N. and Yonder E. (2024). How Gender Diversity Shapes Cities: Evidence from Risk Management Decisions in REITs. *Journal of Business Ethics*, 189, 723–741.

Dimovski, B., Lombardi, L., Ratcliffe, C., and Cooper, B. J. (2014). Women directors and Australian REIT performance. *Pacific Rim Property Research Journal*, 20(1), 3-11.

Dowling, M. and Aribi, Z. A. (2013). Female directors and UK company acquisitiveness. *International Review of Financial Analysis*, 29, 79-86.

Eichholtz, P., Holtermans, R., and Yonder, E. (2016). The economic effects of owner distance and local property management in US office markets. *Journal of Economic Geography*, 16(4), 781-803.

Eichholtz, P. and Yonder, E. (2015). CEO Overconfidence, REIT Investment Activity and Performance. *Real Estate Economics*, 43(1), 139-162.

Elyasiani, E. and Jia, J. (2010). Distribution of institutional ownership and corporate firm performance. *Journal of Banking and Finance*, 34(3), 606-620.

Erhardt, N. L., Werbel, J. D., and Shrader, C. B. (2003). Board of director diversity and firm financial performance. *Corporate Governance*, 11, 102-111.

Faccio, M., Marchica, M., and Mura, R. (2016). CEO gender, corporate risk-taking, and the efficiency of capital allocation. *Journal of Corporate Finance*, 39, 193-209.

Fama, E. F. and French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33, 3-56.

Fama, E. F. and French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics*, 116, 1-22.

Fama, E. F. and Jensen, M. C. (1983). Separation of Ownership and Control. *The Journal of Law and Economics*, 26(2), 301-325.

Feng, Z. Ghosh, C., and Sirmans, C. F. (2005). How important is board of directors to REIT performance? *Journal of Real Estate Portfolio Management*, 11(3), 281-293.

Feng, Z., Miller, S., Tirtiroglu, D. (2021). U.S. Reit Industry Profitability: A Bennet Decomposition of Industry Dynamics. *International Journal of Strategic Property Management*, 25(4), 316-331.

Florin, B., Hallock, K. F., and Webber, D. (2010). Executive pay and firm performance: methodological considerations and future directions. *Research in Personnel and Human Resource Human Management*, 29, 49-86.

Francis, B., Hasan, I., Park, J. C., and Wu, Q. (2015). Gender Differences in Financial Reporting Decision Making: Evidence from Accounting Conservatism. *Contemporary Accounting Research*, 32(3), 1285-1318.

Freeman, R.E (1984). Strategic Management: A stakeholder Approach. *Boston, MA: Pitman.*

Gervais, S. and Odean, T. (2001). Learning to Be Overconfident. *The Review of Financial Studies*, 14(1), 1-27.

Ghosh, C. and Sirmans, C. F. (2003). Board Independence, Ownership Structure and Performance: Evidence from Real Estate Investment Trusts. *Journal of Real Estate Finance and Economics*, 26(2/3), 287-318.

Ghosh, C. and Sirmans, C. F. (2005). On REIT CEO Compensation: Does Board Structure Matter? *The Journal of Real Estate Finance and Economics*, 30, 397-428.

Ghosh, C. and Sirmans, C. F. (2006). Do Managerial Motives Impact Dividend Decisions in REITs? *The Journal of Real Estate Finance and Economics*, 32, 327-355.

Gillan, S. L. and Starks, L. T. (1998). A survey of shareholder activism: motivation and empirical evidence. *Contemporary Finance Digest*, 2(3), 10-34.

Glascock, J. L., Davidson, W. N., and Sirmans, C. F. (1991). The Gains from Corporate Selloffs: The Case of Real Estate Assets. *Real Estate Economics*, 19(4), 473-600.

Guthrie, S. E. (1996). Religion: What Is It? *Journal of Scientific Study of Religion*, 35(4), 412-419.

Habib, A., Hasan, M. M., and Jiang, H. (2018). Stock price crash risk: review of the empirical literature. *Accounting and Finance*, 58, 211-251.

Han, B. (2006). Insider Ownership and Firm Value: Evidence from Real Estate Investment Trusts. *The Journal of Real Estate Finance and Economics*, 32, 471–493.

Hart, O.D. (1983). The market mechanism and incentive scheme. *The Bell Journal of Economics*, 14(2), 366-382.

Hartzell, J.C., Kallberg, J. G., and Liu, C. H. (2008). The Role of Corporate Governance in Initial Public Offerings: Evidence from Real Estate Investment Trusts. *The Journal of Law and Economics*, 51(3), 539-562.

Hartzell, J. C., Sun, L., and Titman, S. (2014). Institutional investors as monitors of corporate diversification decisions: Evidence from real estate investment trusts. *Journal of Corporate Finance*, 25, 61-72.

Hillman, A. J. and Dalziel, T. (2003). Boards of Directors and Firm Performance: Integrating Agency and Resource Dependence Perspectives. *The Academy of Management Review*, 28(3), 383-396.

Hillman, A. J., Shropshire, C., and Cannella, A. A. (2007). Organisational Predictors of Women on Corporate Boards. *The Academy of Management Journal*, 50(4), 941–952.

Hillman, A. J., Withers, M. C., and Collins, B. J. (2009). Resource Dependence Theory: A Review. *Journal of Management*, 35(6), 1404-1427.

Hogan, R. and Huerta, D. (2019). The impact of gender and ethnicity on REIT operating performance. *Managerial Finance*, 45(1), 72-84.

Hornsey, M. J. (2008). Social Identity Theory and Self-categorization Theory: A Historical Review. *Social and Personality Psychology Compass*, 2(1), 204–222.

Hsieh, C. and Peterson, J. D. (2000). Book Assets, Real Estate, and Returns on Common Stock. *Journal of Real Estate Finance and Economics*, 21(3), 221-233.

Huang, J. and Kisgen, D. J. (2013). Gender and corporate finance: Are male executives overconfident relative to female executives? *Journal of Financial Economics*, 108, 822-839.

Hutton, A. P., Marcus, A. J., and Tehranian, H. (2009). Opaque financial reports, R^2, and crash risk. *Journal of Financial Economics*, 94(1), 67-86.

Jensen, M. C. (1986). Agency Cost of Free Cash Flow, Corporate Finance, and Takeovers. *American Economic Review*, 76(2), 323-329.

Jensen, M.C., and Meckling, W. (1976). Theory of the firm: managerial behavior, agency costs, and capital structure. *Journal of Financial Economics*, 3, 305-360.

Jensen, M. C. and Murphy, K. J. (1990). CEO Incentives- It's Not How Much You Pay, But How. *Harvard Business Review*, 3, 138-153.

Jin, L. and Myers, S. C. (2006). R^2 around the world: New theory and new tests. *Journal of Financial Economics*, 79, 257-292.

Kanter, R. M. (1977). Some Effects of Proportions on Group Life: Skewed Sex Ratios and Responses to Token Women. *American Journal of Sociology*, 82(5), 965-990.

Kennedy, E. J. and Lawton, L. (1998). Religiousness and Business Ethics. *Journal of Business Ethics*, 17, 163-175.

Kim, J., Li, Y., and Zhang, L. (2011). Corporate tax avoidance and stock price crash risk: Firm-level analysis. *Journal of Financial Economics*, 100(3), 639-662.

Kim, J., Wang, Z., and Zhang, L. (2015). CEO Overconfidence and Stock Price Crash Risk. *Contemporary Accounting Research*, 33(4), 1720-1749.

Kim, Y., Li, H., and Li, S. (2014). Corporate social responsibility and stock price crash risk. *Journal of Banking and Finance*, 43, 1-13.

Konrad, A., Kramer, V. and Erkut, S. (2008). The Impact of Three or More Women on Corporate Boards. Organizational Dynamics, 37(2), 145-164.

Kothari, S. P., Shu, S., and Wysocki, P. D. (2009). Do Managers Withhold Bad News? *Journal of Accounting Research*, 47(1), 241-276.

Kruger, J. (1999). Lake Wobegon be gone! The "below-average effect" and the egocentric nature of comparative ability judgments. *Journal of Personality and Social Psychology*, 77(2), 221-232.

Lax, J. R. and Phillips, J. H. (2009). Gay Rights in the States: Public Opinion and Policy Responsiveness. *American Political Science Review*, 103(3).

Lehrer, E. L. (2004). Religion as a Determinant of Economic and Demographic Behaviour in the United States. *Population and Development Review*, 30, 707-726.

Lenard, J. M., Yu, B. E., York, A. E., and Wu, S. (2014), Impact of board gender diversity on firm risk. *Managerial Finance*, 40(8), 787-803.

Levin, I. P., Snyder, M. A., and Chapman, D. P. (1988). The Interaction of Experiential and Situational Factors and Gender in a Simulated Risky Decision-Making Task. *The Journal of Psychology*, 122(2), 173-181.

Levi, M., Li, K., and Zhang, F. (2014). Director gender and mergers and acquisitions. *Journal of Corporate Finance*, 28, 185-200.

Li, Q., Ling, D. C., Mori, M., and Ong, S. E. (2020). The Wealth Effects of REIT Property Acquisitions and Dispositions: the Creditors' Perspective. *The Journal of Real Estate Finance and Economics*, 60, 308-337.

Li, Y. and Zeng, Y. (2019). The impact of top executive gender on asset prices: Evidence from stock price crash risk. *Journal of Corporate Finance*, 58, 528-550.

Ling, D. C., Marcato, G., and Zheng, C. (2022). Does asset location and concentration explain REIT IPO valuation? *Real Estate Economics*, 50(3), 672-706.

Lipka, M. and Wormald, B. (2016). How religious is your state? Pew Research Center. [online] Available at: https://www.pewresearch.org/short-reads/2016/02/29/how-religious-is-your-state/?state=alabama [Accessed Dec 2019].

Liu, Y., Wei, Z., and Xie, F. (2014). Do women directors improve firm performance in China? *Journal of Corporate Finance*, 28, 169-184.

Malmendier, U. and Tate, G. (2005). Does Overconfidence Affect Corporate Investment? CEO Overconfidence Measures Revisited. *European Financial Management*, 11(5), 649–659.

Mamun, M. A., Balachandran, B., and Duong, H. N. (2020). Powerful CEOs and stock price crash risk. *Journal of Corporate Finance*, 62, 101582.

McIntosh, W., S.H., Ott and Y. Liang. (1995). The Wealth Effects of Real Estate Transactions: The Case of REITs. *Journal of Real Estate Finance and Economics*, 10, 299–307.

Micheva, S., Yildirim, Y., and Zhu, B. (2021). Distance to Headquarter and Real Estate Equity Performance. *Journal of Real Estate Finance and Economics*, 63, 327-353.

Miller, A. and Hoffmann, J. (1995). Risk and Religion: An Explanation of Gender Differences in Religiosity. *Journal for the Scientific Study of Religion*, 34, 63-75.

Miller, D. T. and Ross, M. (1975). Self-serving biases in the attribution of causality: Fact or fiction? *Psychological Bulletin,* 82(2), 213–225.

Montgomery, C. A. (1994). Corporate diversification. *Journal of Economic Perspectives*, 8, 163-178.

Nalebuff, B. J. and Stiglitz, J. (1983). Information, Competition, and Markets. *The American Economic Review*, 73(2), 278-283.

Newell, G. and Peng, H. W. (2006). The Role of Non-Traditional Real Estate Sectors in REIT Portfolios. *Journal of Real Estate Portfolio Management*, 12(2).

Nicholson, J. R. and Stevens, J. A. (2022). REIT Operational Efficiency: External Advisement and Management. *Journal of Real Estate Finance and Economics*, 65, 127-151.

Noguera, M. (2020). Women directors' effect on firm value and performance: the case of REITs. *Corporate Governance*, 20(7), 1265-1279.

Noia, J. D. (2002). Indicators of Gender Equality for American States and Regions: An Update. *Social Indicators Research*, 59, 35–77.

Odean, T. (1998). Volume, volatility, price, and profit when all traders are above average. *Journal of Finance*, 53(6), 1887–1934.

Pagan, A. R. and Sossounov, K. A. (2002). A simple framework for analysing bull and bear markets. *Journal of Applied Econometrics*, 18(1), 23-46.

Pangarkar, N. and Lie, J. R. (2004). The impact of market cycle on the performance of Singapore acquirers. *Strategic Management Journal*, 25(12), 1209-1216.

Perryman, A. A., Fernando, G. D., and Tripathy, A. (2016). Do gender differences persist? An examination of gender diversity on firm performance, risk, and executive compensation. *Journal of Business Research*, 69(2), 579-586.

Pfeffer, J. and Salancik, G. R. (1978). The external control of organizations: a resource dependence perspective. *New York: Harper and Row.*

Qayyum, A., Rehman, I. U., Shahzad, F., Khan, N., Nawaz, F., Kokkalis, P., and Sergi, B. S. (2021). Board gender diversity and stock price crash risk: Going beyond tokenism. *Borsa Instanbul Review*, 21(3), 269-280.

Richard, O. C. and Shelor, R. M. (2002). Linking top management team age heterogeneity to firm performance: Juxtaposing two mid-range theories. *International Journal of Human Resource Management*, 13(6), 958-974.

Ro, S. and Ziobrowski, A. J. (2009). Does Focus Really Matter? Specialised vs. Diversified REITs. *Journal of Real Estate Finance and Economics*, 42, 68-83.

Robinson, G. and Dechant, K. (1997). Building a business case for diversity. *Academy of Management Executive*, 11(3), 21-31.

Roll, R. (1986). The Hubris Hypothesis of Corporate Takeovers. *The Journal of Business*, 59(2), 197-216.

Rose, C. (2007). Does female board representation influence firm performance? *Corporate Governance: An International Review*, 15, 404-413.

Sarin, R., and Wieland, A. (2016). Risk aversion for decisions under uncertainty: Are there gender differences? *Journal of Behavioural and Experimental Economics*, 60, 1-8.

Schopohl, L., Urquhart, A., and Zhang, H. (2021). Female CFOs, leverage and the moderating role of board diversity and CEO power. *Journal of Corporate Finance*, 71, 101858.

Schrand, L., Ascherl, C., and Schaefers, W. (2018). Gender diversity and financial performance: evidence from US REITs. *Journal of Property Research*, 35(4), 296-320.

Shleifer, A. and Vishny, R. (1997). A survey of corporate governance. *The Journal of Finance*, 52 (2), 737-775.

Sila, V., Gonzalez, A., and Hagendorff, J. (2016). Women on board: Does boardroom gender diversity affect firm risk? *Journal of Corporate Finance*, 36, 26-53.

Skata, D. (2008). Overconfidence in Psychology and Finance – an Interdisciplinary Literature Review. *Bank I Kredyt*, 4, 33-50. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1261907

Smith, C. (2003). Theorizing Religious Effects among American Adoloscents. *Journal for the Scientific of Religion*, 42, 17-30.

Straska, M. and Waller, H. G. (2014). Antitakeover Provisions and Shareholder Wealth: A Survey of the Literature. *Journal of Financial and Quantitative Analysis*, 49(4), 933-956.

Sugarman, D. B. and Straus, M. A. (1988). Indicators of gender equality for American states and regions. *Social Indicators Research*, 20, 229–270.

Sundén, A. E. and Surette, B. J. (1998). Gender Differences in the Allocation of Assets in Retirement Savings Plans. *The American Economic Review*, 88(2).

Svenson, O. (1981). Are We All Less Risky and More Skilful Than Our Fellow Drivers? *Acta Psychologica*, 47(2), 143-148.

Tajfel, H. (1978). Differentiation Between Social Groups: Studies in the Social Psychology of Intergroup Relations. *London: Academic Press.*

Tajfel, H., Billig, M., Bundy, R. P., and Flament, C. (1971). Social categorization and intergroup behaviour. *European Journal of Social Psychology*, 1, 149–178.

Tajfel, H., and Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin
and S. Worchel (Eds.), The Social Psychology of Intergroup Relations (pp. 33–47). *Monterey, CA: Brooks/Cole.*

Taylor, S. E. and Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, 103(2), 193-210.

Terjesen, S., Sealy, R., and Singh, V. (2009). Women directors on corporate boards: A review and research agenda. *Corporate Governance: An International Review*, 17, 320-337.

Tiveron, B., Mantovani, G. M., and Moro, A. (2023). When Gender Matters: The Role of Women in Mergers and Acquisitions. *Risk Governance and Control: Financial Markets and Institutions*, 13(2), 37-51.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., and Wetherell, M. S. (1987). Rediscovering the Social Group: A self-categorization Theory. *New York: Blackwell.*

Watson, J. and McNaughton, M. (2007). Gender Differences in Risk Aversion and Expected Retirement Benefits. *Financial Analysts Journal*, 63 (4), 52-62.

Weinstein, N. D. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology*, 39(5), 806–820.

Wiley, C. and Monllor-Tormos, M. (2018). Board Gender Diversity in the STEMandF Sectors: The Critical Mass Required to Drive Firm Performance. *Journal of Leadership and Organizational Studies*, 25(3), 290-308.

Xu, N., Li, X., and Yuan, Q., and Chan, K. C. (2014). Excess perks and stock price crash risk: Evidence from China. *Journal of Corporate Finance*, 25, 419-434.

Zhang, F. and Ooi, J. T. L. (2021). CEO's age and acquisition behaviors of REITs. *Real Estate Economics*, 50(4), 1107-1140.

Zhu, B. and Li, L. (2022). REITs' Stock Return Volatility: Property Market Risk Versus Equity Market Risk. *Journal of Real Estate Finance and Economics*. [Accessed] https://doi.org/10.1007/s11146-022-09901-4.