# The Effectiveness of Board Diversity Reforms and Corporate Practices: The Moderating Role of a Familial Culture, Prevalence of Family Businesses and Family Ownership

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# Declaration

This candidate confirms that the work submitted for this degree is her own, and has not been submitted for the any other award of degree or diploma in any university, to the best of my knowledge. This contains no material previously published or written by another person, except appropriate credit has been given by authorship declaration for joint authored papers in respective chapters and due reference is made in the text.

# Abstract

The thesis examines board diversity practices at both national and firm levels since board diversity and its outcomes differ across countries. Firstly, I focus on the research on board gender diversity by studying the effectiveness of worldwide board gender reforms, i.e. quotas and comply-or-explain, aimed at the meaningful inclusion of female directors on boards. Herein, I study whether gender reforms impact corporate practices and whether the role of (i) a national culture, i.e. familial culture, and (ii) the prevalence of family businesses are relevant factors that contribute to the understanding of such relationships. Secondly, I examine the Latin American (LA) region, a less developed/regulated market, where the regional culture influences corporate behaviour. Here, I determine that a social configuration of the corporate conduct in family firms is essential for understanding the impact of board diversity, i.e. education, gender and tenure of independent directors, on the likelihood of corporate fraud. In the first two empirical chapters (Chapters 2 and 3), gender diversity reforms are recognised as a national-level instrument that has led to an exogenous change in board diversity practices around the world.

Chapter 2 examines the effectiveness of gender diversity reforms - voluntary, i.e. comply-or-explain, and quotas, in increasing the number of appointments of independent female directors to boards and whether there is a spillover effect on board independence. To do this, I conduct quasi-experiments on data from 10,313 unique companies from 41 countries for the period 2000-2019 (82,613 firm-year observations). Main findings show that the proportion of independent female directors and board independence fall following voluntary gender reform. As gender diversity reforms aim to protect investors at the national level, I extend the empirical analysis from an institutional perspective to incorporate the country's familial culture, which defines the strength of family ties and loyalties amongst family members. A strong familial culture is associated with societal attitudes and expectations that establish the role of women as carers and men as breadwinners. This results in stereotypical perceptions of women being less able to hold leadership positions. I find that voluntary gender reforms further decrease the proportion of independent female directors on boards in countries with a stronger familial culture. A possible explanation for this is that companies appoint non-independent female directors to signal to markets that they comply with the recommendation. Consequently, companies in countries with a strong familial culture have a negative spillover effect on board independence after voluntary gender reform. Conversely, the appointment of independent female directors and board independence increase following board gender quota reform, independent of the strength of the familial culture.

Chapter 3 examines whether corporate risk-taking is impacted by gender diversity reforms, using the same data as in Chapter 2. To account for national traits that could influence corporate

behaviour regarding the role of women in society, I frame this research on behavioural agency theory to define corporate risk-taking. Therefore, I use (i) venturing risk, which represents the degree of acceptance of firm value-enhancing strategies and (ii) performance hazard risk (PHR), which represents the probability of failure in achieving financial targets to protect agents' wealth or aspirations. I find that both quotas and voluntary reforms decrease PHR, leading to a reduction in the likelihood of performing below financial targets. Venturing risk improves following gender quota reforms, suggesting that gender legislation is successful in improving a firm's value-enhancing initiatives to align the interests of agents and principals. I further incorporate in the analyses the prevalence of family businesses in order to capture the socioemotional goals of family businesses which significantly contribute to explaining the association between gender diversity reforms and risk-taking. I find that family businesses prevalence plays a moderating role in improving PHR following voluntary gender reform and venturing risk following both types of gender diversity reforms, i.e. quotas or voluntary. These findings highlight that voluntary gender diversity reforms are less effective at curbing the adverse impact of socioemotional wealth (SEW) on corporate risk-taking in countries with greater family business prevalence.

Finally, in Chapter 4, I examine the effectiveness of board diversity in reducing the likelihood of corporate fraud in the Latin American region. Based on a SEW framework, I determine that board diversity impacts differently in family and non-family firms, using an unbalanced panel of 1,839 firm-year observations from 244 Latin American firms during the period 2008-2019. I find that family firms are more likely to commit fraud than non-family firms, possibly because of their aim to preserve SEW. However, family firms are more likely to reduce corporate fraud by diversifying their boards, i.e. gender, education and tenure of independent directors, than non-family firms. Additionally, opportunities for family board diversity could be achieved by improving board size but these opportunities become less prevalent as board experience increases.

Overall, this thesis contributes to the understanding of the impact of board diversity and gender diversity reforms on corporate outcomes. The findings strongly support the idea that a national institutional setting, i.e. familial culture and family business prevalence, and firm-level setting, i.e. family-controlled business, are best seen as contingent characteristics that moderate the influence of gender diversity practices on corporate outcomes.

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# List of Abbreviations

| | |
|---|---|
| ASEAN | Association of Southeast Asian Nations |
| CAPEX | Capital expenditure |
| DDD | Difference-in-Difference-in-Difference |
| DiD | Difference-in-Difference |
| EU | European Union |
| FBP | Family business prevalence |
| FBPI | Family business prevalence index |
| IFC | International Finance Corporation |
| OECD | Organisation for Economic Co-operation and Development |
| PHR | Performance hazard risk |
| R&D | Research and development |
| SEW | Socioemotional wealth |

# Chapter 1. Introduction

Global corporations have been challenged by high-profile corporate collapses, malpractice and the manipulation of retail investors.[1] These events have an adverse impact on stakeholders: shareholders' funds and/or pension funds evaporate overnight, employees experience job losses and other negative externalities occur in local and international communities. These events highlight the critical importance of corporate governance in restoring stakeholder confidence. In this respect, the board of directors has become the main driver of corporate governance. Boards react to institutional pressures, strategic opportunities and threats to the commercial and sustainable viability of a business (Huse, 2018). Clarke (2017) recognised the board of directors as 'the DNA of the company to grow and succeed at the beginning of the company's life' and considered the board as a 'source of values and objectives to sustain the vitality of the company'. However, boards may not always live up to this distinguished description, which is a continuing dilemma in corporate governance owing to a variety of factors in board composition (García-Sánchez et al., 2015; Maulidi, 2022; Van den Berghe & Levrau, 2004; Wahid, 2019).

A sound corporate governance structure reflects a balanced board composition that initiates business strategy and preserves shareholders' interests (Clarke, 2017; Sarhan et al., 2019). The Organisation for Economic Co-operation and Development (OECD) (2021) acknowledged different national models of board composition (one-tier, two-tier and hybrid) and provisions

[1] Corporate crashes reflect the consequences of companies being under-governed (Clarke, 2017). Well-performing companies in the US market, such as Enron and WorldCom, collapsed as a result of earnings manipulations (Cullinam, 2004). Subsequently, Lehman Brothers announced its bankruptcy in 2008, representing the largest corporate failure in US history, because of materially misleading disclosures (Wiggins et al., 2014). Brazil's Odebrecht corruption, the largest scandal reported in Latin America, led to strengthened corporate governance measures in family firms (Reuters, 2017). In addition, high usage of social media can manipulate shareholders' decisions. For instance, the US SEC brought fraud charges against Elon Musk, the former chair of Tesla, for a failure of disclosure controls over Musk's tweets, which tended to manipulate investors' behaviour (https://www.sec.gov/news/press-release/2018-226).

for board independence based on ownership structure.[2] Despite these different models, the Harvard Law Forum (2022) focuses on diversity in board composition to meet investors' future demands. Firms should therefore work towards board diversity in terms of, for example, gender, age, ethnicity, skills, education and experience/tenure, and other board characteristics to enhance their advisory and monitoring roles. Previous literature highlights gender diversity on boards as a part of wider context of board diversity (Mauldi, 2022; Fernandez-Feijoo et al., 2014). Recently, a challenging topic of interest has been the improvement of gender diversity on boards worldwide (Catalyst, 2021). The International Finance Corporation (IFC) (2018) found a mismatch in gender diversity between boardroom representation and senior management positions among the member states of Association of Southeast Asian Nations (ASEAN) because of the presence of a glass ceiling at the highest corporate level. US regulators legislated for a board gender diversity quota in California in 2018 (Taylor, 2019). However, achieving the quota by the end of 2021 has been challenging (Wall Street, 2021). The Hampton-Alexander Review (2021) noted the progress of board gender diversity for FTSE 350 firms while highlighting the slow progress among FTSE 100 firms in the UK. European Union (EU) members have introduced national regulations for gender diversity quota reforms on boards (Deloitte, 2017). However, certain countries in the EU region have not achieved the desired level of board gender quotas (Terjesen, 2019). Globally, the progress of women's representation on boards is slow and women remain underrepresented (Catalyst, 2021; IFC, 2018). Reforms have therefore been introduced as a country-level instrument to tackle this slow progress in board gender diversity. However, evidence of the impact of such gender diversity reforms is limited at the national level of analysis. Besides, firm-level factors such as family

[2] The corporate governance codes of France and Israel recommend that at least one third of directors on boards are independent when the company is owned by controlling shareholders. Jurisdiction in Italy prescribes that the majority of directors on boards are independent as a listing requirement for pyramidal and integrated group structures. The US code does not recommend the majority independent board director requirement if more than 50% of voting power is held by a group or another country (OECD Fact Book, 2021).

ownership and control structure determine the effectiveness of board gender diversity practices. For instance, family businesses have found a rise in appointments of female directors on boards when family members have low voting rights/ownership (García-Meca & Santana-Martín, 2022a; González et al., 2020) and a conflict between family and non-family women on boards when numbers of female family directors increase on boards (García-Meca & Santana-Martín, 2022b). Extending to other characteristics of board diversity, family firms show lack of diversity in upper echelon with respect to experience, mix of independence and non-independent directors, tenure, etc (Corbetta & Salvato, 2004). Based on these findings, this thesis examines the impact of gender diversity practices at national and board diversity practices at firm levels.

This chapter is set out as follows: Section 1.1 discusses the research motivation for the thesis, while Section 1.2 explains the theoretical background and Section 1.3 outlines the proposed research aims. Section 1.4 presents summaries of the three empirical chapters, and Section 1.5 discusses the contributions of the three empirical studies of the thesis.

### 1.1. Research Motivation

Globally, boards are under pressure to improve gender diversity in corporate governance structures (Fauver et al., 2022). Nevertheless, the desired increase in the appointment of women to boards has experienced a setback over the last two decades.[3] These reforms are desired to enhance female directors on boards. However, previous literature shows mixed findings on outcome of board gender diversity following such reforms which are influenced by the levels of institutional support (De Cabo et al., 2019; Enjolras & Sivesind, 2012; Terjesen et al., 2009). This caveat motivates to investigate gender diversity reforms impact on female board representation in a worldwide context.

[3] https://www.businesswire.com/news/home/20181210005099/en/Egon-Zehnder-Global-Board-Diversity-Tracker-Suggests.

Empirical findings, though, claim that board gender diversity has a positive impact in the following areas: reducing the likelihood of corporate fraud (Cumming et al., 2015); higher levels of monitoring (Adams & Ferreira, 2009; Mauldi, 2022; Wahid, 2019); enhancing earning quality (Gull et al., 2018); offering necessary resources such as experience, knowledge, legitimacy, strategic insights and social network links to access sources of resources (Farrell & Hersch, 2005, Upadhyay & Zeng, 2014); sustainable reporting (Fernandez-Feijoo et al., 2014; Qureshi et al., 2020); and R&D efficiencies (Chen & Tong, 2016). As a result, many countries have introduced gender diversity reforms at national level with the expectation of achieving these economic performance and governance benefits (Terjesen et al., 2015). However, gender diversity reforms have failed to achieve equality on boards in certain countries despite becoming effective in other countries. In this sense, the motivation of this thesis is to raise awareness about why board gender diversity practices differ at national level.

In response to economic and ethical concerns about board gender diversity practices, several countries have introduced regulations mandating the appointment of female directors to boards in the form of voluntary (comply-or-explain) and quota reforms. The Norwegian government pioneered the announcement of 40% female quotas for boards in February 2002 with target years for compliance – for example, 2006 for state-owned firms and 2008 for publicly traded firms (Terjesen et al., 2015). This announcement of a government-enforced policy requiring businesses to ensure gender diversity on corporate boards surprised the world. Following the Norwegian government's reform initiatives, Finland announced a 40% quota in 2005, with Spain following suit in 2007 and Iceland in 2010. Iceland initiated a call for a gender quota on corporate boards as a result of a lack of board diversity in the country's largest banks, leading to corporate failure and a devastating economic crisis in the period from 2008 to 2011 (Vaiman et al., 2011). As a result, Iceland adopted a 40% quota to be achieved by the target year of 2013. Subsequently, some other EU countries, including France, Italy and Belgium, began to

pursue quota reforms in 2011, while Denmark, Ireland, the Netherlands and Sweden are still developing proposals for gender quotas (Mensi-Klarbach & Seierstad, 2020). Nonetheless, most countries pursue voluntary reform, as recommended by the corporate governance code under the comply-or-explain principle.[4]

Gender diversity reform actions have been categorised based on quota reforms legislated for by the Company Act, governance codes, specific laws and recommendations for voluntary requirements – i.e. comply-or-explain – for the corporate governance code. Certain quotas are legislated for with sanctions for strong enforcement, known as hard quotas. These are currently followed by companies in Norway, Italy, Belgium, Portugal, Germany, France and Austria, with different levels of sanctions (Mensi-Klarbach & Seierstad, 2020). For example, the Norwegian Company Act incorporates sanctions involving company dissolution and de-listing, while Italian and Portuguese laws set out sanctions involving monetary penalties for non-compliance with hard quota reform. Hard quota reform in Norway was conducive to achieving 40% of female directors on boards by mid-2008, despite opposition from many groups (Terjesen & Sealy, 2016). There are no sanctions and/or enforcement mechanisms for soft quota reforms, such as those in the Netherlands and Spain. It is difficult to monitor these soft quota reforms as they do not set target years for their achievement (Mensi-Klarbach & Seierstad, 2020). However, certain countries follow voluntary reform requirements for corporate governance codes and report representation of women on boards of directors in annual reports. Nonetheless, certain emerging economies (China, Indonesia, Egypt and some Latin American countries) have not engaged in any reform actions regarding the introduction of female directors to boards (Thomas Reuter Practical Law, 2022). Despite growing gender diversity reforms worldwide, limited empirical clarity on the impact of gender diversity reforms on corporate outcomes may discourage firms from changing board composition. This

[4] https://corpgov.law.harvard.edu/2017/01/05/gender-parity-on-boards-around-the-world/

ongoing debate regarding board gender diversity reform is the motivation behind this thesis to examine the impact of gender diversity reforms at different enforcement levels, using global evidence.

Current adoption levels of gender diversity reforms and practices are moderated by informal institutional factors (Geletkanycz, 2020; Grosvold & Brammer, 2011; Lewellyn & Muller-Kahle, 2020; Nguyen et al., 2021). This thesis draws on such informal institutional factors to better understand differences in the adoption of reforms at national level. Culture is an informal institutional factor defined as a set of values, attitudes, principles and beliefs widely shared by groups in society (Hofstede, 1984; Hofstede, 1998; Hofstede, 2001). Therefore, shared values and beliefs establish the social roles assigned to females and males. For instance, countries with traditional cultures have found greater gender role differences and masculine dimensions in occupational progression (Costa Jr & McCrae, 2001).[5] In addition, the male-breadwinner hypothesis supports stronger family ties (Majeed & Kanwal, 2019), highlighting the man's role in providing financial support to the family (Alesina & Giuliano, 2010). As a result, women are supposed to fulfil family duties rather than participate in the labour market (Zuo & Tang, 2000). According to this hypothesis, family ties play an important role in determining women's participation in the labour force (Dupuis et al., 2008). Family ties can take different forms, such as strong family ties (a stronger familial culture, hereafter) or weaker family ties with an individualistic nature within a structured family (Lim et al., 2021). A stronger familial culture is common in Asia and Latin America (Alesina & Giuliano, 2014). This type of culture distrusts non-family members while trusting only close family members (Majeed & Kanwal, 2019). In addition, a stronger familial culture prevents the development of formal institutions, such as regulations, laws and rules (Alesina & Giuliano, 2014). Therefore, this cultural milieu provides

[5] Traditional cultures (e.g. South Asia and Africa) emphasised greater gender role differences while modern cultures such as the Netherlands and Finland, minimise gender role differences (Costa & McCrae, 2001).

motivation for this thesis to investigate whether a stronger familial culture moderates the effectiveness of board gender diversity reforms regarding the appointment of female directors and board independence.

Family business legitimacy can be derived from social relationships and values in the national economy (Davies, 2005). Certain countries prefer a family-based business structure and culture owing to their strong informal institutions (Berrone et al., 2020). For instance, family business prevalence in Chile (Duran & Ortiz, 2020) and India (Jameson et al., 2014) incorporates more than 50% of publicly listed firms with more informal societal institutional characteristics (Berrone et al., 2020). In this context of family business prevalence, a concentrated ownership structure results in principal–principal conflicts (Claessens, et al., 2000) and family businesses place greater importance on socioemotional wealth (SEW) rather than shareholders' wealth maximisation (Berrone et al., 2012). Consequently, this context requires a formal institutional safeguard to protect shareholders' interests (Sauerwald & Peng, 2013). Therefore, there is significant concern regarding gender diversity reforms as formal institutional support to resolve agency conflicts in informal institutional contexts. Motivated by this demand in the literature, this thesis investigates the role of family business prevalence (FBP) in the impact of gender diversity reforms on corporate practices, such as risk-taking, at national level.

Additionally, this thesis sets out a specific case study of the Latin American (LA) region for several reasons. First, this region is recognised as having a stronger familial culture (Alesina & Giuliano, 2014), where less participation by women in the labour market would impact the effectiveness of board diversity reforms on external female directors' appointments and then board independence. Second, FBP is greater in the Latin American region (Jara et al., 2019), where a family-dominant ownership structure could impact the effectiveness of board diversity practices on corporate decision-making.

In practice, family firms have often been portrayed as being less motivated to seek board diversity (González et al., 2020; Zhang & Luo, 2021). Previous literature recognises a gender bias in succession planning (Mehrotra et al., 2013) and the affective needs of family members (Zhang & Luo, 2021) become barriers to successful board diversity. In an unregulated national setting with a lack of investor protection, family firms appoint directors through closed networks (i.e. nepotism) rather than based on merit, reducing opportunities for board diversity. This leads to significant financial pressure and performance hazards (González et al., 2020; Poletti-Hughes & Briano-Turrent, 2019) as well as the misappropriation of minority shareholders' wealth (Bardhan et al., 2015). This ongoing family board diversity debate further motivates this thesis to examine the impact of board diversity on the likelihood of corporate fraud in family businesses located in the Latin American corporate market.

### 1.2. Theoretical Background

Board gender diversity practices are embraced globally to influence corporate governance and performance (Catalyst, 2021).[6] However, different levels of institution in relation to ownership and governance structure – i.e. family, non-family or government – at firm level, and informal institutional factors such as local economy and culture at country level, affect the corporate outcomes of gender diversity practices (Nguyen et al., 2021). This thesis therefore recognises several theoretical perspectives to address certain levels of analysis and thus explore corporate outcomes following gender diversity practices. Existing literature suggests that agency theory (Reddy & Jadhav, 2019), SEW framed by behavioural agency theory (Poletti-Hughes & Briano-Turrent, 2019) and resource dependence theory (Ali et al., 2014) can improve understandings of the impact of gender diversity practices at firm level. Aguilera and Jackson (2003) argue that the contexts for firm-level actors determine choice of governance practices.

[6] https://www.catalyst.org/research/women-on-corporate-boards/

Board diversity practices are thus influenced by formal and/or informal institutional context at country level, as outlined by institutional theory (Allemend et al., 2014).

### 1.2.1. Agency Theory

The contractual relationship between agents (management) and principals (shareholders) has been discussed in agency theory (Jensen & Meckling, 1976; 2019), where the principal delegates tasks to the agent and the agent then performs duties under a contract. This agent–principal relationship presents two types of agency problems: (1). Agents and principals have conflicting objectives; (2). There are different risk attitudes for agents and principals (Eisenhardt, 1989). Typically, these problems arise because of information asymmetries when an agent has superior information access (Panda & Leepsa, 2017). This leads to moral hazard/hidden actions and adverse selection. Moral hazard actions occur when the agent's decision regarding choice of action affects the principal's interest. However, the principal does not realise this action directly (Kurvinen et al., 2016). For instance, managements' lack of effort in fulfilling delegated tasks is difficult for shareholders to recognise. Adverse selection recognises misrepresentation of agent type, meaning that the principal faces difficulties in verifying agent type prior to hiring (Kurvinen et al., 2016).

Eisenhardt (1989) classified agency theory into two models: the principal–agent model and positivist agency theory. The principal–agent model recognises that agents are risk-averse and rent-seekers while principals are risk-neutral and profit-seekers. Positivist agency theory recognises that principals and agents have conflicting goals and explains governance mechanisms to reduce such conflicts (Eisenhardt, 1989). Fama and Jensen (1983) recognised the importance of the board of directors in monitoring opportunistic management behaviour and acting as an information system for shareholders. Jensen and Meckling (1976) found that managers' equity ownership aligns managers' interests with shareholders. Based on this

evidence, positivist agency theory is concerned with appreciating the ability of governance practices to solve agency problems.

Agency theory is deeply embedded in global corporate governance reforms (Shi et al., 2017). For instance, the UK announced the Cadbury and Greenbury Committee recommendations on corporate governance, introducing CEO–chair duality, minimum requirements for non-executive directors, formulation of audit committees, enhancement of the role of institutional investors in protecting principals – i.e. shareholders – and long-term incentive schemes to motivate agents. After reported corporate governance scandals involving major US firms, the regulators introduced the Sarbanes-Oxley Act of 2002 to strengthen board independence and the accountability of independent governance committees.[7] In addition, emerging markets have begun to introduce corporate governance reforms that target the regulation of board composition and disclosures to strengthen internal governance mechanisms in the absence of effective formal institutions to protect investors (Arat et al., 2021). For instance, Brazil introduced legislative changes regarding CEO–chair duality, independent board members and other governance provisions under the Business Environment Improvement Law in 2021[8] and the Chinese Company Law (2020) amended provisions for connected transaction disclosures to enhance minority shareholders' protection.[9] Recently, emerging markets have introduced board gender diversity initiatives as part of corporate governance reform. For example, India (in 2014) and Malaysia (in 2021) mandated a gender diversity quota for publicly listed companies. These approaches to governance reform are expected to address the sources of agency problems worldwide.

[7] After the collapse of Enron, Tyco and WorldCom businesses listed on the US stock exchange (Clarke, 2007).
[8] https://brazilcham.com/improving-brazils-business-environment/
[9] https://uk.practicallaw.thomsonreuters.com/

The agency problem affects different ownership structures – i.e. dispersed and concentrated ownership – in different ways worldwide (Holm & Schøler, 2010). Unlike dispersed ownership structure, concentrated ownership structure poses an agency problem between majority and minority shareholders because of conflicts in goals (Panda & Leepsa, 2017). This principal–principal agency problem is prevalent in countries or companies where shareholdings or ownership are contained within a few individuals or family members. These majority shareholders or family owners have higher voting rights to influence corporate decisions in favour of their interests, which disadvantages minority shareholders (Classens et al., 2000; Fama & Jensen, 1983). For instance, majority owners or family owners expropriate the wealth of minority shareholders through 'related party transactions' (Chang & Hong, 2000), corporate fraud and earnings management (Ramírez-Orellana et al., 2017). Certain countries therefore call for reforms and laws to protect minority shareholders and limit the opportunistic behaviour of majority shareholders (Holderness & Sheehan, 2000). This thesis considers the potential impact of the principal–principal problem by examining family business board diversity and strategic actions amongst family businesses.

### 1.2.2. Behavioural Agency Theory and SEW

Behavioural agency theory authors have criticised agency theory for several reasons. First, standard agency theory focuses on principals, agents and agency costs (Panda & Leepsa, 2017). Second, agency theory assumes that agents are always risk-averse and, therefore, that the definition of corporate risk-taking is limited (Pepper, 2015). However, behavioural agency literature refers to corporate risk-taking as a contingency base (Kumeto, 2015). Different corporate governance contexts determine agents' varied risk preferences (Wiseman & Gómez-Mejía, 1998).

In contrast to the Agency theory, behavioural agency theory follows different view on incentive alignments and focus on agent motivation and performance. Additionally, behavioural agency

theory places more emphasize on maximizing agents' performance and work motivation which is less emphasised by the standard agency theory (Pepper, 2015). Therefore, this theory recognises significance of human capital of agents which becomes a function of corporate decision-making. Behavioural agency theory develops based on assumptions in relation to risk preference, agents' rationality, and agent's utility function. Table 1.1. distinguishes the assumptions of behavioural agency theory from those of agency theory.

**Table 1.1. Agency Theory and Behavioural Agency Theory Assumptions**

| Assumptions | Agency Theory | Behavioural Agency Theory |
|---|---|---|
| Risk preference | Principals are risk-neutral and agents are either risk-averse or risk-neutral (Wright et al., 2001) | Agents are loss-averse below a gain, and otherwise are risk-averse (Wiseman & Gomez-Mejia, 1998) |
| Agents' rationality | Rational (Panda & Leepsa, 2017) | Bounded rationale based on problem framing, processing and availability of information (Wiseman & Gomez-Mejia, 1998) |
| Agents' utility function | Rent-seeking and opportunism (Panda & Leepsa, 2017) | Same as agency theory, but reference dependent. For instance, protecting SEW in family businesses (Kumeto, 2015) |

The SEW framework contains elements of behavioural agency theory (Gómez-Mejía et al., 2011). According to behavioural agency theory, problems are framed by agents using reference points compared to expected outcomes from available opportunities. In this sense, family boards make decisions by assessing how their actions affect the reference point of accumulated

endowments in the firm (Gómez-Mejía et al., 2007). When family boards find a threat to socioemotional endowment, the board shows a willingness to preserve such endowment by holding the firm at risk. Family firms certainly experience conflict between financial and SEW objectives (Souder et al., 2017). Majority representation of family members in terms of ownership and management impedes the alignment of SEW with financial objectives (Miller & Le Breton–Miller, 2014). However, family firms tend to prioritise financial objectives over SEW when at risk of survival (Gómez-Mejía & Herrero, 2022). SEW measurements are discussed in the empirical literature using different dimensions. Berrone et al. (2012) recognised the FIBER Dimensions [family control (F), identification of family members in the firm (I), binding social ties (B), emotional attachments to family (E), renewal of family bonds to the firm (R)]. Gómez-Mejía and Herrero (2022) and Hauck et al. (2016) later validated these SEW dimensions in different countries, while Debicki et al. (2016) developed a SEW scale to measure the importance of SEW to family owners and managers.

A firm's performance hazard is recognised as an outcome of SEW (Baixauli-Soler et al., 2021). This implies that there is a possibility of a firm performing below targets, with protection of SEW leading to a threat to the firm's survival (Gómez-Mejía et al., 2007). In some cases, family firms are willing to accept the loss of SEW and then consider economic goals as a new reference point to prevent threats to survival. In addition, lower levels of board and managerial diversity result from preserving SEW (Berrone et al., 2012) as the family business appoints non-family members to various business units (Gomez-Mejia et al., 2011).

Recent studies have recognised the SEW perspective as providing an explanation for links between board gender diversity and corporate risk-taking (Poletti-Hughes & Briano-Turrent, 2019), family firms' performance levels (García-Meca & Santana-Martín, 2022) and family firms' leverage (Poletti-Hughes & Martinez Garcia, 2022; Poletti-Hughes & Williams, 2019). García-Meca et al. (2022) recognised that the appointment of women based on merit and not

on nepotism or family quotas becomes more effective in reducing agency problems, as this does not prioritise SEW family aims in decision-making. In this context, a rise in family female directors on a board would strengthen SEW goals by maintaining family control and ownership (García-Meca & Santana-Martín, 2022a). In addition, García-Meca and Santana Martín (2022b) found that the likelihood of appointing non-family-affiliated female directors is low because they are not concerned with SEW goals. These studies claim that female directors' affiliations with family boards determine the impact of SEW on corporate practices. The use of the SEW perspective in this thesis to develop hypotheses regarding the effectiveness of board diversity reforms and practices in settings that value family business culture is prompted by this literature.

### 1.2.3. Resource Dependence Theory

Resource dependence theory perceives a corporation as an open unit that depends on resources in the external environment in any contingency to achieve corporate objectives (Selznick, 1949; Pfeffer & Salancik, 1978). Hillman et al. (2009) support the role of resource dependence in managing environmental uncertainties and mitigating dependencies on external resources. Previous studies on board taxonomy suggest that resource dependence theory is an effective framework for explaining the contribution of directors to the access and management of a valuable set of resources – by, for example, (1). Bringing unique information and know-how to support the board's advisory role; (2). Providing access to channels of resources (capital and other sources of finance); (3). Offering preferential access to certain resources; (4). Giving legitimacy (Hillman, 2000; Reddy & Jadhav, 2019; Pfeffer & Salancik, 1978).

Hillman et al. (2000) identified the resource-dependent role of directors as insiders (with current specific knowledge and expertise in the firm), business experts, support specialists and community influencers. These directors' roles improve organisational legitimacy, survival (Drees & Heugens, 2013) and networks (Isidro & Sorbal, 2015; Lu & Herremans, 2019). Board

diversity practices thus bring unique attributes to firms, reducing business uncertainty by lowering the transaction costs associated with external sources (Hillman et al., 2000). For example, the appointment of independent directors with legal or regulatory expertise can reduce the possibility of violating rules and laws and bring down transaction costs related to regulatory agencies. Furthermore, a background of legal and political knowledge can reduce the uncertainty of business operations as the director reduces transaction costs between regulators and firms, in turn bringing cost and reputation advantages (Drees & Heugens, 2013). The benefits of a reduction in uncertainty are therefore associated with interdependencies between the firm and the institutional environment (Hillman et al., 2009).

Previous literature uses resource dependence theory to support board gender diversity practices in increasing opportunities to appoint female directors and bringing about structural board changes (Atnic et al., 2021) and differences in directors' profiles (Martínez-García et al., 2022). Resource dependence theory accounts for a strategic view of gender diversity practices and reforms (Martínez-García et al., 2022; Panicker & Upadhyayula, 2020). In certain regions, women hold higher levels of educational attainment than men (European Commission, 2018) with improved international education experience (InterNations, 2020). This brings more demand for female talent, as women possess higher levels of education, specialised knowledge of finance, law, public relations and communication skills and the international experience necessary to work as support specialists. In this case, the outcomes of gender diversity practices are more favourable for firms. Gender diversity reforms thus have potential to bring a significant demand for female directors with previous executive experience in industry or board-level backgrounds (Martínez-García et al., 2022). Such experience is supportive of increasing corporate risk-taking, such as research and development (Hernández-Lara & Gonzales-Bustos, 2020), venturing risk (Poletti-Hughes & Briano-Turrent, 2019) and innovation (Torchia et al., 2018). Directors with a greater level of experience are not limited to

offering business knowledge to make risky decisions but also offer social networks to support board interlocks (Panicker & Upadhyayula, 2020). This enables regular communication with external stakeholders such as suppliers, customers and regulators. These regular communication channels strengthen relationships with external resource sources while reducing uncertainty and transaction costs. Firms may therefore seek new female directors with previous executive experience. Considering that, gender diversity reforms are conducive to attracting female directors with more executive experience. Overall, it is clear that the introduction of board gender diversity practices will further enhance positive corporate outcomes such as financial and sustainable performance through acquisition of resources. This thesis expects board gender diversity practices to bring human and social capital, improving corporate risk-taking abilities.

### 1.2.4. Institutional Theory

Organisations operate in institutional environments and organisational practices and therefore reflect the rules, regulations, structures and cultures of their environments (Milgrom et al., 1990; Yang & Konard, 2011). The regulatory environment becomes a powerful formal institution for organisations, putting pressure on business outcomes (DiMaggio & Powell, 1983). Although regulations are a strong formal influence on business outcomes, culture becomes an informal institutional influencer that determines organisational practices (Cao et al., 2018; Carrasco et al., 2015; Whelan & Humphries, 2020). Therefore, This study recognises regulatory and cultural factors as institutional characteristics that support board gender diversity practices and have an impact on organisational outcomes such as board independence, corporate risk-taking and corporate fraud.

Previous studies have recognised specific institutional factors for deciding between quota and voluntary gender diversity reforms (Mensi-Klarbach & Seierstad, 2020; Terjesen et al., 2015). Grosvold and Brammer (2011) argue that different national institutional factors play an

important role in deciding board diversity practices, including national legal, business, governance, economic and cultural systems. Further, Terjesen and Singh (2009) have claimed that three institutional factors (pre-quota legislated proportions of women on boards, the gender pay gap and history of female political representation) impact female presence on corporate boards. Additionally, Terjesen et al. (2015) extended these three institutional factors in deciding gender diversity reforms to include, for example, the female labour market and gendered welfare state provisions, left-leaning political coalitions and path-dependent policy initiatives for gender equality. Indeed, these studies enhance our understandings of the importance of institutional factors in setting gender diversity practices. Currently, the EU region employs gender diversity reforms with the genuine intention of increasing the share of females on boards while other countries are currently researching and debating this issue (Mensi-Klarbach & Seierstad, 2020). However, most countries show a collective interest in establishing approaches, viewpoints and motivations for board diversity as a result of intuitional influence from neighbouring regions. Therefore, this study acknowledges national institutional characteristics that enable and/or hinder gender diversity practices.

Many studies have considered gender diversity reforms as a regulatory environment mandate (Geletkanycz, 2020; Mensi-Klarbach & Seierstad, 2020). Gender quota reform can be considered as a regulatory pressure in certain countries. In response to this reform, organisations in countries that utilise quota reforms have acknowledged and complied with institutional pressure, irrespective of coercive or non-coercive/isomorphic actions. Some other countries pursue voluntary (comply-or-explain) gender diversity reforms, which gives them the freedom to conform or resist institutional pressure. Compliance with such reforms (quota or voluntary) is defined as a 'conscious obedience to or incorporation of values, norms, or institutional requirements' (Oliver, 1991. p. 152). In this case, organisations comply with reforms to show obedience to regulators in anticipation of obtaining benefits from the reforms

and gaining legitimacy (Pfeffer & Salancik 1978). Even organisational stakeholders perceive that individual organisations are legitimate entities (Suchman, 1995) and prevent a negative image of the business in question (Scott & Walsham, 2005).

Gender schemas assert that culturally specific mental structures regarding gender roles prevail in given institutional contexts. These structures determine the barriers and facilitators of women's participation in leadership (Lewellyn & Muller-Kahle, 2020). Cultural institutions thus decide the rules of the game regarding women's participation on boards. For example, there is a greater representation of women on boards in Scandinavian and Eastern European regional cultures than in Latin American, Confucian and South Asian regions (Grosvold & Brammer, 2011). Furthermore, feminism's cultural dimension involves non-traditional gender roles for men and women (Hofstede, 2001; 2010), which is conducive to gender equality policy formulation and gender diversity practices in leadership. Therefore, this study considers culture as the country-level informal institution in board gender diversity decisions. Drawing on institutional theory, country-level informal institutions account for country-level differences in gender diversity practices. Alesina and Giuliano (2010) and Lim et al. (2021) documented that the strength of family ties (familial culture) determines women's participation in the labour force. In this respect, a strong familial culture adheres to the male-breadwinner hypothesis, which shows unequal distribution of family work between men and women. In addition, Alesina and Giuliano (2010) have confirmed that weak familial culture supports egalitarian gender roles. While recognising the importance of formal institutions, such as regulatory frameworks for board gender diversity, this study proposes familial culture as an informal institution, which was previously overlooked as a country-level institutional factor, able to moderate gender diversity reforms and practices in corporate board outcomes.

### 1.2.5. Legitimacy Theory

Previous literature suggests that inclusion of female directors on boards provides organizational legitimacy which offers benefits to the firm in following ways. Hillman et al. (2007) confirms that board gender diversity grants legitimacy which resulted in improved motivation and loyalty among employees. Byron & Post (2016) find that the board gender diversity supports to gain legitimacy from the investors in the equity market as it provides a signal of strengthening corporate governance mechanism. Certain literature recognised inclusion of female directors on boards and top management teams as a legitimation strategy (Saeed et al., 2021). Following this insight, many countries introduced gender diversity reforms and practices on board to improve legitimacy and trust among investors. Given that, the study acknowledges that gender diversity practices enable firms to improve investors' confidence by reducing the likelihood of fraud.

Clayton et al. (2019) recognised that inclusion of female directors legitimizes the organization in the eyes of stakeholders due to three main reasons. First, representation of women directors' inclusion facilitates the decision-making process. As a result, this offers a signal to the society that the institutional practice treats women equally in the decision-making process (Lovenduski et al., 2005). Second, gender diverse teams facilitate institutions to work effectively due to varied cognitive and experiential resources. Lastly, ethical concern of equal opportunities in businesses suggests inclusion of female directors on boards to ensure institutional legitimacy (Van Wormer, 2009). Based on these insights, many countries have adopted gender diversity reforms on boards to secure legitimacy in governance.

### 1.2.6. Theoretical Framework Summary

Overall, agency theory suggests that corporate governance reforms are linked to the principal–agent relationship by guiding the composition of boards, quality of communication between directors and shareholders, and advisory and audit functions. On the other hand, resource dependence theory promotes board diversity, which offers various resources to manage contingencies in the environment and achieve better economic outcomes. According to these theoretical perspectives, gender diversity reforms can address agency issues while gaining resources through contracts. However, firms' responses to gender diversity practices depend on the type of institution. Here, institutional theory explains why the impact of gender diversity practices vary amongst different institutions. In this thesis, I use informal institutional contexts to show the differing impact of gender diversity practices. In addition, the SEW perspective from behavioural agency theory is used to identify the effects of family business culture. Based on this theoretical framework, the research objectives of this thesis are formulated in the following section.

## 1.3. Research Aims

Previous literature mostly focuses on the impact of board gender diversity practices on corporate governance and performance at firm level. As a result, this study examines global evidence of national level gender diversity reforms effects for several reasons. First, there is the possibility of changes in board composition – i.e. the balance of independent and non-independent directors – following gender diversity reforms. Second, changes in board composition following reforms may also impact corporate decision-making. This thesis therefore aims to gain an understanding of the effect of gender diversity reforms on board independence and corporate risk-taking using global evidence. In practice, generalising the effects of gender diversity reforms is challenging because of the different levels of adoption by

informal institutions. In this case, this thesis aims to synthesise the moderating role of familial culture and FBP contexts on the outcomes of gender diversity reform.

Inconsistencies in board diversity practices and a lack of legal protection for investors in emerging markets would exacerbate information asymmetries that are likely to improve opportunities and/or motivations for corporate fraud. Therefore, the next challenge is to recognise the impact of board diversity on the likelihood of corporate fraud in a weaker formal institutional context in which regulatory governance reforms are absent. Therefore, Latin American region concerned for the third study based on inadequate institutional, legal and economic framework. First, Latin American region shows a disconnection between corporate citizens and public institutions, lack of reliance towards governance policies and institutions with greater level of impunity according to studies of OECD (OECD, 2023). Second, this region (i.e. Chile, Brazil, Mexico, Colombia, Peru and Argentina) practices Anti-corruption laws. However, Association of Certified Fraud Examiners (ACFE) recognises that corporate fraud contributed to lose USD 193,000 for each case of fraud in the region which is a substantial loss for shareholders (Association of Certified Fraud Examiners, 2022). Third, Latin American region economic development is greater compared to other emerging economies (Caporaso & Zare, 2019). Therefore, such economic background sets opportunities for businesses to grow while current weaknesses in institutional and legal framework proposes opportunities for corporate fraud which become a barrier for business growth. As such, this thesis aims to advance understandings of how board diversity influences the likelihood of corporate fraud in an emerging market context – i.e., in the Latin American region. In this respect, I distinguish between the impact of family firm and non-family firm board diversity on corporate fraud using a SEW perspective. This specification allows me to examine the board's motivation for ethical concerns by firm type in the Latin American region.

Finally, I achieve the stated research objectives using three empirical studies, which are summarised in the following section.

## 1.4. Summary of Empirical Studies

### 1.4.6. The Effectiveness of Gender Diversity Reforms and the Impact of a Familial Culture: A Spillover Effect on Board Independence

The first empirical study (Chapter 2) examines the impact of board gender diversity reforms – i.e. voluntary and regulatory reforms – on improving the number of independent female directors and board independence. Gender diversity reforms could have the possibility to change board gender diversity and/or the composition of independent and non-independent directors. In addition, the differential motivation for the inclusion of female directors on boards may be dictated by the enforcement level of gender diversity reforms. In this respect, I investigate whether voluntary reform (comply-or-explain) or regulatory quota reform influences effectiveness in improving board gender diversity and whether these reforms influence the shaping of board independence composition – the proportion of independent female directors and independent directors. However, informal institutional factors can decide whether board gender diversity practices are adopted or avoided (Pucheta-Martinez et al., 2021). In particular, I consider familial culture as an informal institutional factor that represents the strength of family ties amongst family members. Therefore, this chapter examines the moderating role of familial culture in the effectiveness of board gender diversity reforms in appointing independent female directors and achieving board independence.

Building on agency theory and institutional perspectives, I hypothesise that voluntary gender diversity reforms will decrease the proportion of independent female directors on boards and board independence. As the cultural setting of familial ties is an important informal institutional factor influencing female participation in the labour force, I hypothesise that voluntary gender

diversity reforms in countries with a familial culture are less effective in improving the proportion of independent female directors and a negative spillover effect on board independence might follow.

This chapter utilises a quasi-experimental design based on an international sample from the Thomson Financials DataStream and the Worldscope and Boardex databases for all non-financial sectors, consisting of 10,313 unique firms during the period 2000−2019, from 41 countries. Based on previous literature, I classify gender diversity reforms into two mutually exclusive categories: voluntary (comply-or-explain) reforms and regulation-based quota reforms. I use the Difference-in-Differences (DiD) method to examine the effect of gender diversity reforms on independent female directors' appointments and board independence. Familial culture is measured using family-ties-related perceptions, incorporating importance, love and duty, from the World Value Survey and European Value Survey. I calculate the first principal component using all three family-ties-related perceptions and then define a stronger familial culture as a dummy variable that equals 1 if the principal component score is greater than the country-level median and 0 otherwise. I use Difference-in-Difference-in-Difference (DDD) to examine the moderating effect of familial culture on independent female directors' appointments and board independence following gender diversity reforms.

This chapter reveals that quota gender diversity reforms encourage the appointment of independent female directors and enhance board independence. However, the appointment of independent female directors decreases following voluntary reform and therefore has a negative spillover effect on board independence. This behaviour is observed in countries with a stronger familial culture. These findings suggest that regulation-based gender diversity reforms are a promising avenue for improving independent female directors' appointments and board independence, irrespective of the familial cultural setting.

### 1.4.7. Gender Diversity Reforms and Corporate Risk-taking: The Role of Family Business Prevalence

The second empirical study (Chapter 3) investigates how gender diversity reforms affect corporate risk-taking. The adoption of gender diversity reforms contributes to the improvement of corporate governance practices, as discussed in the previous chapter, and firm performance (Griffin et al., 2021). Based on these premises, corporate risk-taking is important in influencing both governance and performance, aligning the conflicting goals of agents and principals. Previous literature offers different views on the impact of board gender diversity on corporate risk-taking (see meta-analysis in Teodósio et al., 2021), concluding that the impact of board gender diversity is contingent on the institutional context. Thus, this study considers the importance of the institutional context on the impact of gender diversity reforms on corporate risk-taking. Recent research by Berrone et al. (2020) highlights that FBP as an informal institution representing societal approval for the growth of the family business is favourable, with the majority of resources controlled by family lines. In this context, corporate decision-making in family businesses is unique because of SEW preservation. Therefore, I contend that countries with stronger FBP exhibit more SEW traits than countries with less FBP. According to the SEW framework, I use venturing risk and performance hazard risk (PHR) to measure corporate risk-taking. Venturing risk is defined as the degree of acceptance of value-enhancing strategies to improve shareholders' wealth and PHR is defined as the probability of failure or performing below the target to preserve SEW (Gómez-Mejía et al., 2007).

Based on the previous chapter, quota reform is more conducive to the appointment of independent female directors than voluntary reform. In addition, Martínez-García et al. (2022) validate the view that quota reforms promote access to resources amongst a variety of external entities through the education, networks and experiences of female directors, in line with resource dependence theory. In this case, I hypothesise that venturing risk improves following

board gender quota diversity reforms. The long-term orientation of dynastic management in countries with FBP is more supportive of the ability to access more resources to pursue venturing risk. Furthermore, prioritising SEW goals is detrimental to achieving financial goals – i.e. PHR – which is common in countries with FBP. Therefore, I predict that FBP positively moderates the effect of gender diversity reforms on both venturing risk and PHR.

To test this prediction, I use a quasi-experimental design based on the same sample developed in the previous chapter. Venturing risk is measured using the residuals from the Tobin's Q model, which represents the absolute deviation of the Tobin's Q ratio as a measure of performance relative to its expected value (Poletti-Hughes & Briano-Turrent, 2019). PHR is measured using target achievement as a reference-target achievement, consisting of the performance of the firm in question in each year along with the average performance of other firms in the same industry and country for the same period (Gómez-Mejía et al., 2007). These findings suggest that both quota and voluntary reforms reduce PHR. However, voluntary reform increases PHR in countries with FBP. Thus, a greater weight of SEW reduces the effectiveness of voluntary reform in achieving financial goals, while quota reform is favourable in protecting firms from the adverse impact of SEW.

### 1.4.8. Does Board Diversity Decrease Corporate Fraud? International Evidence from Family vs. Non-family Firms

The third empirical study (Chapter 4) examines the impact of board diversity on the likelihood of corporate fraud. I selected the Latin American region as a representative setting for a prevalence of family businesses (Jara et al., 2019) and a lack of regulatory corporate governance reforms. In addition, recent family business scandals in this region have motivated me to investigate whether family firms are more or less likely to engage in corporate fraud. Family firm boards are more distinctive because of the inclusion of family members in management and ownership. Therefore, these types of firms are loss-averse and aim to pass the

business to the next generation, even if such actions lead to suboptimal firm performance. All these behaviours are expected because of SEW endowment in family firms. Consequently, family firms are less likely to appoint external independent directors to advisory and monitoring roles, which harms SEW weight on the board (González & García-Meca, 2014). Given the informal institutional framework in the region, as well as lack of board governance in family firms and SEW priorities, I hypothesise that the likelihood of corporate fraud is greater in family firms than in non-family firms. As the involvement of independent directors is limited and favours group cohesiveness around the family unit, I predict that the probability of fraud in family firms becomes lower for larger boards. In addition, I hypothesise that female directors can act as a substitution mechanism to reduce information asymmetries in weaker corporate governance in family firms and that board gender diversity reduces the probability of corporate fraud. Based on the resource-dependence view, educational diversity may add value to family boards to improve the quality of decision-making, leading to reduced financial pressure and reconciling ethical resolutions (Chidambaran et al., 2011). On this basis, this chapter predicts that educational diversity reduces the likelihood of fraud. The tenure of independent directors is an influential factor in family boards, as longer tenure creates stronger connections with family members and leads to improved biases in decision-making. As a result, I hypothesise that tenure of independent directors and lack of diversity in independent directors' tenure increases the likelihood of corporate fraud.

These predictions are tested using a sample comprising Argentina, Brazil, Chile, Colombia, Mexico and Peru (244 unique firms). Fraud data was obtained from news items in Bloomberg press releases for the fiscal years 2008 to 2019. I found that the likelihood of fraud is greater amongst family firms aligned with SEW traits that develop from the board's ties with the controlling family. This confirms that human capital creates social ties in family firms. Further, I found that improving board size and board diversity in terms of gender, education and tenure

is instrumental in minimising the likelihood of fraud for family firms. In addition, current board experience acts as a barrier to board diversity in family firms because experienced directors are overconfident and become entrenched, leading to a lower likelihood of recognising the benefits of board diversity.

## 1.5. Contributions of the Three Empirical Studies

This thesis contributes to the literature in a number of ways. First, recent studies document that board diversity improves the effectiveness of corporate governance (Wahid, 2019; Adams & Ferreira, 2009; Mauldi, 2022; Orazalin, 2020; Wahid, 2019), while revealing mixed findings on corporate performance (González et al., 2020; Reddy & Jadhav, 2019). However, these studies claim causality without considering exogenous shocks to board gender diversity and unobservable factors at country level to estimate its impacts, therefore causing an endogeneity problem. The first and second empirical studies in this thesis use a quasi-experiment on gender diversity reforms to address these endogeneity concerns. Second, a meta-analysis by Teodósio et al. (2021) revealed that differences in board gender diversity outcomes depend on the context of the study. Following this inquiry, this thesis extends the literature, showing how gender diversity reforms are moderated in the contexts of familial culture and FBP. Finally, this thesis demonstrates to policy-makers how gender diversity reforms and practices become effective at country level using a global sample. Further, the contributions of each chapter are discussed separately in the next section.

### 1.5.1. The Effectiveness of Gender Diversity Reforms and the Impact of a Familial Culture: A Spillover Effect on Board Independence

The effect of board gender diversity reform on board independence has not yet been investigated using international evidence. This study contributes to the existing literature on gender board diversity reforms in two ways. First, I reveal that voluntary – i.e. comply-or-explain – reforms might encourage the appointment of inside/non-independent female directors

as a signal of compliance to the market. In this case, the findings indicate that voluntary reform reduces the inclusion of independent female directors on boards. Consequently, this has a negative spillover effect on board independence. The voluntary reform findings differ from the notion that reform brings board governance through strong normative pressures to comply because of stakeholder expectations and industry standards (Aguilera & Cuervo-Cazurra, 2009), instead bringing evidence of voluntary reform promoted by inside/non-independent female directors, which inversely interferes with board independence. Second, this chapter grounds empirical findings on the institutional framework where behavioural patterns develop from cultural factors of individuals, requiring reforms to be accounted for cultural values (Elam & Terjesen, 2010). In this sense, the study recognises the strength of familial culture as an institutional factor in moderating gender diversity reform in corporate outcomes. Familial culture is generally characterised as collectivism, which prioritises group goals over individual goals and is based on relationships (Alesina & Giuliano, 2010; Lim et al., 2021; Lyu et al., 2017). This setting therefore prefers relationship-based appointments to senior leadership roles to appointments made from the available pool of talent in the industry, which provides more directorship opportunities to female inside/non-independent members than to external female talent, thus limiting board independence. Hence, a stronger familial culture may restrict the effectiveness of voluntary gender diversity reform as it triggers the appointment of female inside/non-independent directors, if possible, signalling to stakeholders that reform has been implemented. The empirical evidence in this study informs the current global debate on the danger of introducing voluntary reform in a stronger familial culture while gender quotas provide opportunities to recruit external female talent to meet a meaningful board diversity quota without harming board independence. Therefore, this study contributes to the call for gender quota reform, particularly in countries with a familial culture, meaning that firms genuinely gain the advantage of corporate governance benefits.

### 1.5.2. Gender Diversity Reforms and Corporate Risk-taking: The Role of Family Business Prevalence

This study contributes to the literature on gender diversity reforms in several ways. First, this chapter investigates whether gender diversity reforms encourage or discourage risk-taking – i.e. PHR and venturing risk. Based on resource dependence theory, venturing risk is driven by independent female directors (Poletti-Hughes & Briano-Turrent, 2019). This study extends the literature by examining the differential outcomes of venturing risk following gender diversity reforms. Although governance reforms add a compliance burden to reduce risk-taking appetite (Bargeron et al., 2010; Cohen & Dey, 2013), my findings show that gender quota reforms provide an opportunity to restructure boards to access human and social capital resources from the market. Thereby, the boards have lower levels of investment conservatism and support agents in pursuing value-enhancing risky investments. Previous studies suggest that female directors have reputational concerns and prevent the possibility of corporate failure and financial distress (Guizani & Abdalkrim, 2022). This thesis extends the findings of previous literature, showing that gender diversity reforms are an effective tool in reducing PHR. Second, this chapter suggests that the impact of gender diversity reforms on risk-taking depends on the informal institutional context. This chapter thus contributes to the literature on informal institutions, demonstrating the importance of the institutional context of FBP in determining the effectiveness of gender diversity reforms on corporate risk-taking. Indeed, FBP contributes to greater SEW traits, weakening the effectiveness of voluntary reform in reducing PHR.

### 1.5.3. Does Board Diversity Decrease Corporate Fraud? International Evidence from Family vs. Non-family Firms

The final chapter of the thesis addresses gender diversity practices in an emerging market context: the Latin American region, which favours dominance of family businesses and lacks reforms for investors' protection. This study contributes to the literature on family businesses

in a number of ways. First, the findings contribute by showing that board diversity (gender, education and tenure) reduces the probability of fraud. Second, family business culture frames the findings through a lens of SEW (Gomez-Mejia et al., 2007; 2011), differentiating the behaviour of family firms regarding corporate fraud from the behaviour of non-family businesses. This study recognises that social ties – i.e. ties created through educational networks and longer tenures of independent directors – adversely impact the best interests of minority shareholders. Considering this fact, this study contributes to behavioural agency costs related to independent directors in family firms, meaning that longer tenures of independent directors and those with education networks offer incentives to protect SEW in family firms. Thus, the findings of this study contribute to aspects of SEW framed by behavioural agency theory. The SEW aspect highlights the behaviour of family firms in achieving non-economic gains while expropriating firm resources (Miller & Le Breton-Miller, 2006) to align social relationships and social structures (Berrone et al., 2012). Considering this, the findings of the study contribute to the SEW framework by exploring the benefits of board diversity where a firm's governance and management structures are not aligned to achieve an economic outcome (Kumeto, 2015). Third, the study contributes to family business literature in revealing that the benefits of board diversity are a more effective mechanism to offset the likelihood of fraud in family firms than in non-family firms. Moreover, diversity in the gender, education and tenure of independent directors enhances the monitoring ability of family firms' boards. This chapter explains how board characteristics reflect the culture of family firms. The study confirms that family firms with experienced boards have less gender diversity and directors have longer tenure on such boards.

## 1.6. Chapter Summary

This chapter sets out a background to gender diversity practices and their impact at national and firm levels. The study then identifies the research gap that motivates the three empirical studies in the thesis. Next, the relevant theoretical frameworks regarding agency theory, resource dependence theory, institutional theory and SEW are discussed. Finally, the findings and contributions of each empirical study are summarised.

# Chapter 2. The Effectiveness of Gender Diversity Reforms and the Impact of a Familial Culture: A Spillover Effect on Board Independence

## 2.1. Introduction

Corporate governance reforms have encouraged changes in the composition of boards of directors for the last two decades (Fauver et al., 2017) and have been highly recognised by regulators and corporations to strengthen investors' confidence (Burunciuc & Gonenc, 2020). Extant research has suggested that these reforms associate with corporate outcomes, such as, monitoring power (Hillier & McColgan, 2006), firm performance (Price et al., 2011), dividend policy (Bae et al., 2021), bank vs public debt choice (Ben-Nasr et al., 2021), corporate risk-taking behaviour (Koirala et al., 2020) and cash holdings (Chen et al., 2020), among others. A significant reform that influences the composition of boards is with regards to gender diversity, since a growing body of studies have indicated positive corporate outcomes from firms with gender diverse boards, such as improved performance (Erhardt et al., 2003), less asymmetric information (Gul et al., 2011), enhanced problem solving and board advisory effectiveness (Hillman & Dalziel, 2003), enriched legitimacy of corporate practices (Hillman et al., 2007), increased monitoring of managerial performance (Kramer et al., 2006), among others. Also, gender differences on boards have shown societal improvements through ethical standards and corporate social responsibility (Cohen et al., 1998; Ibrahim et al., 2009; Nave & Ferreira, 2019), which ultimately decrease the probability of corporate financial malpractice/fraud (Cumming et al., 2015; Wahid, 2019; Wang et al., 2021) and increase environmental and social performance (Orazalin & Baydauletov, 2020).

In this respect, Norway has pioneered the introduction of gender quotas since 2003, followed by other countries, either by establishing legal rules or recommendations in codes of good

corporate practice (Mensi-Klarbach & Seierstad, 2020).[10] Countries that have followed voluntary practice for gender diverse boards through the comply-or-explain principle provide flexibility on practice to either follow the recommendation or justify the reasons for not adopting such practice (Klettner et al., 2016). In some countries, coercive regulation via legislative quotas has been implemented, overriding voluntary gender diversity in search to more effectively level the playing field (Sojo et al., 2016). Legal quotas are more common in countries that favour gendered policies as their institutional framework (Terjesen et al., 2015), but might result in lower corporate performance because the excess demand for more female directors can create a shortage of women with sufficient experience (Labelle et al., 2015). In this respect, whether a voluntary principle for board gender diversity or a regulation-based quota influence the effective inclusion of female directors on boards and whether such reforms are weighted by market characteristics in the shaping of board composition are still open questions that call for more research.

The motivation for this study centres on both the low inclusion of female directors on boards across the world despite the advances of gender reforms (Gabaldon & Gimenez, 2017) and the notion that informal institutional factors might influence the adoption or avoidance of certain corporate behaviours (Pucheta-Martinez et al., 2021). In particular, I consider the importance of the familial culture as an informal institution to disentangle the effectiveness of voluntary vs legislative reforms for gender diversity on boards and its spillover effect on board independence. Family firms are often governed with the like of a familial culture (Berrone et al., 2020), in where organisational arrangements mirror societal attitudes and expectations of the wider familial role of women as carers (Gale & Cartwright, 1995). Since the authority and impartial motives of inside-female directors and independent-female directors influence their

[10] Israel introduced a non-proportional gender quota requiring one female board director for publicly traded companies since 1999 (Part VI, ch. 1, art. E(d), Companies Law 5759-1999).

ability and efficacy for decision-making in the boardroom (Cruz et al., 2019), I reason that a strong familial culture might impede the involvement of outside females in leadership positions under a voluntary setting, i.e. "comply-or-explain", because both the lack of target levels (i.e. as opposed to specific quotas) and tokenism. That is, a familial culture may influence the appointment of inside-female directors as tokens as opposed to female talent outside the firm when aiming to both comply with gender diversity reforms and maintain family control, which may inversely impact on board independence. Tokenistic actions might also arise from factors that disadvantage women in the market for senior positions, such as gender stereotyping and ingroup/outgroup biases (Glass & Cook, 2016), which might explain the slow advance on board gender diversity in meaningfully capitalizing on the surge for board reforms (Geletkanycz, 2020).

The purpose of this study is to examine the effect of gender diversity reforms on both the proportion of independent-female directors on boards and board independence, contrasting both gender reforms such as comply-or-explain and regulation based (i.e. quotas). I conjecture that both regulation-based and voluntary gender reforms are effective in countries with a familial culture to increase female directors on boards. However, and possibly as a result of market-based pressures (Konrad et al., 2008), voluntary gender reforms decrease the inclusion of independent-female directors, suggesting that female director's appointments might follow tokenistic actions, which also impacts on board independence as a whole – a spillover effect. That is, the inclusion of a token (i.e. female director) on the board suffices to comply with the recommendations of voluntary regulation, as target levels are not provided. In contrast, regulatory reforms (i.e. quotas) are specific on target ratios of female directors, which in turn forces companies to reach the external market in search of talent to fulfil the quotas.

To investigate the impact of gender diversity reforms on the proportion of independent-female directors and board independence, a sample of 82,613 observations (10,313 firms) over the

period 2000–2019 from 41 countries is used. As in previous research (Fauver et al., 2017; Hu et al., 2020; Chen et al., 2020), I use difference-in-differences (DiD) as the method of analysis, which captures exogenous variation in board diversity controlling for time, firm and country effects. I find that female proportion on boards increases after both "comply-or-explain" and regulation-based reforms, unsurprisingly being more impactful with quotas. However, and more related to our aim, I find that the appointment of independent-female directors decreases with "comply-or-explain" reforms, suggesting that voluntary diversity reforms might not be an effective mechanism to increase the inclusion of outside female talents on boards but instead they promote tokenistic actions to appoint female directors. I distinguish that this effect is a function of a country's strength of a familial culture as an informal institution. The results are economically significant and robust to different measures of a familial culture. Following Chen et al. (2020), I perform several robustness tests to confirm the validity and consistency of the results. First, I perform a placebo test using pseudo (random) board gender reforms in a restrictive sample (from t-2 to t+2) to confirm that gender reforms on boards are not the result of external economic factors. Second, I test the impact of gender reforms on female proportion and independence using an event study in the pre and post-reform period during the [−5, +5] window to illustrate the economic effect of the reform. Third, I rerun our main models with a reduced sample selected by propensity score matching to confirm that our treatment group is similar to the benchmark group in firm-level control variables.

This paper contributes to the literature of gender board reforms in two ways. First, I distinguish that the effect of "comply-or-explain" gender diversity reforms might encourage a tokenistic culture in detriment of the aimed corporate benefits that they should carry. In this respect, I justify that the use of "comply-or-explain" gender diverse policies decrease the inclusion of independent female directors, which consequently impact negatively on board independence. When it comes to gender diversity reforms, this finding differs to the notion that "comply-or-

explain" reforms discipline firms through strong normative pressures to comply because of industry standards and stakeholder expectations (Aguilera & Cuervo-Cazurra, 2009) and instead evidences that gender quotas are the way forward to promote a fair play inclusion of women on boards that would enhance board effectiveness and legitimacy (Hillman et al., 2007).

Second, using the institutional theoretical frameworks, I rationalise the impact of the familial culture on the successful implementation of gender diversity reforms. Since pre-quota legislation percentages of women on boards are modelled by current participation of women in the labour force (Terjesen & Singh, 2008), and country gendered policies (Terjesen et al., 2015), I incorporate the familial culture as an informal institutional factor to explain the success of both types of gender diversity reforms. Familial culture is generally featured with collectivism which gives priority to group goals (e.g. family objectives) and is based on relationships rather than educational and professional qualifications (Lyu et al., 2017). In this setting, appointments for senior leadership roles are based on relationships rather than the available pool of talent outside the family unit, which provide directorship opportunities to female family members rather than outside female talent, hence limiting board independence. Therefore, I argue that a familial culture restricts the effectiveness of the comply-or-explain gender diversity reforms, which trigger pressure in appointing one single female director to signal stakeholders that the recommendation has been followed. The empirical evidence in this study informs the current global debate over the business-case justifications for mandating board gender quotas to achieve a meaningful board gender diversity. Therefore, these findings provide a strong case to call for gender quota reforms on boards, in particular in countries with a familial culture, to genuinely advantage firms from the corporate governance benefits that arise with a gender diverse board and board independence.

The rest of the paper is organised as follows. Section two reviews the literature and proposes hypotheses. Section three discusses the methodology. Section four presents the empirical analysis and robustness tests. Section five discusses and concludes.

### 2.2. Hypotheses Development

#### 2.2.1 Independent-female Directors and Gender Reforms (Voluntary vs Quotas)

The benefits of board effectiveness are framed by the agency theory, where conflicts of interest between shareholders and management can lead to expropriation of resources from minority investors (Jensen & Meckling, 1976). Therefore, corporate governance reforms are an external mechanism to protect shareholders at a country level, which in turn expand financial markets, facilitate external financing of new firms, and improve the efficiency of investment allocation (La Porta et al., 2000). The benefit of gender diversity has been highlighted through agency, resource dependence, legitimacy and human capital theories, which explain that women bring different professional experiences and perspectives and improve strategic actions that promote firm performance (Catalyst, 2011; Poletti-Hughes & Briano-Turrent, 2019), enhance independence (Adams & Ferreira, 2009) and legitimacy (Hillman et al., 2007). As a disciplining external governance mechanism gender diversity reforms aim to bring a societal benefit through enhanced corporate transparency and accountability that arise because of less cohesion and cognitive conflict on board dynamics (Forbes & Milliken, 1999), increased effort towards governance challenges (Adams & Ferreira, 2009) and improvement of strategic and other monitoring decisions from a broader skillset (Ahern & Dittmar, 2012). Wahid (2019) finds that based on such mechanisms, corporations with gender diverse boards are associated with less financial misconduct, which motivate regulation on establishing processes that reduce negative accounting outcomes.

Although gender diversity brings benefits to the corporate outcomes, women representation remains in the minority on corporate boards (Brieger et al., 2019; Carrasco et al., 2015). Indeed,

the slow rise of female on boards suggests that the corporate benefits of gender diversity are yet to induce change on board composition and corporate culture (Klettner et al., 2016).

Following the institution in legitimacy theory, women's inclusion in upper echelon is effective to builds trust and confidence among shareholders and other stakeholder groups (Jeong & Harrison, 2017). A surge of public pressure for gender diversity in boardrooms has contributed to an increase of such recommendation in national codes of corporate governance (Gabaldon & Gimenez, 2017). Although comply-or-explain gender reforms which are non-binding, can still be a strong incentive on setting a norm in the industry, gender quotas force firms to respond faster and towards larger targets to comply with appointment of female directors on boards. Some countries have moved from a voluntary self-regulation, such as comply-or-explain reform towards legislative quotas (Labelle et al., 2015). For instance, nine European countries (Austria, Belgium, France, Germany, Iceland, Italy, Netherlands, Portugal and Spain) turned comply-or-explain reforms on gender diversity to mandatory quotas by 2018. Their primary motivation to adopt gender quotas is the proven ineffectiveness in raising gender diversity to target levels by comply-or-explain reforms (Grosvold et al., 2007).

Nelson and Levesque (2007) argue that firms consider regulatory reforms as a greater opportunity to design a governance structure which responds to public concerns. In this respect, an expectation of gender diversity reforms is the contribution to board independence because women are not part of the "old boy" network, which allows the provision of independent decision-making (Grosvold & Brammer, 2011). Also, some firms might aim to appoint independent-female directors to comply in parallel with board independence and gender diversity either with regulations or recommendations (Bohren & Staubo, 2016).

Based on the classical institutional theory, companies that assume reforms early consider such reforms as technically effective to achieve gains (Kennedy & Fiss, 2009) while other companies might later adopt reforms in response to the social imperative of 'legitimacy', to

avoid a loss in reputation, prestige or negative public exposure and criticism (Boyd, 1996, p.172). These aspects trigger voluntary self-regulation (Mensi-Klarbach et al., 2019), but risk the effective implementation of such reforms, which might lead to tick box practices. That is, tokenistic actions might lead the inclusion of female directors on boards as a response to outside pressures (Smith & Parrotta, 2018) rather than for the intrinsic corporate benefits that gender diversity could bring to the boardroom. Self-regulation can be symbolic to dissipate criticism (Arya & Salk, 2006), limiting the benefits from the outside female talent (Field et al., 2020). Since board independence is affected by regulatory and non-regulatory determinants (Bohren & Staubo, 2016), and the appointment of directors to the board is not gender neutral (Farrell & Hersch, 2005), voluntary recommendations to include women on boards might result on bureaucratic actions to signal compliance to the market rather than to accomplish any higher motives. The discussion above leads to the following hypotheses:

**H1a:** Comply-or-explain gender diversity reforms decrease the proportion of independent-female directors on boards.

**H1b:** Board independence decreases after comply or explain gender reforms.

### 2.2 Familial Culture and Gender Diversity Reforms

Generally, national culture becomes more likely to influence the appointment of female directors on boards (Pucheta-Martinez et al., 2021). Indeed, an important factor of determining women participation in the labour force is the cultural setting of familial ties (Alesina & Giuliano, 2010). A familial culture stresses family loyalties and authority, which defines the strength of the ties among members of a family and allocation of gender roles, discouraging egalitarian employment opportunities (Lim et al., 2021) and limiting women participation on businesses. This means institutions are dominated by male societies which is a dimension of masculinity (Grosvold & Brammer, 2011). A familial culture has less flexible labour markets because companies remain in the same family for generations, so are less likely to be

geographically mobile (Lim et al., 2021). These aspects in turn might influence the effectiveness of self-regulation, especially when specific measurable targets are not accounted for, which contrast to quotas from regulation-based reforms (Mensi-Klarbach et al., 2019).

Firms in countries with a stronger familial culture depend on loyalties and solidarity and distrust outsiders (Reher, 1998), resulting on preferential treatment for family members towards senior positions within the family firm (Dyer, 1988). Outside the family environment, women have to overcome barriers to reach a board appointment because national culture influences the social roles of men and women, gender inequality, and stereotyped perceptions of their advisory and leadership abilities (Carrasco et al., 2015). Therefore, when complying with regulation towards board gender diversity, firms would give more opportunities to female talents within the family rather than appointing independent-female directors, mainly because the role of family-affiliated female directors is to represent the controlling family through board activities (Ruigrok et al., 2007), which follows pro-family strategies to avoid a loss, especially when it refers to their SEW (Poletti-Hughes & Briano-Turrent, 2019). By involving family-affiliated directors, family owners can influence the firm's behaviours and decision-making (Evert et al., 2018), that aim towards non-financial goals such as preserving family control, employing family members, preserving the family identity and keeping the family business as a going concern for future generations (Gomez-Mejia et al., 2011). As such, family-affiliated female directors would play a key role in the protection of family wealth (Mulholland, 1996) and simultaneously would proxy for the quality of corporate governance in reassuring investors and other stakeholders that compliance with "good practice" is being achieved (Garcia Lara et al., 2017). Therefore, when gender diversity targets are not established (i.e. under comply-or-explain reforms), the appointment of a female director might follow a tokenistic inclusion to fulfil the aimed visibility that arises from external pressures (Torchia et al., 2011; Singh et al., 2015), as opposed to reaching to external female talent.

A society with stronger family ties tends to be more passive on initiatives of an individual nature (Reher, 1998), and more oriented towards social collectivism (Lyu et al., 2017), increasing not only corporate ownership concentration and control, but also, cohesion among corporate insiders in detriment of board independence (Chau & Grey, 2010). The presence of independent directors on the board strengthens internal corporate governance, especially in the context of a familial culture (Corbetta & Salvato, 2004), which in turn reduces agency costs in protection of all stakeholders. Board independence is particularly important for firms in less developed capital markets in support of international expansion and organisational capability (Kor & Misangyi, 2008). Considering that the inclusion of outside female talents on leadership roles aligns to informal institutions (Byron & Post, 2016), it follows that the effectiveness and legit adoption of corporate governance reforms that do not conform to the dominant governance logic in a particular country (Aguilera et al., 2018) will be contingent on the extent to which regulation is enforced, leading to the next hypotheses:

**H2a:** The negative impact of comply-or-explain gender diversity reforms on the ratio of female-independent directors is greater in countries with a familial culture.

**H2b:** There is a negative spill over effect of comply-or-explain gender diversity reforms on board independence in countries with a familial culture.

## 2.3. Methodology

### 2.3.1. Data and Model

I collected financial data from the Thomson Financials DataStream and Worldscope database for all non-financial sectors (i.e. excluding classification codes from 6000 to 6999). Data on board gender diversity and independence are obtained from the Boardex database. Data on country level corporate governance reforms is obtained from Mensi-Klarbach and Seierstad (2020), the Corporate Governance and Directors' Duties Global Guide under Thomson Reuters Practical Law and other sources (see Table 2.1 for detailed source information). Observations with incomplete data and with negative sales or negative equity are excluded. Financial variables are winsorized at the 1% and 99% levels to control for the influence of outliers. The final sample consists of 82,613 firm-years for 10,313 unique firms over the period 2000–2019, from 41 countries (considering the California state as an independent country since its gender quota reforms are different from the rest of the US).

Based on previous literature, the study classifies gender reforms under two mutually exclusive categories as non-regulated (i.e. comply-or-explain) reforms and regulation-based reforms (i.e. quotas). These gender diversity reforms offer quasi-natural experiments which lessen the concerns of endogeneity by isolating the causal effects of gender diversity reforms on female directors' appointments and board independence. The study addresses the comparability issue by following Fauver et al. (2017) by generating benchmark firms of countries in controlled group to begin in 2010 as the European Commission announced an EU-wide regulation of gender diversity on boards (Mensi-Klarbach et al. 2021) and the US (the largest economy in the sample) began to implement voluntary reform in 2010.

### 2.3.2. Gender Diversity Reform

This section addresses the model to examine hypotheses H1a and H1b using difference-in-difference estimation as model 1 which is shown in Eq2.1 and Eq2.2.

$$Y_{i,c,t} = \beta_1(QPost_{After=1}\ x\ QTreat_{quota=1}) + \beta_2 QPost_{After=1} + \beta_3 QTreat_{quota=1} + \sum \beta_m\ Controls_{i,c,t} + \sum \beta_n\ FE + \varepsilon_{i,,c,t} \quad (2.1)$$

$$Y_{i,c,t} = \beta_1(CPost_{After=1}\ x\ CTreat_{comply=1}) + \beta_2 CPost_{After=1} + \beta_3 CTreat_{comply=1} + \sum \beta_m\ Controls_{i,c,t} + \sum \beta_n\ FE + \varepsilon_{i,,c,t} \quad (2.2)$$

where $Y_{i,c,t}$ is the dependent variable representing the proportion of female directors, the proportion of independent-female directors or board independence for firm *i* at time *t* in country *c* that passed gender diversity reforms.

$QPost_{After=1}$ is a dummy variable that equals one from the time of the intervention (i.e. quota reforms). $QTreat_{quota=1}$ is a dummy variable indicating firms treated by Quota reform and inclusion of female directors on boards as quota reforms enforced to appoint female directors via regulations. The coefficient on $\beta_2(QPost_{After=1}\ x\ QTreat_{quota=1})$, represents the changes for the treatment group comparative to the change for the control group (i.e. *Countries without any gender diversity reforms and comply-or-explain reforms in a particular year*). This DiD design takes as the control group as all firms from economies with quota reforms and other countries with comply-or-explain reforms and without any gender diversity reforms.

$CPost_{after=1}$ is a dummy variable that equals one from the time of the intervention (i.e. comply-or-explain/ voluntary reform). $CTreat_{comply=1}$ is a dummy variable indicating firms treated by comply-or-explain reforms. Our treated group comprises with firms affected by the comply-or-explain reforms and control group firms unaffected by such reform. The coefficient on $\beta_1(CPost_{After=1}\ x\ CTreat_{comply=1})$ , represents the changes for the treatment group comparative to the change for the control (i.e. *Countries without voluntary reforms in a particular year while excluding countries with quota reforms*).

### 2.3.3. Role of Familial Culture and Gender Diversity Reform

I examine hypotheses H2a and H2b using the triple interaction (DDD) method as model 2 as shown in Eq2.3 and Eq2.4.

$$Y_{i,c,,t} = \beta_1 QPost_{After=1} * QTreat_{quota=1} * \overline{Fam_i} + \beta_2 QPost_{After=1} * QTreat_{quota=1} + \beta_3 QTreat_{quota=1} * \overline{Fam_i} + \beta_4 QPost_{After=1} + \beta_5 QTreat_{Quota=1} + \sum \beta_m \ Controls_{i,c,t} + \sum \beta_n \ FE + \varepsilon_{i,c,t} \quad (2.3)$$

$$Y_{i,c,,t} = \beta_1 CPost_{After=1} * CTreat_{comply=1} * \overline{Fam_i} + \beta_2 CPost_{After=1} * CTreat_{comply=1} + \beta_3 QTreat_{comply=1} * \overline{Fam_i} + \beta_4 CPost_{After=1} + \beta_5 CTreat_{comply=1} + \sum \beta_m \ Controls_{i,c,t} + \sum \beta_n \ FE + \varepsilon_{i,c,t} \quad (2.4)$$

In order to examine hypotheses 2a and 2b, I proxy familial culture p-score ($\overline{Fam_i}$) and make the variable interact with $\beta_1 QPost_{After=1} * QTreat$ to obtain triple interaction term: DDD-fam = $QPost_{After=1} * QTreat_{quota=1} * \overline{Fam_i}$ as shown in Eq2.3 and Eq2.4. $\beta_1$ represents the gender diversity reform impact on the cross-sectional treatment group on the familial culture. $Controls_{i,c,t}$ represent time-varying firm-level and country-level variables (appendix 2.1), *FE* denotes industry and year fixed effects and $\varepsilon_{i,t}$ is an error term of the model. In the main DiD & DDD models, I use robust standard errors double clustered by firm and year because adoption of reforms are a firm-level decision in a particular year.

## Table 2.1. Description of Corporate Board Gender Reforms Worldwide

| Country | Gender Policy Reform | Year | Quota | Source |
|---|---|---|---|---|
| Argentina | No Policy | - | - | Country CG Code (2012); Barco, E., & Briozzo, A. E. (2020). |
| Australia | Comply-or-explain | 2010 | - | Australian Securities Exchange Corporate Governance Council, (2010) |
| | Comply-or-explain | 2012 | | Workplace Gender Equality Act (2012); Sultana et al. (2020). |
| Austria | Comply-or-explain | 2009 | | Labelle et al., (2015)<br>Mensi-Klarbach & Seierstad, (2020) |
| | Quota (soft law) | 2017 | 30% | |
| Belgium | Comply-or-explain | 2008 | | |
| | Quota (hard law) | 2011 | 33% | |
| Brazil | Comply-or-explain | 2016 | - | Country CG Code (2016) |
| Canada | Comply-or-explain | 2015 | - | Canadian securities laws (2014/12) |
| China | No Policy | - | - | China's State Laws and Companies Law |
| Colombia | No Policy | - | - | Country CG Code (2007) |
| | | | | OECD (2017), Corporate Governance in Colombia, Corporate Governance, OECD Publishing, Paris. |
| Chile | Comply-or-explain | 2015 | - | Thomson Reuter Practical Law (2021) - the SVS issued General Rule Nos 385 and 386 |
| Denmark | Comply-or-explain | 2010 | - | Country CG Code (2010) |
| Egypt | No Policy | - | - | Country CG Code (2005 & 2011) |
| Finland | Comply-or-explain | 2015 | - | Country CG Code (2015) |
| France | Comply-or-explain | 2010 | - | Labelle et al., (2015)<br>Mensi-Klarbach & Seierstad, (2020) |
| | Quota (hard law) | 2011 | 40% | |
| Germany | Comply-or-explain | 2010 | - | |
| | Quota (hard law) | 2015 | 30% | |
| Greece | Quota (soft law) | 2020 | 25% | EU Shareholder Rights Directive II (SRD II) |
| Hong Kong | Comply-or-explain | 2019 | - | Country CG Code (2018) |
| Hungary | No Policy | - | - | Country CG Code (2018); Thomson Reuter Practical Law (2021) |
| India | Quota (hard law) | 2013 | 1 | India Companies Act, (2013): Staff (2015) |
| Indonesia | No Policy | - | - | Country CG Code (2018); Understanding Indonesia Corporate Governance Manual and Roadmap. |
| Israel | Quota (soft law) | 1999 | 1 | Terjesen et al. (2015) |
| Italy | Quota (hard law) | 2011 | 33% | Mensi-Klarbach & Seierstad, (2020) |
| Japan | Comply-or-explain | 2018 | - | Country CG Code (2015 & 2018-June) |
| Malaysia | Comply-or-explain | 2012 | - | Country CG Code, (2012)<br>Terjesen et al. (2015). |
| Mexico | Comply-or-explain | 2018 | - | Thomson Reuters, Practical Law Database, (2021) |
| Netherlands | Comply-or-explain | 2008 | | Labelle et al., (2015)<br>Mensi-Klarbach & Seierstad, (2020) |
| | Quota (soft law) | 2011 | 30% | |
| Norway | Quota (hard law) | 2003 | 40% | Mensi-Klarbach& Seierstad, (2020) |

| Country | Gender Policy Reform | Year | Quota | Source |
|---|---|---|---|---|
| Pakistan | Quota (soft law) | 2017 | =>1 | The Companies Act of 2017<br>Securities and Exchange Commission of Pakistan (SECP). |
| Peru | No Policy | - | - | Country CG Code (2002) |
| Philippines | Comply-or-explain | 2017 | - | Country CG Code (2016) |
| Poland | Comply-or-explain | 2010 | - | Terjesen et al. (2015). |
| Portugal | Comply-or-explain | 2011 | - | Mensi-Klarbach& Seierstad, (2020) |
| | Quota (hard law) | 2017 | 33% | |
| Singapore | Comply-or-explain | 2018 | - | Country CG Code (2018) |
| South Korea | Comply-or-explain | 2017 | - | Korea's Stewardship Code, (2016) |
| Spain | Comply-or-explain | 2006 | - | Labelle et al., (2015) |
| | Quota (soft law) | 2007 | 40% | Mensi-Klarbach& Seierstad, (2020) |
| Sweden | Comply-or-explain | 2005 | - | Country CG Code (2004) |
| Switzerland | Comply-or-explain | 2015 | - | Country CG Code (2014) |
| | Quota (soft law) | 2022 | - | Thomson Reuters, Practical Law Database (2021) |
| Thailand | Comply-or-explain | 2017 | - | Country CG Code (2017) |
| Turkey | Comply-or-explain | 2014 | - | Country CG Code (2012) |
| UK | Comply-or-explain | 2012 | - | Country CG Code (2012) |
| US | Comply-or-explain | 2010 | - | Terjesen et al. (2015). |
| California | Comply-or-explain | 2010 | - | Terjesen et al. (2015). |
| | Quota (hard law) | 2018 | =>1 | Thomson Reuters, Practical Law Database (2021) |

### 2.3.4. Variables

Board Gender reforms are categorised as: (1) gender quotas or (2) comply-or-explain reforms. Gender quotas refer to specific regulation that have established a target to be achieved for gender diversity on boards. Comply-or-explain reforms include recommendations that aim to influence the gender diversity on boards. These could range from specific statements that recommend to include women on boards, to indirect measures that would address components of gender diversity (e.g. disclosure of gender diversity attributes considered before the election of new board members for Chile). Each characteristic is coded as one from the following year in which the gender reform becomes effective and as 0 otherwise. The analysis for quota reforms compares firms in countries with regulation vs non-regulation reforms (i.e. countries with both voluntary and non-policy - all sample). The analysis for comply-or-explain reforms compares firms in countries with voluntary vs non-policy reforms, therefore excludes those

observations from countries that have introduced quotas. In cases where a comply-or-explain preceded a quota, the sample under analysis truncates from the year when a quota was introduced.

All models include a firm and country-level control variables to ensure that the effect of gender reforms on gender diversity and board independence is not driven by confounding factors (see appendix 2.1 for definitions of all variables). Specifically, following Fauver et al. (2017), I include firm size (size), leverage (Leverage), current ratio, and sales growth as firm-level controls; and regulatory quality to control for country-level governance. At the country level, I include domestic credit to control for a country's financial sector development, GDP growth rate to control for country's economic development and regulatory quality that accounts for the government ability to formulate and implement policies and regulations. I also control for internal corporate governance practices that could influence board composition with board size and CEO-Chair duality.

I test the hypotheses regarding the familial culture (Eq. 2.2) by including an interaction term between the post-period of reforms and a dummy variable that classifies a country as having a strong familial culture (Fam). Following Lim et al. (2021), familial culture is measured with data from the World Values Survey (WVS) and the European Values Survey (EVS)[11], which provide indices from 1 to 4 according to the level of agreement with regards to family related views indicating the perception of respondents towards its IMPORTANCE (importance of family in life), DUTY (duties and responsibilities of parents towards children) and LOVE (respect and love for one's own parents). I calculate a measure of the familial culture by extracting the first principal component from all three variables – IMPORTANCE, LOVE and

[11] Available for two time periods (1999-2004) and (2005-2010) from https://www.worldvaluessurvey.org/wvs.jsp and https://europeanvaluesstudy.eu/

DUTY (See appendix 2.2). A stronger familial culture is a dummy variable that equals to one if the principle component score is above the countries-level median and zero otherwise. Therefore, the familial culture is defined by the strength of the ties among family members (Lim et al., 2021) - a higher score corresponds to a strong familial culture. In further analyses, I use other proxies of familial culture – solidarity score and family business prevalence index (FBPI) (defined in appendix 2.1).

### 2.4 Descriptive Statistics

Table 2.2 summarizes the sample distribution by country (Panel A) and year (Panel B). In Panel A, the USA presents the largest number of observations at 19,737. Hungary has the fewest observations at 12. In Panel B, I find that the year 2000 has the fewest observations at 668, while the year 2017 has the most observations at 7,313.

**Table 2.2. Sample Distribution**

**Panel A. Distribution by Country**

| Country | Firms | Observations | Country | Firms | Observations |
|---|---|---|---|---|---|
| Argentina | 12 | 81 | Japan | 433 | 2,623 |
| Australia | 560 | 4,226 | Malaysia | 156 | 952 |
| Austria | 37 | 338 | Mexico | 69 | 475 |
| Belgium | 53 | 610 | Netherlands | 72 | 869 |
| Brazil | 121 | 804 | Norway | 118 | 1,047 |
| Canada | 74 | 483 | Pakistan | 10 | 22 |
| Chile | 28 | 195 | Peru | 11 | 41 |
| China | 453 | 2,431 | Philippines | 55 | 272 |
| Colombia | 13 | 75 | Poland | 36 | 250 |
| Denmark | 57 | 409 | Portugal | 29 | 350 |
| Egypt | 9 | 39 | Singapore | 225 | 1,528 |
| Finland | 98 | 636 | South Korea | 42 | 178 |
| France | 361 | 3,714 | Spain | 95 | 1,035 |
| Germany | 325 | 3,146 | Sweden | 239 | 1,830 |
| Greece | 17 | 251 | Switzerland | 126 | 904 |
| Hong Kong | 433 | 2,497 | Thailand | 72 | 312 |
| Hungary | 3 | 12 | Turkey | 25 | 161 |
| India | 517 | 3,301 | UK | 827 | 10,181 |
| Indonesia | 88 | 395 | California (USA) | 1,329 | 13,514 |
| Israel | 194 | 1,474 | USA | 2,741 | 19,737 |
| Italy | 150 | 1,215 | **Total** | **10,313** | **82,613** |

**Panel B. Distribution by Year**

| Year | Observations | Year | Observations |
|---|---|---|---|
| 2000 | 668 | 2010 | 4,769 |
| 2001 | 1,094 | 2011 | 5,065 |
| 2002 | 1,187 | 2012 | 5,162 |
| 2003 | 1,752 | 2013 | 5,837 |
| 2004 | 2,090 | 2014 | 6,181 |
| 2005 | 2,460 | 2015 | 6,888 |
| 2006 | 2,697 | 2016 | 7,055 |
| 2007 | 3,120 | 2017 | 7,313 |
| 2008 | 3,384 | 2018 | 7,064 |
| 2009 | 3,355 | 2019 | 5,472 |
| | | **Total** | **82,613** |

Table 2.3, Panel A reports descriptive statistics for the main variables of the study. Main dependent variables have a mean of 0.11, 0.08 and 0.53 for female ratio, female-independent ratio and board independence, respectively. *Post_Quota* has a mean of 0.13, denoting that 13.0% of observations had a board gender-quota reform at some point during this sample period. *Post_Comply* has a mean of 0.36, denoting that 36% of observations had a comply-or-explain reform at some point during the sample period. Panel B provides univariate tests of non-gender reforms vs. gender reforms during the 2016-2019 period to show a summary that allows sufficient time to adopt gender reforms. Panel C reports univariate differences in means of gender diversity reforms by comply-or-explain and quotas. Panel D provides Pearson correlation coefficients between the main variables of interest. Since the correlation coefficients between the key variables of the study are low, multicollinearity is not likely to be driving my results. I run VIF factors for all explanatory variables and found that with the exception of regulatory quality all the factors are less than 10. To account for this, I perform checks (unreported) in our regressions excluding regulatory quality and confirm that multicollinearity does not impact on the findings.

## Table 2.3. Descriptive Statistics, Univariate Tests & Correlation Matrix

### Panel A. Descriptive statistics

| Variable | Mean | Quantile 1 | Median | Quantile 3 | SD |
|---|---|---|---|---|---|
| **Firm Level Variables** | | | | | |
| Female Ratio | 0.11 | 0.00 | 0.10 | 0.20 | 0.13 |
| Female independent ratio | 0.08 | 0.00 | 0.00 | 0.14 | 0.11 |
| Board Independence | 0.53 | 0.33 | 0.56 | 0.75 | 0.28 |
| Female Inside | 0.04 | 0 | 0 | 0 | 0.80 |
| Post_Quota* | 0.13 | 0 | 0 | 0 | 0.34 |
| Post_Comply* | 0.36 | 0.00 | 0.00 | 1.00 | 0.48 |
| Firm Size | 8.74 | 5.86 | 8.12 | 11.41 | 3.90 |
| Leverage | 0.23 | 0.03 | 0.19 | 0.35 | 0.22 |
| Current Ratio | 0.49 | 0.29 | 0.48 | 0.67 | 0.25 |
| ROA | 0.04 | -0.02 | 0.09 | 0.17 | 0.85 |
| Sales growth rate | 0.18 | -0.02 | 0.07 | 0.19 | 0.69 |
| Board Size | 8.29 | 6 | 8 | 10 | 3.66 |
| CEO-Chair | 0.38 | 0.00 | 0.00 | 1.00 | 0.49 |
| **Country- Level Variables** | | | | | |
| Regulatory Quality | 1.35 | 1.27 | 1.50 | 1.70 | 0.59 |
| GDP growth rate | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 |
| Domestic credit | 1.46 | 1.16 | 1.62 | 1.83 | 0.47 |
| Familial culture (dummy) | 0.19 | 0.00 | 0.00 | 0.00 | 0.39 |
| Fam_PCA | -0.04 | -0.17 | 0.04 | 0.04 | 0.22 |
| Solidarity | 0.37 | 0.29 | 0.36 | 0.39 | 0.16 |
| FBPI | 0.38 | 0.33 | 0.33 | 0.44 | 0.12 |

***** Descriptive statistics for Post_Quota & Post_Comply were obtained based on the treatment group out of total sample size.

### Panel B – Annual Univariate Tests of Gender Diversity Reforms in Recent Years (2016-19)

| Variables | Year | Post = 0 Mean | Post = 1 Mean | Difference in Mean |
|---|---|---|---|---|
| Fem Ratio | 2016 | 0.124 | 0.186 | 0.062*** |
| | 2017 | 0.133 | 0.207 | 0.074*** |
| | 2018 | 0.149 | 0.214 | 0.065*** |
| | 2019 | 0.152 | 0.219 | 0.067*** |
| Female-independent | 2016 | 0.142 | 0.090 | -0.052*** |
| | 2017 | 0.152 | 0.105 | -0.047*** |
| | 2018 | 0.129 | 0.066 | -0.063*** |
| | 2019 | 0.119 | 0.073 | -0.046*** |
| Independence | 2016 | 0.657 | 0.388 | -0.268*** |
| | 2017 | 0.677 | 0.409 | -0.267*** |
| | 2018 | 0.568 | 0.440 | -0.127*** |
| | 2019 | 0.430 | 0.467 | 0.036* |

### Panel C - Univariate Tests: Gender Diversity Reforms (difference in means)

| | Quota Post = 0 | Quota Post = 1 | Difference in Mean | Comply-or-explain Post = 0 | Comply-or-explain Post = 1 | Difference in Means |
|---|---|---|---|---|---|---|
| Fem ratio | 0.102 | 0.172 | 0.114*** | 0.130 | 0.138 | 0.007*** |
| Female-Independent | 0.071 | 0.102 | 0.076*** | 0.135 | 0.050 | -0.085*** |
| Board Independence | 0.370 | 0.571 | 0.201*** | 0.638 | 0.484 | -0.153*** |

***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 2.3. Panel D – Pearson Correlation Analysis**

| | | ROA | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Leverage | 0.095* | | | | | | | | | | | | | | | |
| 3 | Firm size | 0.061* | 0.072* | | | | | | | | | | | | | | |
| 4 | Current ratio | -0.034* | **-0.344*** | -0.255* | | | | | | | | | | | | | |
| 5 | Sales growth | 0.005 | -0.015* | -0.038* | 0.033* | | | | | | | | | | | | |
| 6 | GDP growth | 0.013* | -0.026* | 0.036* | 0.039* | 0.043* | | | | | | | | | | | |
| 7 | Domestic credit | -0.029* | -0.018* | -0.196* | 0.022* | 0.007* | -0.259* | | | | | | | | | | |
| 8 | Regulatory quality | -0.043* | -0.078* | -0.052* | 0.0004 | 0.026* | **-0.454*** | 0.493* | | | | | | | | | |
| 9 | Fem ratio | 0.020* | 0.034* | 0.104* | -0.042* | -0.046* | -0.012* | -0.102* | 0.010* | | | | | | | | |
| 10 | Fem Independent | 0.016* | 0.038* | 0.073* | -0.066* | -0.043* | -0.024* | 0.032* | 0.044* | **0.778*** | | | | | | | |
| 11 | Board Independence | -0.020* | -0.008* | -0.226* | -0.026* | -0.006 | 0.027* | **0.395*** | 0.063* | 0.111* | **0.361*** | | | | | | |
| 12 | Inside female | 0.013* | 0.002 | 0.071* | 0.021* | -0.018* | 0.011* | -0.203* | -0.046* | **0.548*** | -0.090* | -0.302* | | | | | |
| 13 | CEO-Chair | 0.014* | 0.001 | -0.061* | 0.030* | -0.009* | 0.064* | 0.057* | -0.072* | -0.074* | -0.123* | -0.124* | 0.048* | | | | |
| 14 | Board size | 0.064* | 0.092* | **0.328*** | -0.158* | -0.075* | 0.003 | -0.174* | -0.159* | 0.143* | 0.119* | -0.088* | 0.069* | 0.110* | | | |
| 15 | Solidarity | 0.036* | 0.091* | 0.007**** | 0.036* | -0.049* | 0.041* | -0.088* | **-0.302*** | -0.142* | -0.131* | -0.142* | 0.050* | 0.129* | 0.129* | | |
| 16 | FBPI | 0.032* | 0.246* | 0.037* | 0.027* | -0.046* | -0.081* | **-0.314*** | **-0.139*** | -0.032* | -0.066* | **-0.304*** | 0.144* | 0.034* | 0.190* | **0.336*** | |
| 17 | familial culture | 0.041* | 0.097* | 0.148* | -0.047* | -0.039* | 0.173* | **-0.625*** | **-0.551*** | 0.092* | -0.030* | -0.221* | 0.191* | 0.020* | 0.192* | 0.286* | **0.317*** |

* p<0.5. Bold highlights correlation coefficients larger than 30%.

## 2.5. Empirical Analysis

### 2.5.1. Gender Diversity Quotas vs Comply-or-Explain

Table 2.4 presents the initial results. In columns 1 and 2, I use female proportion as the dependent variable and test for the effect of gender reforms using a DiD regression specification. I find that quota reforms are effective in increasing the ratio of female directors, independent-female directors and board independence (columns 1, 3 and 5). I test H1a in columns 4, where comply-or-explain reforms decrease the ratio of independent-female directors, confirming its ineffectiveness to bring external female talents into boards of directors. Column 6 reports that board independence also decreases with comply-or-explain reforms in support of H1b. An explanation could be that comply-or-explain gender reforms might only increase the proportion of female directors in executive positions and/or with family ties to the board (see Table 6, column 2 where I find a positive, albeit insignificant estimator for a comply-or-explain reform on the proportion of female-inside directors), being therefore an influential factor in decreasing board independence. ROA, firm size, GDP growth, domestic credit [except for board independence - possibly because the strength of internal governance mechanisms is not relevant when credit financing is more available and less dependent on shareholders' funds (Bruno & Claessens, 2010)] and regulatory quality are significantly and positively associated with dependent variables, whereas sales growth, board size (except for board independence) and CEO-Chair duality are negatively associated with female proportion in boards.

**Table 2.4. Gender Reforms and Gender Diversity**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Variables | Fem Ratio | | Fem Indep | | Board Indep | |
| Post_quota | 0.030*** | | 0.005*** | | 0.010** | |
| | (14.52) | | (2.58) | | (2.43) | |
| Post_comply | | 0.005** | | -0.004** | | -0.014*** |
| | | (2.27) | | (-2.10) | | (-3.48) |
| ROA | 0.002** | 0.002*** | 0.001*** | 0.002*** | -0.003** | -0.002 |
| | (4.11) | (3.49) | (2.89) | (3.61) | (-2.81) | (-1.62) |
| Leverage | -0.006*** | -0.007*** | -0.009*** | -0.010*** | -0.077*** | -0.082*** |
| | (-2.92) | (-3.49) | (-5.52) | (-5.83) | (-19.15) | (-18.64) |
| Firm size | 0.006*** | 0.007*** | 0.009*** | 0.009*** | 0.021*** | 0.021*** |
| | (30.30) | (29.45) | (48.40) | (47.59) | (46.80) | (43.50) |
| Current ratio | 0.004* | 0.004* | 0.003** | 0.004** | 0.012*** | 0.018*** |
| | (1.91) | (1.77) | (2.12) | (2.32) | (3.37) | (4.60) |
| Sales growth | -0.003*** | -0.004*** | -0.003*** | -0.004*** | -0.008*** | -0.008*** |
| | (-6.20) | (-6.78) | (-6.69) | (-7.94) | (-6.60) | (-6.77) |
| GDP growth | 0.417*** | 0.319*** | 0.452*** | 0.407*** | 0.281*** | 0.307*** |
| | (11.85) | (7.49) | (15.62) | (12.31) | (4.23) | (3.94) |
| Domestic credit | 0.021*** | 0.005 | 0.026*** | 0.008*** | -0.036*** | -0.054*** |
| | (6.17) | (1.24) | (9.67) | (2.67) | (-5.39) | (-6.81) |
| Regulatory quality | 0.021*** | 0.043*** | 0.018*** | 0.036*** | 0.034*** | 0.039*** |
| | (6.35) | (10.39) | (6.32) | (11.14) | (5.33) | (5.27) |
| Board size | 0.013*** | 0.034*** | 0.013*** | 0.028*** | -0.006** | -0.001 |
| | (9.48) | (10.39) | (11.51) | (22.97) | (-2.08) | (-0.37) |
| CEO-Chair | -0.004*** | -0.004*** | -0.010*** | -0.010*** | -0.052*** | -0.064*** |
| | (-5.41) | (-4.68) | (-15.64) | (-14.67) | (-35.74) | (-39.39) |
| Observations | 82,613 | 69,818 | 82,307 | 69,512 | 82,613 | 69,818 |
| r2 | 0.39 | 0.23 | 0.35 | 0.30 | 0.57 | 0.58 |

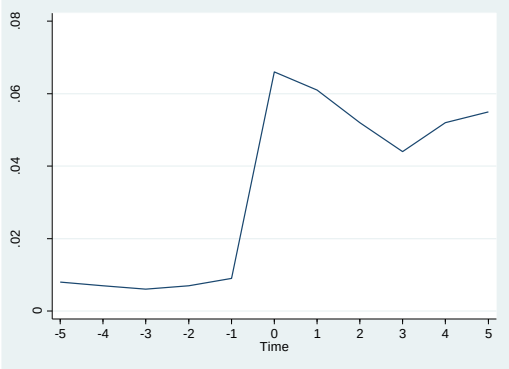
This table presents the results of the DiD regression models examining the gender diversity reforms on Female proportion, female independent proportion and proportion of independent directors on the board. Variables are defined in Appendix 2.1. I present robust t-statistics in parentheses, calculated based on standard errors double clustered by firm and year. Dummies for year, country and industry included. * p<0.10, ** p<0.05, *** p<0.01.

### 2.5.2. Dynamic Effects of Board Gender Reforms

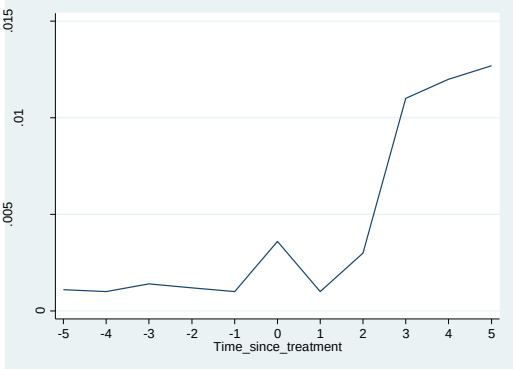
Considering that companies in countries without reforms could follow international benchmark for regulation on board composition, possibly influenced by OECD roundtables of corporate governance that have helped principles of good practice to be accepted globally (Ararat et al., 2021), I test whether results are not driven by such pre-existing developments in improving board diversity and independence. In Figure 2.1, I present event study graphs with estimates from a dynamic treatment with heterogeneous effects during leads and lags (-5 to +5). Here, I use the average treatment effect (ATE) for groups, where the group is defined by the time period when companies are treated by reforms. This model assures that the lead and lag coefficients are free from any effects from other periods. I find clear-cut effects around the

time of the reforms or after, whereas the behaviour of each of the dependent variables is more stable before the treatment periods.

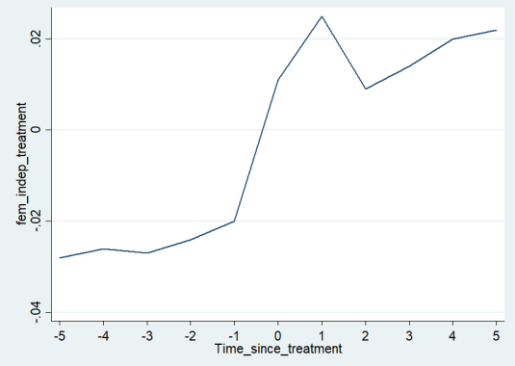
**Figure 2.1. Event Study Graph Using Estimator Robust to Heterogeneous Treatment Effects**



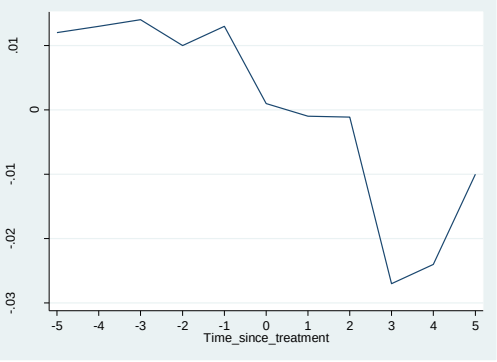

**Quota Reform and Female Proportion**



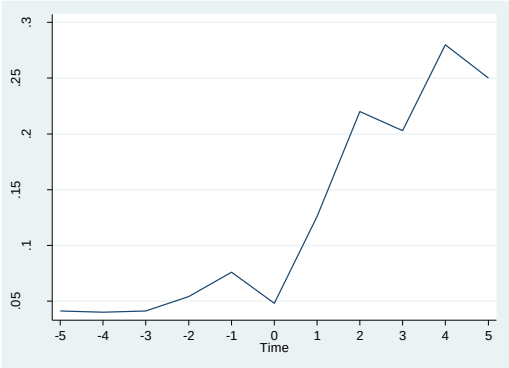

**Comply-or-explain and female proportion**



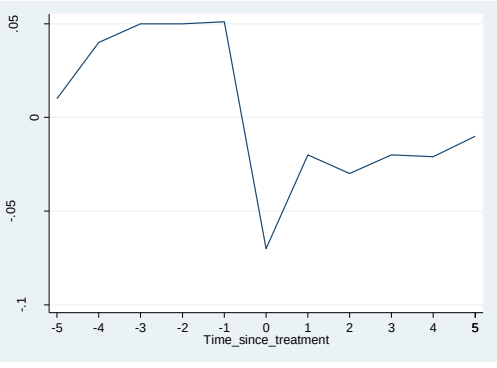

**Quota Reform and Female Independent**




**Comply-or-explain and Female Independent**




**Quota Reform and Independence**




**Comply-or-explain and Independence**

***** The estimators are robust to heterogeneous effects, and to dynamic effects based on standard errors clustered by country

### 2.5.3. The Influence of the Familial Culture on Board Reforms

Table 2.5 presents the results regarding the influence of the familial culture in up taking regulation-based and comply-or-explain reforms. Columns 1 and 3 suggest that quota regulations are effective in increasing the proportion of female directors on boards, independently of whether there is a familial culture. Columns 2 and 4 show that both comply-or-explain reforms is negatively associated with the ratio of female and independent-female directors in countries without a familial culture (in support of H2a). In contrast, quota reforms are shown to be effective in boosting the increase of the ratio of independent-female directors in countries with a familial culture. An explanation might be that a comply-or-explain is effective to only increase female-inside directors as a way to signal the market that the recommendation is being followed as opposed to reaching to the external market for female talent (See Table 6, column 4, where I find that a positive and significant estimator of a comply-or-explain reform on the ratio of female-inside directors for companies in a country with a familial culture).

Columns 5 and 6 present the results for board independence, suggesting a negative spillover effect that arises after a comply-or-explain gender reform as a function of a country's familial culture (in support of H2b).

**Table 2.5. Gender Reforms and Board Independence in Countries with a Familial Culture**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Female | | Female indep | | Board indep | |
| Post_quota | 0.131*** | | 0.035*** | | -0.014*** | |
| | (47.74) | | (15.30) | | (-2.74) | |
| Post_comply | | 0.001 | | 0.005* | | 0.016** |
| | | (0.67) | | (1.66) | | (2.26) |
| Post_quota#Fam | 0.031* | | 0.043*** | | 0.055* | |
| | (1.84) | | (2.77) | | (1.68) | |
| Post_comply#Fam | | -0.117*** | | -0.136*** | | -0.429*** |
| | | (-3.44) | | (-6.28) | | (-7.82) |
| ROA | 0.002** | 0.002*** | 0.001*** | 0.001*** | -0.003*** | -0.002 |
| | (3.25) | (3.45) | (2.25) | (2.69) | (-2.41) | (-1.59) |
| Leverage | -0.006 | -0.008*** | -0.009*** | -0.010*** | -0.077*** | -0.080*** |
| | (-1.43) | (-3.23) | (-2.67) | (-2.87) | (-8.94) | (-8.62) |
| Firm size | 0.006*** | 0.007*** | 0.009*** | 0.009*** | 0.021*** | 0.021*** |
| | (13.20) | (29.65) | (21.14) | (21.09) | (18.76) | (18.06) |
| Current ratio | 0.004 | 0.004* | 0.003 | 0.004 | 0.012 | 0.017*** |
| | (0.92) | (1.87) | (0.97) | (1.22) | (1.56) | (2.10) |
| Sales growth | -0.003*** | -0.004*** | -0.003*** | -0.004*** | -0.008*** | -0.008*** |
| | (-5.18) | (-6.83) | (-5.38) | (-6.67) | (-5.13) | (-5.57) |
| GDP growth | 0.416*** | 0.228*** | 0.447*** | 0.300*** | 0.283*** | 0.060 |
| | (12.50) | (5.93) | (14.92) | (10.08) | (4.43) | (0.93) |
| Domestic credit | 0.021*** | 0.006 | 0.025*** | 0.009** | -0.039*** | -0.046*** |
| | (4.12) | (1.02) | (6.02) | (2.07) | (-3.95) | (-4.19) |
| Regulatory Quality | 0.027*** | 0.040*** | 0.026*** | 0.034*** | 0.034*** | 0.032*** |
| | (6.59) | (10.42) | (6.99) | (8.92) | (4.02) | (3.60) |
| Board size | 0.013*** | 0.034*** | 0.013*** | 0.028*** | -0.006 | -0.003 |
| | (4.22) | (22.31) | (5.16) | (10.43) | (-0.91) | (-0.36) |
| CEO-Chair | -0.004** | -0.004** | -0.010*** | -0.010*** | -0.052*** | -0.061*** |
| | (-2.32) | (-2.05) | (-7.15) | (-6.73) | (-15.47) | (-17.02) |
| Observations | 82,613 | 69,818 | 82,307 | 69,512 | 82,613 | 69,818 |
| r2 | 0.37 | 0.23 | 0.35 | 0.30 | 0.57 | 0.58 |

This table presents the results of the DDD regression models examining the moderating effect of familial culture over gender diversity reforms on Female proportion, female independent proportion and proportion of independent directors on the board. Variables are defined in Appendix 2.1. I present robust t-statistics in parentheses, calculated based on standard errors double clustered by firm and year. Dummies for year, country and industry included. * p<0.10, ** p<0.05, *** p<0.01.

### 2.5.4. Impact of Board Reforms on Female-inside Directors Appointments

I draw attention to the influence of the board gender diversity reform on female-inside directors' appointments. Table 2.6 represents the results of gender diversity reforms effect on appointment of female-inside directors' appointments. Column 1 suggests that quota reforms increase female-inside directors. Column 3 shows a reduction of female-inside directors following quota reform in familial culture as may offer opportunity to recruit female independent director. Findings in Column 4 suggest that comply-or-explain reforms are favourable to improve female-inside directors in countries with a familial culture. This supports

a cause of negative spillover effect arises after voluntary gender diversity reform in familial culture.

**Table 2.6. Female-inside Directors (Non-independent Executive Female Directors)**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Variables | Model as Table 2.4 | | Model as Table 2.5 | |
| Post_quota | 0.045*** | | 0.076*** | |
| | (46.20) | | (5.23) | |
| Post_comply | | 0.009*** | | 0.015 |
| | | (6.79) | | (1.41) |
| Post_quota#Fam | | | -0.021* | |
| | | | (-1.75) | |
| Post_comply#Fam | | | | 0.025* |
| | | | | (1.69) |
| Observations | 82,307 | 69,512 | 82,307 | 69,512 |
| r2 | 0.23 | 0.12 | 0.23 | 0.12 |

This table presents the results of the DiD regression models examining gender diversity reforms in columns (1) and (2) and the moderating effect of familial culture over gender diversity reforms in columns (3) and (4) on the ratio of inside female directors on the board. Variables are defined in Appendix 2.1. I present robust t-statistics in parentheses, calculated based on standard errors clustered by firm & year. Dummies for year, country and industry included. * p<0.10, ** p<0.05, *** p<0.01.

### 2.5.5. Endogeneity

These findings could be incorporated with the effect of confounding shocks before or after the gender diversity reforms intervention or the existence of the pre-existing trends. Following Fauver et al. (2017), I use a placebo test to address this problem. I design two pseudo-shock periods, i.e. two years before the reform shock and the other for two years after the reform shock. These treated and control groups remain the same as in the main model. I re-run DiD after altering the dummy variable 1 post to Pseudo Post year which coded 1 for after the reform for Pseudo year and zero for two years before Pseudo year of reform. Panel A in Table 2.7 reports the DiD regression results from these Pseudo results. The effect of gender diversity reforms on female ratio, independent female ratio and board independence ratio show insignificant estimates for both quota and comply-or-explain reforms. This claims that confounding events around gender diversity reforms are not driving my findings.

In panel B and C, I use propensity score matching (PSM) to pair observations with gender reforms to those without gender reforms. The matching was performed using a probit model

with firm level control variables as those used in the baseline model. I match each board reform observation with the closest neighbour from a non-board reform observation, and perform DiD analyses using the matched sample in model 1 & 2. The results are consistent with my previous findings.

**Table 2.7. Endogeneity of Board Reforms**

**Panel A – Placebo test**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Fem Ratio | | Fem Indep | | Board indep | |
| Variables | Quota | Comply-or-explain | Quota | Comply-or-explain | Quota | Comply-or-explain |
| Post | 0.005 | 0.003 | 0.006 | 0.004 | 0.013 | -0.002 |
| | (1.45) | (1.62) | (0.78) | (1.16) | (1.15) | (-0.71) |
| Observations | 82,613 | 40,848 | 82,307 | 40,656 | 82,613 | 40,848 |
| r2 | 0.35 | 0.40 | 0.30 | 0.42 | 0.57 | 0.57 |

**Panel B. Propensity Score Matching Base Model**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Fem Ratio | | Fem Indep | | Board indep | |
| Variables | Quota | Comply-or-explain | Quota | Comply-or-explain | Quota | Comply-or-explain |
| Post | 0.018*** | 0.004 | 0.128*** | -0.005* | 0.009* | -0.017*** |
| | (6.70) | (1.33) | (22.09) | (-1.84) | (1.93) | (-3.55) |
| Observations | 55,423 | 44,583 | 51,580 | 44,368 | 55,423 | 44,583 |
| r2 | 0.30 | 0.19 | 0.26 | 0.31 | 0.60 | 0.61 |

**Panel C. Propensity Score Matching Model with Familial Culture**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Fem Ratio | | Fem Indep | | Board indep | |
| Variables | Quota | Comply-or-explain | Quota | Comply-or-explain | Quota | Comply-or-explain |
| Post_quota | 0.031*** | | 0.007 | | -0.046*** | |
| | (6.23) | | (0.59) | | (-2.08) | |
| Post_comply | | -0.053 | | 0.032 | | 0.405*** |
| | | (-1.35) | | (1.29) | | (2.73) |
| Post_quota# Fam | 0.062*** | | 0.102*** | | 0.054* | |
| | (3.06) | | (6.05) | | (1.69) | |
| Post_comply# Fam | | -0.105*** | | -0.132*** | | -0.416*** |
| | | (-3.20) | | (-5.41) | | (-8.27) |
| Observations | 55,423 | 44,583 | 55,208 | 44,368 | 55,423 | 44,583 |
| r2 | 0.30 | 0.19 | 0.31 | 0.32 | 0.60 | 0.61 |

Each panel presents DiD regression models examining the gender diversity reforms on female proportion, female independent proportion and proportion of independent directors on the board. Only estimators from the key variables of interest are reported from regressions performed in full models. All variables are defined in Appendix 2.1. Robust t-statistics in parentheses, calculated based on standard errors double clustered by firm and year. All models include dummies for year, country and industry. * p<0.10, ** p<0.05, *** p<0.01.

### 2.5.6. Alternative Measures of Familial Culture

In Table 2.8, I calculate alternative measures of a familial culture and perform DDD analyses using the baseline specification in model 2. First, I use the measure of in-group solidarity in a national culture as a proxy of familial culture. Familial culture benefits more from interpersonal solidarity which led from affect-based trust (Chua et al., 2009). Therefore, In-group solidarity represents four items from World Value Survey such as (i). Context of trusting others; (ii). Context if trust their families; (iii). Context of do not trusting others at the first meetup; (iv). Context of trusting neighbourhood. The score of in-group solidarity was extracted from the findings of Berrone et al. (2020). I used continuous score of in-group solidarity for the model 2.

Second, a familial culture is measured with the country-level family business prevalence index (FBPI) available from Berrone et al. (2020), which was measured by using a meta-analysis. The FBPI score is developed using the sample size weighted arithmetic mean fraction of family businesses in the primary samples. As with the main measure of familial culture, I differentiate a stronger familial culture with a dummy variable that equals one when the FBPI score is above the countries-level median. All results are consistent to previous findings.

**Table 2.8. Alternative Measures of Familial Culture**

**Panel A – Solidarity Score**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | | | Collectivism | | | |
| Variables | Fem Ratio | Fem Ratio | Fem Indep | Fem Indep | Indep | Indep |
| Post_quota | 0.127**** | | 0.081** | | 0.007*** | |
| | (105.35) | | (73.91) | | (2.85) | |
| Post_comply | | -0.002 | | 0.003* | | 0.001 |
| | | (-0.92) | | (1.91) | | (0.32) |
| DiD $_{Quota=1, Solidarity=1}$ | 0.054*** | | 0.008* | | 0.017* | |
| | (40.00) | | (1.79) | | (1.68) | |
| DiD $_{Comply=1, Solidarity=1}$ | | 0.009 | | -0.014*** | | -0.028*** |
| | | (1.58) | | (-2.71) | | (-2.65) |
| Observations | 82,613 | 69,818 | 82,307 | 69,512 | 82,613 | 69,818 |
| r2 | 0.38 | 0.23 | 0.35 | 0.30 | 0.57 | 0.57 |

**Panel B – Family Business Prevalence Score**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | | | Family business prevalence | | | |
| Variables | Fem Ratio | Fem Ratio | Fem Indep | Fem Indep | Indep | Indep |
| Post_quota | 0.128*** | | 0.083*** | | 0.010*** | |
| | (108.95) | | (76.35) | | (4.28) | |
| Post_comply | | 0.002 | | 0.006*** | | 0.013*** |
| | | (1.06) | | (4.36) | | (2.77) |
| DiD $_{Quota=1, Fam\_buss=1}$ | 0.031*** | | 0.004** | | 0.008* | |
| | (14.75) | | (2.44) | | (1.89) | |
| DiD $_{Comply=1, Fam\_bus=1}$ | | -0.001 | | -0.009*** | | -0.026*** |
| | | (0.24) | | (-4.84) | | (6.49) |
| Observations | 82,613 | 69,818 | 82,307 | 69,512 | 82,613 | 69,818 |
| r2 | 0.39 | 0.23 | 0.35 | 0.30 | 0.57 | 0.58 |

Each panel presents DiD regression models examining the gender diversity reforms on female proportion, female independent proportion and proportion of independent directors on the board. Only estimators from the key variables of interest are reported from regressions performed in full models. All variables are defined in Appendix 2.1. Robust t-statistics in parentheses, calculated based on standard errors double clustered by firm & year. All models include dummies for year, country and industry. * p<0.10, ** p<0.05, *** p<0.01.

## 2.6. Further Analysis

### 2.6.1. Hard versus Soft Law

In this paper, I have considered that quotas establish specific targets for diversity as opposed to guidance for inclusion as in voluntary codes of corporate governance. However, I acknowledge that the binding mechanisms in quotas for specific targets might only be accomplished if they are enforced with the existence of sanctions for non-compliance (Allemand et al., 2021). By considering the binding mechanisms that enforce compliance with quotas, I reclassify the type of reform into hard vs soft law. In this way, hard law will contain the countries that have quotas and sanctions that enforce compliance (i.e. Belgium, California, France, Germany, India, Italy, Norway, and Portugal). Whereas soft law comprises all countries that follow voluntary codes (see Table 2.1) and those that have quotas without sanctions (i.e. Austria, Greece, Israel, Netherlands, Pakistan, Spain, Switzerland). A rationale to follow this reclassification is that although some countries might be under a quota system (with clear targets to be achieved), enforcement mechanisms are not always present (e.g. the Spanish Equality Act and Dutch Civil Act, offer clear legal targets but lack of enforcement

mechanisms - Mensi-Klarbach & Seierstad, 2020). Those countries that do not have either a quota or a voluntary system are classified as Laissez-faire (i.e. absence of a legislative or regulatory intervention). The results from re-estimating the models of familial culture based on the new classification of gender diversity reform are presented in Table 2.9 – panel A. I find that these findings remain consistent but stronger in impact. That is, the negative effect of voluntary actions is greater in decreasing the ratio of independent female directors as is the negative spillover effect on board independence, both moderated by the familial culture of the country. These findings highlight that establishing targets (i.e. quotas) without sanctions is equivalent to having voluntary codes in their effectiveness within countries with a familial culture.

### 2.6.2 Analyses by Subsamples

In previous analyses, I have controlled for country level characteristics that could influence firms' actions towards compliance with regulation (i.e. regulatory quality, GDP growth rate and domestic credit) and the impact of a familial culture for board gender diversity and its spillover effect on board independence. However, it could still be the case that there are unobservable characteristics of specific macro characteristics that have an impact on our results. Cultural traits beyond the familial culture could influence corporate behaviour towards different levels of women's representation on boards of directors (Pucheta-Martínez et al., 2021). For instance, a patriarchal society may pose an obstacle to women's inclusion on senior roles (Adisa et al., 2019), whereas more progressive gender egalitarian attitudes might increase women's representation on boards (Post and Byron, 2015). Also, other specific country characteristics might influence the balance of power between shareholders and directors through shareholder activism (Chung & Talaulicar, 2010), which is a powerful instrument of institutional change disciplining firms to achieve gender diversity on boards (Perrault, 2015)

and could proxy protection towards minority investors, which is greater in countries from a common law legal origin (La Porta el al., 2000).

To account for these unobservable characteristics, I further the empirical analysis by presenting findings based on eq. (2.2) by subsampling countries in different groups (i.e. emerging vs advance economies and market-based (high vs low) countries).

See appendix 2.3 for the classification of countries to each of the groups. Emerging markets are classified according to the IMF World Economic Outlook.[12] Advanced economies are obtained from the World Fact Book. Non-market-based and market-based countries are those countries which stock traded ratio[13] falls in the lower and top quartiles in all periods of this analysis, respectively. I classified market based economies based on the economies beyond the top 75$^{th}$ percentile of stock traded ratio and non-market based economies were classified based on the economies below the 25$^{th}$ percentile of stock traded ratio in the sample distribution.

Table 2.9, panels B-C present the results, which are consistent with regards to the ineffectiveness of the comply-or-explain reform to increase the ratio of independent female directors. Overall, market based economies witnessing a lower spillover effect of comply-or-explain reform on board independence. This implies that comply-or-explain reform in market based economies is less harmful on board independence.

**Table 2.9. Further Analyses**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Variables | Fem ratio | Fem ratio | Fem Indep | Fem Indep | Indep | Indep |
| **Panel A - Soft Law versus Hard Law** | | | | | | |
| Hard Law | 0.107*** | | 0.106*** | | 0.010*** | |
| | (38.23) | | (25.43) | | (5.49) | |
| Soft Law | | 0.005* | | 0.005 | | -0.004 |
| | | (1.70) | | (1.30) | | (-0.75) |
| Hard Law#fam | 0.082*** | | 0.120*** | | 0.034*** | |
| | (11.84) | | (10.21) | | (3.88) | |
| Soft Law#fam | | -0.127*** | | -0.137*** | | -0.433*** |
| | | (-3.83) | | (-6.68) | | (-7.51) |
| Observations | 82,613 | 72,768 | 82,307 | 66,670 | 82,613 | 72,768 |
| r2 | 0.37 | 0.32 | 0.31 | 0.30 | 0.57 | 0.57 |

[12] https://www.imf.org/en/Publications/FM/Issues/2021/10/13/fiscal-monitor-october-2021 (page 54).
[13] Obtained from http://www.dataworldbank.org/

**Panel B – Emerging Markets and Advanced Economies**

| | Emerging markets | | | Advanced economies | | |
|---|---|---|---|---|---|---|
| | Fem ratio | Fem Indep | Indep | Fem ratio | Fem Indep | Indep |
| Post_comply | -0.013 | -0.015* | -0.009 | 0.003 | -0.006*** | -0.024*** |
| | (-0.90) | (-1.66) | (0.36) | (0.66) | (-2.80) | (-5.91) |
| Observations | 6,420 | 6,189 | 6,420 | 62,799 | 48,897 | 48,897 |
| r2 | 0.32 | 0.28 | 0.46 | 0.25 | 0.43 | 0.64 |

**Panel C – Market Based and Non-Market Based Economies**

| | Non-Market based* | | | Market based* | | |
|---|---|---|---|---|---|---|
| | Fem ratio | Fem Indep | Indep | Fem ratio | Fem Indep | Indep |
| $DiD_{Post\_comply}$ | 0.022 | 0.007 | -0.068 | 0.001 | -0.006*** | -0.022*** |
| | (1.05) | (0.56) | (1.18) | (0.27) | (-2.99) | (5.24) |
| Observations | 3,062 | 2,756 | 3,062 | 48,728 | 48,728 | 48,728 |
| r2 | 0.17 | 0.26 | 0.53 | 0.32 | 0.39 | 0.49 |

Each panel presents DiD regression models examining the gender diversity reforms on female proportion, female independent proportion and proportion of independent directors on the board. *Quota regulated countries were excluded from the Non-market and market based cluster.
Only estimators from the key variables of interest are reported from regressions performed in full models. All variables are defined in Appendix 2.1. Robust t-statistics in parentheses, calculated based on standard errors double clustered by firm and year. All models include dummies for year, country and industry. * p<0.10, ** p<0.05, *** p<0.01.

### 2.6.3. Evidence for the Effectiveness of Gender Reforms in Latin America

#### 2.6.3.1. The Effectiveness of Comply-or-explain Gender Reforms

I follow a specific case study for the Latin American region, where the familial culture is intrinsic. In Table 2.10, the variable for familial culture is replaced by a dummy that equals one for all firms that belong to a Latin American country and zero otherwise. Additionally, an interaction term is constructed with the Latin America dummy and the Post_compy intervention. I find that comply-or-explain gender reforms increase the female ratio less than in other regions of the world [0.031 (0.143-0.012) vs 0.143, respectively]. More importantly, I find that comply-or-explain reforms decrease the proportion of independent female directors in the Latin American region in a much larger base than the rest of the world [-0.044 (-0.003-0.041) vs -0.003, respectively]. Additionally, I find that comply-or-explain reforms decrease board independence in the Latin American region, whereas an increase is found for the rest of the world [-0.049 (0.026-0.075) vs -0.026, respectively].

**Table 2.10. The Latin American Region and the Familial Culture**

| Variables | (1)<br>Fem Ratio | (2)<br>Fem Indep | (3)<br>Board Indep |
|---|---|---|---|
| Post_comply | 0.143*** | -0.003*** | 0.026*** |
| | (7.97) | (-4.46) | (6.46) |
| Latam | 0.037** | 0.136*** | -0.279*** |
| | (2.01) | (7.41) | (-3.66) |
| Latam*Post_comply | -0.012* | -0.041*** | -0.075*** |
| | (-1.69) | (-4.95) | (-3.30) |
| ROA | 0.001*** | 0.001* | 0.001*** |
| | (3.03) | (1.66) | (2.658) |
| Leverage | 0.013 | -0.007** | -0.006** |
| | (0.37) | (-2.75) | (-2.35) |
| Firm size | 0.003*** | 0.005*** | 0.006*** |
| | (0.75) | (12.49) | (17.42) |
| Current ratio | -0.004 | -0.001 | -0.001 |
| | (-1.44) | (-0.32) | (-0.89) |
| Sales growth | 0.004*** | 0.007 | 0.001 |
| | (10.86) | (0.30) | (0.79) |
| GDP growth | 0.044*** | 0.004*** | 0.001*** |
| | (10.37) | (14.18) | (7.14) |
| Domestic credit to private sector | 0.002*** | 0.003*** | 0.001*** |
| | (5.46) | (7.47) | (3.22) |
| Rule of Law | 0.036*** | 0.016 | -0.011*** |
| | (4.87) | (0.24) | (-3.00) |
| Regulatory Quality | -0.032*** | -0.009** | 0.003 |
| | (-6.47) | (-2.12) | (1.28) |
| Observations | 65,485 | 65,485 | 65,485 |
| r2 | 0.487 | 0.442 | 0.592 |
| P | 0.000 | 0.000 | 0.000 |

Country, year and industry effects are included in all regressions. t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01.

### 2.6.3.2. Predictions - Policy Evaluations

In Table 2.11, I apply a prediction post estimation method to forecast the impact of regulation-based gender reforms in the Latin American (LA) region (columns 1-3) and in Mexico in particular (columns 4-6). To date, Mexico has a comply-or-explain gender diversity reform, therefore, it is relevant to forecast with reference to a worldwide context the impact of a regulated gender diversity reform (i.e. quotas) on female ratios and board independence. The estimated predictions of quota reforms significantly increase the proportion of female directors in Latin America and Mexico ($\beta = 1.828$ and $\beta = 0.351$, respectively). These estimators can be compared to the increase on female directors on boards in Mexico in Table 2.11 ($\beta = 0.031$ (0.143-0.012)) showing that a greater achievement with quotas would be achieved, which is

not surprising. An important aspect of our predictions followed as quotas seem to be ineffective to improve female independent directors and board independence in the region.

**Table 2.11. The Latin American Region – Policy Evaluations**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Latin American region | | | Mexico | | |
| Variables | Fem Ratio | Fem Indep | Board Indep | Fem Ratio | Fem Indep | Board Indep |
| PrQuota_Fem | 1.828* | 0.360 | 0.543 | 0.351** | 0.072 | 0.587 |
| | (1.86) | (1.13) | (1.22) | (1.98) | (0.64) | (1.30) |
| ROA | 0.001*** | 0.001** | 0.001** | 0.008* | 0.001* | 0.002 |
| | (3.43) | (2.02) | (2.48) | (1.74) | (1.82) | (1.61) |
| Board size | -0.002 | -0.004* | -0.005** | -0.007 | -0.004* | -0.002 |
| | (-0.92) | (-1.67) | (-2.00) | (-0.54) | (-1.66) | (-1.63) |
| Independence | -0.191*** | -0.040 | | 0.007 | -0.001 | |
| | (-3.40) | (-0.85) | | (1.33) | (-0.05) | |
| CEO_Chair | 0.019 | 0.012 | 0.015 | 0.009 | 0.012 | -0.006 |
| | (0.98) | (1.15) | (1.01) | (0.98) | (0.84) | (-0.94) |
| Leverage | -0.003** | -0.032 | -0.010 | -0.003 | -00026 | -0.001 |
| | (-0.09) | (-1.56) | (-0.36) | (-0.09) | (-0.81) | (-1.07) |
| Firm size | -0.009 | 0.009 | 0.003* | -0.009 | 0.009** | -0.001* |
| | (-1.24) | (0.54) | (1.93) | (-1.24) | (2.43) | (-1.79) |
| Current ratio | 0.024 | 0.006 | 0.008 | 0.025 | 0.019 | 0.020* |
| | (0.33) | (1.17) | (0.21) | (1.33) | (0.53) | (1.91) |
| Sales growth | -0.001 | 0.003 | 0.001 | -0.001* | 0.001 | 0.001 |
| | (-1.45) | (1.09) | (1.00) | (-1.69) | (1.15) | (0.42) |
| GDP growth | -0.004 | 0.003 | 0.002 | 0.003 | 0.005*** | -0.001 |
| | (-1.07) | (1.08) | (1.19) | (0.20) | (3.36) | (-0.17) |
| Domestic credit to private sector | 0.001 | 0.007** | 0.003*** | 0.002** | 0.002 | 0.004*** |
| | (0.87) | (2.01) | (2.62) | (2.05) | (0.31) | (3.46) |
| Rule of Law | -0.259 | 0.002** | -0.052 | -0.076** | -0.041 | -0.141*** |
| | (-0.83) | (2.43) | (-1.47) | (-2.28) | (-1.35) | (-3.47) |
| Regulatory Quality | 0.021 | 0.074 | 0.066** | 0.041 | 0.038 | 0.117*** |
| | (1.17) | (1.23) | (2.12) | (1.43) | (1.63) | (4.03) |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 1869 | 1869 | 1869 | 591 | 591 | 591 |
| r2 | 0.271 | 0.244 | 0.391 | 0.294 | 0.242 | 0.467 |
| P | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

Country, year and industry effects are included in all regressions. t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01.

The above findings suggest that more specific regulation-based instructions should be followed in the making of such provisions to benefit from the pool of talent that external female directors could bring to the board. The national familial culture in the region would promote the

appointment of inside female directors to the board because of the particular aims of family firms (Lim et al., 2021). Therefore, quota reforms do not automatically improve the inclusion of external independent female directors and consideration should be placed to the drafting of such reforms to incorporate that diversity should be achieved in the pool of independent directors.

### 2.7. Discussion and Concluding Remarks

This research highlights the impact of voluntary versus compulsory gender diversity reforms in influencing the proportion of independent-female directors and board independence. Extant literature has discussed the benefits of gender diversity on boards [e.g. Garcia-Sanchez et al. (2017) for accounting quality & Carter et al. (2003) for firms' value]. However, and despite the existence of gender reforms, the presence of female directors of boards is still behind global targets (Klettner et al., 2016). To pursue this research, I follow an empirical design as that of Chen et al., (2020) using a DiD and DDD methods, and several robustness tests to examine whether gender reforms are effective in achieving meaningful changes on board composition. I develop my hypotheses with respect to independent-female directors because the outside female talent to the board aligns to the provision of independent decision-making (Grosvold & Brammer, 2011) and improved performance and transparency (Erhardt et al., 2003; Gul et al., 2011). In other words, my argument centres on the logic that firms' actions towards appointing female directors to the board in a "comply-or-explain" setting might be driven to avoid a negative market outlook (Mensi-Klarbach et al., 2019). In this respect, I distinguish the literature on tokenism (Konrad et al., 2008) to highlight that the appointment of female directors might be based on family ties as opposed to the external pool of talent. Firms find comply-or-explain gender diversity reforms as a new governance model and focus on such reforms to align the board configuration (Triana et al., 2014). Although, corporate governance reforms on gender diversity are generally positive actions towards changes in corporate culture

and the composition of boards of directors (Sojo et al., 2016), it is still unclear whether such regulation is equally effective in a worldwide context. That is, institutional and market factors are relevant to the success of corporate governance reforms, such as the level of masculinity (Pucheta-Martinez et al., 2021), labour markets (Terjesen et al., 2009) and gendered policies (Terjesen et al., 2015), which highlight that the effectiveness of such reforms vary depending on institutional forces. I contribute to the extant literature in this respect and hypothesise that gender diversity reforms that are not legally binding (i.e. comply-or-explain) might face obstacles in effectively increasing the proportion of independent-female directors on boards and consequently negatively impact on board independence. Since gender diversity reforms aim to protect shareholders at a country level and improve companies' economic prospects (La Porta et al., 2000), I develop a theoretical framework grounded on the agency and resource dependence theories (Jensen & Meckling, 1976; Hillman & Dalziel, 2003) to incorporate the impact of a countries' familial culture in the effectiveness of gender diversity reforms (i.e. comply-or-explain vs quota). The main findings suggest that gender reforms encourage female appointments on boards. However, the appointment of independent female directors is impeded by non-regulation-based reforms, possibly because these reforms promote a tokenistic culture with internal female directors' appointments rather than external (H1a) having also a negative impact on board independence (H1b). These behaviours are shown to be a function of the familial culture, suggesting that regulation-based reforms in such setting, is the way forward to achieve positive corporate governance practices that add value to corporations. Our findings support such notion, showing that regulation-based reforms boost the increase of the proportion of independent-female directors in countries with a familial culture (H2a), and in contrast, comply-or-explain reforms seem to be the trigger for the decrease on board independence (H2b). Considering that a familial culture is less flexible and more cohesive towards decision-making and strategy (Lim et al., 2021), it is highlighted the importance of regulation-based

reforms with specific measurable targets (Mensi-Klarbach et al., 2019). This aspect is therefore a significant factor of concern according to cultural aspects of different regional settings.

While my analysis provides insights into the role of gender diversity reforms in improving independent-female participation and independence on board worldwide, a number of limitations and suggestions for future research directions are worth noting. First, I rely on Lim et al's (2021) worldwide identification of familial culture, which focused on micro level surveys to identify the strength of familial culture in national economies. In particular, recent research suggests that culture and institutional environment matter (Pucheta-Martinez et al., 2021). Therefore, a broader definition of a countries cultural setting could extend the culture spectrum as an informal institution.

Second, I find the effect of reforms considering the national familial culture as an informal institution, however, I do not account for different ownership structures, such as family corporate control, which might be relevant in further explaining whether the effective adoption of voluntary gender reforms in a country with a familial culture interacts with the ownership structure.

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## Appendix 2.1. Definition of Variables

| | |
|---|---|
| **Key Variables** | |
| Female Ratio | All female directors as a percentage of board size (Boardex). |
| Fem_Indep | Independent non-executive female directors as a percentage of board size (Boardex). |
| Board Independence | Independent non-executive directors as a percentage of board size (Boardex). |
| Quota_Post | Dummy variable equals 1 from the year in which gender quota reforms became effective in the country, and 0 otherwise. |
| Comply_Post | Dummy variable equals 1 from the year in which gender comply-or-explain reforms became effective in the country, and 0 otherwise. |
| **Firm Level Variables** | |
| ROA (%) | Net income divided by total assets |
| Firm Size | Log of total asset |
| Leverage (%) | Total debt, including all short-and long-term debt, as a percent of total assets. |
| Current Ratio | Ratio of current assets to current liabilities |
| Sales growth rate (%) | Annual growth of sales revenue |
| PrQuota_Fem | Fitted value of female proportion following quota reform regression |
| **Country- Level Variables** | |
| Regulatory Quality | Perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development (World governance report). Ranges from -2.5 to 2.5. |
| GDP growth rate (%) | GDP growth rate (World Development Indicators). |
| Domestic credit | Domestic credit to private sector as a percentage of GDP measured by the amount of financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment (World bank database). |
| Familial culture | A dummy variable which equals 1 when a familial culture p-score (generated with a PCA of the variables: importance, duty and love towards the family – obtained from the World and European Values Surveys) is greater than the median score, and 0 otherwise. See appendix 2.2 for the PCA analysis. |
| Solidarity | The solidarity score from the Berrone et al. (2020). |
| FBPI | A dummy variable which equals 1 when a family business prevalence index (using the index from Berrone, 2020) is greater than the median score, and 0 otherwise. |
| Latam | Dummy variable equals 1 if a country locates in the Latin American Region or otherwise |
| **Corporate Governance Variables** | |
| Board Size | Natural logarithm of board size (Boardex). |
| CEO-Chair | If the chair and CEO are the same individual, set to 1; otherwise, set to 0; dummy variable (Boardex). |

## Appendix 2.2. Principal Component Analysis for the Measure of a Familial Culture

KMO and Bartlett's Tests are performed to measure sampling adequacy for structural detection and the null hypothesis of no correlation among variables, respectively. The KMO value is 0.541 and the Barlett's test result on familial culture attributes is significant ($\chi^2$=6841.64, p<0.05), favouring of the suitability of the PCA.

The composite variable (Familial_culture) is calculated by extracting the first principal component from all three survey questions – IMPORTANCE, LOVE and DUTY as shown below:

**Table A1. PCA Matrix**

| Variables | Component 1 |
|---|---|
| Importance in Life Family | 0.523 (27.4) |
| Respect and love for parents | 0.705 (49.6) |
| Parents responsibilities to their Children | 0.688 (47.4) |

Numbers in brackets after the score indicate variances counted by each variable.

Based on the mean score of each item shown in Table A1, Familial national culture is most likely to endorse the importance of family, respect and love for parents and accept parents' responsibilities to their children.

**Table A2. Total Variance Explained**

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| Component | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 1.244 | 41.463 | 41.463 | 1.244 | 41.463 | 41.463 |
| 2 | .932 | 31.062 | 72.525 | | | |
| 3 | .824 | 27.475 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

Table A2 show a single factor which is also confirmed by the eigenvalue (larger than one). The extraction of one factor accounted for 42% of the common variance, certifying their validity. Finally, the principal score values were calculated at the country-level mean OLS based on the first principal component.

**Appendix 2.3. Countries with a Familial Culture Ranked from High to Low (Average Sample Period).**

| Country | PCA Score | Familial culture | Emerging market | Advanced Economy | Non-market based | Market based |
|---|---|---|---|---|---|---|
| Turkey | 0.541 | 1 | x | | x | |
| Egypt | 0.472 | 1 | x | | | |
| Philippines | 0.443 | 1 | x | | x | |
| Pakistan | 0.415 | 1 | x | | | |
| Thailand | 0.374 | 1 | x | | x | |
| Hong Kong | 0.300 | 1 | | x | | x |
| Portugal | 0.278 | 1 | | x | | |
| Greece | 0.269 | 1 | | x | x | |
| Brazil | 0.269 | 1 | x | | x | |
| Mexico | 0.255 | 1 | x | | x | |
| Indonesia | 0.253 | 1 | x | | x | |
| Chile | 0.246 | 1 | x | | x | |
| Singapore | 0.244 | 1 | | x | | |
| Italy | 0.237 | 1 | | x | | |
| India | 0.219 | 1 | x | | | |
| China | 0.209 | 1 | x | | | |
| Spain | 0.207 | 1 | | x | | |
| France | 0.177 | 1 | | x | | |
| Poland | 0.171 | 1 | x | | | |
| Malaysia | 0.139 | 1 | x | | | |
| South Korea | 0.135 | 0 | | x | | x |
| Peru | 0.127 | 0 | x | | x | |
| Argentina | 0.112 | 0 | x | | x | |
| Colombia | 0.109 | 0 | x | | x | |
| Israel | 0.061 | 0 | | x | x | |
| Japan | 0.043 | 0 | | x | | |
| California | 0.035 | 0 | | x | | x |
| US | 0.035 | 0 | | x | | x |
| Canada | 0.031 | 0 | | x | | x |
| Hungary | 0.029 | 0 | x | | | |
| UK | 0.012 | 0 | | x | | x |
| Belgium | 0.007 | 0 | | x | x | |
| Australia | -0.172 | 0 | | x | | |
| Switzerland | -0.194 | 0 | | x | | |
| Norway | -0.269 | 0 | | x | | |
| Germany | -0.301 | 0 | | x | x | |
| Sweden | -0.318 | 0 | | x | | x |
| Netherlands | -0.396 | 0 | | x | | x |
| Denmark | -0.400 | 0 | | x | | |
| Austria | -0.474 | 0 | | x | x | |
| Finland | -0.730 | 0 | | x | | x |

* These are averaged PCA scores over the sampled period.

## Appendix 2.4. Authorship Declaration

# University of Liverpool Management School
# PhD Thesis – PhD Structured as Papers
### AUTHORSHIP DECLARATION – joint authored papers - Appendix B

## 1. CANDIDATE

| Name of the Candidate | Student number |
|---|---|
| **DIMUNGU HEWAGE DILRUKSHI NADEESHA** | **201382808** |
| Thesis Title | |
| **THE EFFECTIVENESS OF BOARD DIVERSITY REFORMS AND CORPORATE PRACTICES: THE MODERATING ROLE OF A FAMILIAL CULTURE, THE PREVALENCE OF FAMILY BUSINESSES AND FAMILY OWNERSHIP.** | |

## 2. FORMAT OF THE THESIS

| | | |
|---|---|---|
| Is the candidate intending to structure their thesis as papers? | **Yes** / ~~No~~ | If Yes, please complete Section 3 (sole authored paper) OR 4 (joint paper)<br>**If No, you do not need to complete this form** |

## 3. PAPER INCLUDED IN THE THESIS – JOINT AUTHORED PAPER

| Title of the paper | Has this paper been published, presented at a conference or under review with a journal | If Yes, please complete the boxes below. If No, go to section 4 |
|---|---|---|
| The Effectiveness of Gender Diversity Reforms and the Impact of a Familial Culture: A Spillover Effect on Board Independence | Yes | |
| If the paper has already been published please refer to the University guidelines on presentation of publications within a PGR Thesis - https://www.liverpool.ac.uk/media/livacuk/tqsd/code-of-practice-on-assessment/annex-7.2-PGR-CoP.pdf | | |
| If the paper is under review with a journal, give details of the journal, including submission dates and the review stage | | |
| If the paper is presented at a conference, give details of the conference | | |

## 4. DESCRIPTION OF ALL AUTHOR CONTRIBUTIONS (including the PhD candidate)

| Name and affiliation of author | Contribution(s) (for example, conception of the project, design of methodology, data collection, analysis, drafting the manuscript, revising it critically for important intellectual content, etc.) |
|---|---|
| DIMUNGU HEWAGE DILRUKSHI NADEESHA | Conception of the empirical study, data collection and developing the database, methodologies, data analysis, and drafting manuscript. Revise the study based on the comments of IPAP and journal reviewers |
| Dr. JANNINE POLETTI-HUGHES | Conception of the empirical study, methodologies, data analysis, and drafting manuscript. Revise the study based on the comments of journal reviewers |

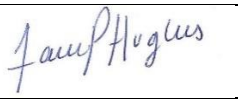
## 5. AUTHOR DECLARATIONS (including the PhD candidate)

*I agree to be named as one of the authors of this work, and confirm:*

*i. that the description in Section 4 of my contribution(s) to this publication is accurate,*

*ii. that there are no other authors in this paper,*

*iii. that I give consent to the incorporation of this paper/publication in the candidate's PhD thesis submitted to the University of Liverpool*

| Name of author | Signature* | Date |
|---|---|---|
| DIMUNGU HEWAGE DILRUKSHI NADEESHA |  | 24/11/2022 |
| DR. JANNINE POLETTI-HUGHES |  | 28/11/2022 |

## 6. OTHER CONTRIBUTOR DECLARTION

*I agree to be named as a non-author contributor to this work.*

| Name and affiliation of contributor | Contribution | Signature* and date |
|---|---|---|
| - | - | - |
| - | - | - |

**This consent form (Appendix B) or the sole author consent form (Appendix A) for each paper must be completed and kept by the PhD candidate once the paper is finalised. If the paper is to be included as part of the thesis, a copy of this form must be included in the PhD thesis with each publication.**

# Chapter 3. Gender Diversity Reforms and Corporate Risk-taking: The Role of Family Business Prevalence

## 3.1. Introduction

Recent proposals for gender diversity reforms have seen an increase in public pressure for gender equality on boards in developed countries. These reforms are intended to promote active participation of women on boards to improve the independence and effectiveness of boards. The European Commission's network to promote women in decision-making in politics and the economy (June, 2012) has highlighted that a sustainable future requires all talents and all voices to be heard in decision-making.[14] As a result, many countries in the European region have adopted gender diversity reforms to improve female representation at decision-making levels, particularly at the top management level.

The adoption of gender diversity reforms contributes to improvements in corporate governance (Fauver et al., 2022) and firms' performance (Griffin et al., 2021) because female talent provides a different set of perspectives and skills for achieving corporate goals (Chen & Tong, 2016; Martínez-García et al., 2022). Based on such premises, corporate risk-taking is vital in influencing the success of both governance and performance by aligning the interests of agents, principals and other stakeholders. Existing literature reveals different views on the relationship between gender diversity practices and corporate risk-taking (see meta-analysis in Teodósio et al., 2021), where it is concluded that the effect of board gender diversity on risk is contingent to the institutional context. The importance of the institutional context in this relationship and the absence of empirical findings on the impact of gender diversity reforms on corporate risk-taking motivate this research.

[14] https://ec.europa.eu/info/policies/justice-and-fundamental-rights/gender-equality/gender-balance-decision-making-positions.

Drawing from previous literature, informal institutions represent an important context to consider when studying the effectiveness of governance reforms (Farah et al., 2021; Fauver et al., 2017; Koirala et al, 2020). Recent research by Berrone et al. (2020) highlights family business prevalence (FBP) as an informal institution. Legitimacy in family business strengthens societal approval for the growth of family businesses (Bird & Wennberg, 2014), and controlled ownership of resources held by family lines (Greenwood et al., 2011). In countries with FBP, firms are more likely to approve nepotistic practices (Lim et al., 2021), impacting on the effectiveness of governance reforms.

Strategic decision-making in family businesses is distinctive because of the preservation of socioemotional wealth (SEW) (Gómez-Mejía et al., 2011). SEW derives from the affective needs of family members and continued control of family firms (Berrone et al., 2012). In contrast, non-family businesses are more concerned about financial goals (Lohe & Calabrò, 2017).

Utilising a sample of 10,313 non-financial listed firms in 41 countries in the period 2000–2019, this study investigates the effects of gender diversity reforms on corporate risk-taking and the moderating effects of FBP on this relationship. I contend that countries with stronger FBP show SEW traits than countries with less FBP, and so the type of risk that prevails among corporations varies accordingly. In this context, the effectiveness of gender diversity reforms in contributing to companies' risk preferences is also a function of FBP.

In line with the SEW framework, corporate risk-taking is measured using venturing risk and performance hazard risk (PHR) (Poletti-Hughes & Briano-Turrent, 2019). Venturing risk represents the degree of acceptance of value-enhancing strategies to improve shareholders' wealth (Boubaker et al., 2016). Meanwhile, PHR represents the probability of failure or

performing below target to preserve SEW (Gómez-Mejía et al., 2007) or to protect agents' benefits through wealth or aspirations (Wiseman & Gómez-Mejía, 1998).

I find that gender diversity reforms (both quota and comply-or-explain) discourage PHR, while venturing risk increases only with gender quota reforms. Once a measure for FBP is incorporated in the model as a moderator, the impact of gender quota reforms is found to be larger for venturing risk. This finding is consistent with the resource-dependence argument where human capital outside the company builds on capacity to evaluate and accept venturing projects. In addition, in line with the SEW framework, I find that comply-or-explain reforms increase PHR, but only in countries with FBP. This finding explains that a greater weight of SEW reduces the effectiveness of voluntary reforms in the pursuit of financial targets whereas regulatory quota reforms are arguably more effective in protecting firms from the adverse impact of SEW.

The findings of the study are statistically significant and robust to different proxies of PHR and venturing risk. I use Difference-in-Difference (DiD) and Difference-in-Difference-in-Difference (DDD) designs to control time-varying firm and country-specific characteristics, following previous studies on corporate governance reforms (e.g., Fauver et al., 2017; Hu et al., 2020; Chen et al, 2020). I conducted several robustness tests for the baseline models. First, I conducted weighted DiD and DDD regression models to control the variability of sample distribution. Then, I conducted a placebo test using pseudo (random) gender diversity reform years to check the validity of the model and found statistically insignificant effects on risk-taking during the post-reform period. Finally, I used propensity score matching to confirm that treatment and control groups are similar with respect to firm-level and country-level control variables.

The paper contributes to the literature on corporate governance reforms in the following ways. First, I study whether gender diversity reforms deter or encourage two forms of risk-taking (venturing risk and PHR, which increase/decrease firm performance, respectively). Based on the resource-dependence framework, venturing risk is mainly driven by independent female directors (Poletti-Hughes & Briano-Turrent, 2019). In contrast, PHR is taken by family owners to fulfil families' socioemotional needs (Gómez-Mejía et al., 2007).

Second, this study suggests that the impact of gender reforms on risk-taking is not straightforward, but instead depends on type of reform (i.e. quota or comply-or-explain reform). Although quota reforms could bring an additional burden of compliance (Ahern & Dittmar, 2012), which should reduce corporate risk-taking (Liao et al, 2019), my study shows that quota reforms offer an opportunity to access missing human and social capital resources to support value-enhancing risk-taking activities (i.e., venturing risk). In such cases, gender quotas are the way forward to satisfy the search for increased performance through risk-taking. Third, I highlight the importance of the institutional context (i.e. FBP) and evidence that preservation of SEW is important for family firms (Berrone et al., 2020). Overall, my evidence adds to institutional literature by highlighting the moderating effect of informal institutions on formal governance reforms across countries.

The rest of this chapter is structured as follows. Section 2 provides a review of the literature and then proposes hypotheses, while section 3 explains the methodology and section 4 presents an empirical analysis and robustness tests and section 5 concludes the study.

## 3.2. Theoretical Background and Hypotheses

### 3.2.1. The FBP and SEW

The FBP derives from informal institutional factors such as strong family ties (Alesina & Giuliano, 2014), trust (Chua et al., 2009; Lim et al., 2018) and social cohesion (Reher, 1998). The family is positioned as the key economic unit (Lim et al., 2021) and there is a profound respect for values in kinship-based forms of social exchange, as well as in-group solidarity and continuity orientation (Berrone et al., 2020). Social connections and collectivism are stronger with FBP. In this context, ownership concentration and entrenchment form the dominant principal aim to preserve collective/family goals (Lyu et al., 2017; Claessens et al., 2002).

Family businesses are highly concentrated in certain economies (Berrone et al., 2020), because the alignment of family aims such as reputation, social capital and family ownership of resources is equally pursued by group members through relationships, traditions and trust of members in a group (Daniele & Geys, 2016).

The family-based ownership structure is pivotal to socioemotional preferences that favour strategies to protect non-financial goals based on financial actions (Gómez-Mejía et al., 2007, 2011; Miller et al., 2013). Therefore, the organisational arrangements described by the SEW framework mirror societal attitudes described by a FBP context, in which agents with family ties make strategic choices by assessing threats to affective endowments (Berrone et al., 2012).

### 3.2.2. Risk-taking through the Lens of Behavioural Agency Theory

Corporate boards perform a major role in setting policies and making decisions that portrait the risk willingness. According to behavioural agency theory, the risk willingness of agents relies on the reference point of personal utilities – i.e. wealth or aspirations (Wiseman & Gómez-Mejía, 1998). Agents compare the anticipated outcome of decisions against a reference point

under different contexts.[15] Generally, agents are loss-averse to preserve their personal utilities (Kumeto, 2015). Therefore, they prefer excessive risky actions to prevent any anticipated losses to their reference point (Thaler & Johnson, 1990) rather than minimising adverse impact on firm performance (i.e., PHR). Agents also accept value-enhancing risky investments (i.e. venturing risk) when they find a threat to personal wealth, such as desired compensations (Zona, 2012). In the family firm setting, SEW is the primary reference point of agents (Gómez-Mejía et al., 2007; Schulze & Kellermanns, 2015) – family firms are willing to accept performance below target, threats of survival or likelihood of bankruptcy (Shapira, 1995) (i.e. PHR) to preserve the company in the family, but, concurrently, companies might take more strategic risks (i.e., venturing risk) when their current performance is not as desired. Put together, agents make strategic decisions to avoid losses to their reference points, and behavioural agency theory therefore proposes that corporate boards adapt governance policies and behavioural evaluation criteria to shape the risk willingness of agents (Wiseman & Gómez-Mejía, 1998).

Extending the logic of behavioural agency theory, agents in a FBP setting make corporate decisions based on the reference point of SEW. Therefore, venturing risk measures value-increasing strategies with the expectation of improving future performance (Poletti-Hughes & Briano-Turrent, 2019; Zona, 2012) and PHR denotes a firm's below-target performance when agents become risk-averse to meet their wealth and/or aspirations (Gómez-Mejía et al., 2007; Shapira, 1995).

[15] A gain context occurs when the anticipated outcome promises acceptable expected values to personal wealth. A loss context occurs when the anticipated outcome promises unacceptable values to personal wealth. Agents are thus risk-averse or risk-seekers in a gain/loss context, respectively. A shift between loss and gain framed decisions refers to the concept of loss aversion (Wiseman & Gómez-Mejía, 1998).

### 3.2.3. Gender Diversity Reforms and PHR

In the spectrum of diversity, gender is a contributor with potential to increase risk governance practices.[16] From this view, female directors are effective agents in monitoring managerial performance against survival hazards (Usman et al., 2018), improving the effectiveness of risk committees (Jia, 2019; Adams & Ferreira, 2009), compensation committees (Bugeja et al., 2016) and other independent governance committees (Green & Homroy, 2018). In addition, female directors favour voluntary risk disclosure practices that lead to positive risk governance and financial outcomes (Reguera-Alvarado & Bravo-Urquiza, 2020). All these studies suggest that gender diversity establishes a diligent role in risk management practices.

Gómez-Mejía et al. (2007) define PHR as a likelihood of firm failure, threat of survival and/or performance below financial targets. Performance below financial targets concerns the potential to achieve below historical financial targets (e.g. previous years' sales performance) or the financial performance of other firms in the same country/industry (Poletti-Hughes & Briano-Turrent, 2019). According to behavioural agency theory, board of directors monitor any performance hazards by evaluating current performance against performance targets (Zona, 2012). Guizani and Abdalkrim (2022) found that board gender diversity prevents firms from financial distress and bankruptcy, possibly because a gender diverse board is better in supporting ethical accounting policies that increase the quality of financial reporting (Abdou et al., 2021; Garcia-Sanchez et al., 2017). Similarly, female directors have been found to enhance transparency in decision-making, limiting corporate fraud (Cumming et al., 2015; Dimungu-Hewage & Poletti-Hughes, 2022). As board gender diversity integrates ESG strategy, it favours long-term competitive advantage for businesses (Amorelli & García-

[16] Risk governance is the application of actions, processes, traditions and institutions to identify and assess corporate risk (https://irgc.org/risk-governance/).

Sánchez, 2021), suggesting that gender diversity reforms (both quota and voluntary) are positive in reducing PHR, leading to the following hypothesis:

**H1:** PHR reduces following board gender diversity reforms

### 3.2.4. Gender Diversity Reforms and Venturing Risk

Based on the resource-dependence framework, gender diversity reforms aim to act as catalysts for board effectiveness, contributing to the incorporation of female talents on boards. For instance, female directors are more likely to attend board meetings, join monitoring committees and hold CEOs accountable for poor performance (Adams & Ferreira, 2009; Kramer et al., 2006). Therefore, these actions could be reflected in corporate risk-taking to meet expectations of maximising shareholders' wealth. As a result, board of directors aspire to financially viable investment opportunities such as research and development (R&D), mergers, acquisitions and other options to improve potential return. Such investment opportunities create unexpected outcomes which cause greater variability in firm performance (Gómez-Mejía et al., 2007). Hence, a greater variance in the firms' performance levels (created by firms' desire to accept venturing investments) is considered as a proxy for venturing risk. In this case, board gender diversity is supportive of pursuing firm value-enhancing strategies, which cause greater variance in firms' performance levels (Poletti-Hughes & Briano-Turrent, 2019). In support of this evidence, as female directors experience different obstacles through their career advancements than men, they might take distinctive approaches to R&D projects (Xie et al., 2020) and mergers and acquisitions (Levi and Zhang, 2014), which do not necessarily translate into assumption of a conservative stance towards risk (Adams & Funk, 2012; Chen & Tong, 2016).

In this context, Lara et al. (2017) found that independent, but not inside, female directors, are associated with better accounting quality. Female directors who are independent to the companies are recruited based on their experience levels and skillsets. From a resource-

dependence perspective, they are classified as business experts, support specialists and community influencers (Hillman et al., 2000). Female directors who are independent to the companies are therefore differentiated because of the valuable attributes they contribute to strategy (Hillman et al., 2003; Ward & Forker, 2017). For instance, potential mergers, acquisitions, searching for new investments and undertaking of value-enhancing risky initiatives (Chen et al., 2018) are venturing strategies that require risk-taking to increase firm value and generate economic gains (Campbell & Mínguez-Vera, 2008; Duppati et al., 2020). External female directors contribute to strengthening governance practices and are more effective than other female directors in bringing about norm changes (Srinidhi et al., 2020). From this perspective, the inclusion of independent female directors could prevent risks relating to expropriation and diversion of resources by corporate insiders, increasing venturing risk when aiming to improve future performance (Poletti-Hughes & Briano-Turrent, 2019).

Boards of directors still need to adjust to gender diversity targets despite public pressure and the rise of gender diversity reforms (Gabaldon & Gimenez, 2017). In this respect, gender quotas have been shown to be more effective than voluntary recommendations in the appointment of independent female directors (refer to Chapter 2), and are also shown to be effective in improving businesses' market-based performance and board vigilance levels (Atinc et al., 2022).

Gender quota reforms may empower networking and communication with a variety of external entities through independent female directors because of increased social connections and information about the external environment (Gregoric & Hansen, 2017), as well as executive, educational and international experiences (Martínez-García et al., 2022). Gender quotas are more effective in the recruitment of independent female directors, who bring additional industry-specific experience supporting the growth of firms (Chen et al., 2016) rather than voluntary reforms, I develop the following hypotheses:

**H2a:** Venturing risk improves following board gender quota diversity reform

**H2b:** Venturing risk reduces following board gender voluntary comply-or-explain reform

### 3.2.5. Gender Diversity Reforms and Role of FBP

Previous literature has suggested that institutional context is relevant to the success of corporate reforms (Atinc et al., 2022; García-Meca & Santana-Martín, 2022). Berrone et al. (2020) suggested that FBP favours a dominant ownership structure, which is explained by the principal–principal conflict between majority and minority shareholders (Fernando et al., 2014). This conflict results in the expropriation of minority shareholders' wealth (Young et al., 2008) through engagement in performance hazards: for example, agreements in purchasing beyond market prices or selling below market prices to favour the wealth of controlling shareholders (Chang and Hong, 2000) and implementing business strategies that prioritise political and family agendas (Backman, 2001).

Family businesses hold a long-term-oriented perspective on decision-making with the aim of creating value for future generations (Berrone et al., 2020; Brigham et al., 2014; Hofstede & Minkov, 2010; Lumpkin et al., 2010). As a result, boards need to build financially viable strategies and long-lasting reputations to assure firm continuity (Lumpkin & Brigham, 2011), meaning that succeeding generations tend to accept venturing risk for growth (Hillebrand et al., 2020). Board gender diversity supports family businesses in international investments as it sends a positive signal to foreign investors (Saeed et al., 2017). Therefore, family firms can benefit from gender diversity reforms to pursue venturing risk in two ways. First, independent female directors focus on financially feasible venturing projects for long-term value (Johannisson & Huse, 2000; Hillebrand et al., 2020; Saeed et al., 2017; Sanchez-Famoso et al., 2017). Next, family female directors are concerned about reputation through sustainable investments for long-term strategic implications (Cordeiro et al., 2020). Presumably, gender

diversity reforms are conducive to appointing both types of female directors in an FBP culture. Therefore, succeeding generations might use gender diversity reforms to change board configuration to support risky and unfamiliar investments.

Gender bias in board configuration and succession planning is widely documented in family business contexts (Bennedsen et al., 2007; González et al., 2020). For instance, priority is given to male kin in the running of family businesses (Joshi et al., 2007) and families invest more in male kin human capital for succession purposes (Bennedsen et al., 2007). Nepotism in family firms also hinders the appointment of outside directors, particularly in a weaker institutional context (Caselli & Gennaioli, 2013; Lohe & Calabrò, 2017).

The degree of family members' involvement in businesses decides the weight of SEW goals (De Massis et al., 2015). Generally, family firms are more likely to appoint family-affiliated female members to the board (García-Meca & Santana-Martín, 2022). Therefore, I assume that family firms might adopt voluntary gender diversity reforms to strengthen family involvement with boards, leading to weakening of the effectiveness of board independence. As a result, boards place more weight on SEW goals than economic goals (Gomez-Mejia et al., 2011; Poletti-Hughes & Williams, 2019). In this context, firms arguably accept PHR to protect SEW, if SEW is in danger, rather than achieving firms' economic goals (Gomez-Mejia et al., 2014; Lohe & Calabrò, 2017).

Following from the discussion presented here and given that the degree of family members' involvement in businesses aligns with SEW goals (De Massis et al. 2015; García-Meca & Santana-Martín, 2022; García-Meca et al., 2022), voluntary reforms might encourage PHR to protect SEW (Gómez-Mejía et al., 2014; Lohe & Calabrò, 2017), while gender quotas might be more effective in encouraging value-adding strategies through venturing risk, leading to the following hypothesis:

**H3:** FBP positively moderates the effect of gender diversity reforms on corporate risk-taking (i.e. venturing risk & PHR)

### 3.3. Methodology

#### 3.3.1. Data

This study is based on financial data from the Thomas Financials DataStream and the Worldscope database, as well as board characteristic data from the BoardEx database. I exclude the firm-year observations, which stand for standard industrial classification codes from 6000 to 6999 related to the financial industry. I then omitted observations without ROA, female proportions on the board, board independence and those with negative sales and equity values. Next, all financial variables were winsorised at 1% and 99% to reduce the impact of outliers. The final sample consists of 82,613 firm-year observations for 10,313 unique firms from 41 countries (designating California as an independent country because its gender quota reforms are different from the rest of the US) over the period 2000–2019.

This chapter classifies gender diversity reforms as two mutually exclusive categories – non-regulated (i.e., comply-or-explain) reforms and regulation-based reforms (i.e., quotas). Data on country-level corporate governance reforms was obtained from Mensi-Klarbach and Seierstad (2020), the Corporate Governance and Directors' Duties Global Guide under Thomas Reuters Practical Law, and other sources (see Chapter 2 - Table 2.1 for detailed source information & Table 2.2 for distribution of sample).

### 3.2. Measurement of Risk-taking

Drawing from behavioural agency theory, I differentiated between two types of risk-taking – venturing risk and PHR. I follow Poletti-Hughes and Briano-Turrent (2019) to capture venturing risk with residuals from the model of Tobin's Q, which represents the absolute

deviation of Tobin's Q ratio as a measure of performance relative to its expected value. These values are calculated with robust standard errors clustered by company as follows:

$$Tobin's\ Q_{it} = \alpha_{it} + \beta_{1\,it} Leverage_{it} + \beta_{2\,it} ROA_{it} + \beta_{3\,it} Size_{it} + \beta_{4\,it} Current\ ratio_{it} + \beta_{5\,it} sales\ growth_{it} + \sum \beta_{n\,it}\ board_{\ it} + \sum \beta_{n\,it} Country_{it} + \varepsilon_{it} \quad (3.1)$$

Tobin's Q is calculated using the total value of assets minus the equity book value, then adding the market value of equity and dividing the numerator by total assets. The unpredictable component of corporate performance, which was measured by Tobin's Q, represents the error term of the above equation (Eq1). The absolute value of residuals $\varepsilon_{it}$ from the above equation is therefore denoted as the proxy of firm i's venturing risk at time t for the main model in Eq2. As a robustness measure of venturing risk, I also use capital expenditure to assets and R&D-to-asset ratio as this measure of venturing risk is shown to be linked with investment in search of new products or technologies.

Based on behavioural agency theory, agents become loss-averse and are more sensitive to losing wealth than to improving wealth (Wiseman & Gomez-Mejia, 1998). Loss aversion therefore involves a preference for riskier decisions to avoid anticipated loss to reference points. Thus, they frame a choice as a potential loss or gain relative to a certain reference point such as their current wealth/aspiration of wealth/SEW (Kumeto, 2015). I consequently argue that agents may take more PHR as they prefer to preserve their wealth or SEW and protect seats on the board. PHR expresses a failure to achieve targets (Poletti-Hughes & Briano-Turrent, 2019). From this perspective, I measure target achievement as a reference, incorporating the performance of the firm in question in each year with the average performance of other firms in the industry and country for the same period (Gómez-Mejía et al., 2007). Here, I consider the deviation of the country and year-adjusted EBITA/TA from the firm's EBIT/TA for the corresponding year. A dummy variable of reference target achievement

was created and was coded as one when the firm's EBIT/TA is below the country and year-adjusted EBITA/TA and zero otherwise. The resulting dummy code as one represents that the firm fell behind the performance target of the reference point of country average adjusted performance by year (i.e. rise in PHR) and otherwise. A proxy for PHR was used as a historical target achievement period (Gómez-Mejía et al., 2007), using sales growth as a robust measure. The degree of increasing sales performance between periods is negatively proportional to PHR. Therefore, this proxy conceptualises the likelihood of an improving PHR by decreasing, for example, sales performance. I controlled for the natural logarithm of asset value in all equations as an indicator of firm size.

These gender diversity reforms offer DiD and DDD experiments, which lower the concerns of endogeneity, isolating the causal effects of gender diversity reforms on corporate risk-taking. The study addresses the comparability issue by following Fauver et al. (2017), generating benchmark firms of countries in controlled groups to begin in 2010 as the European Commission announced an EU-wide regulation of gender diversity on boards (Mensi-Klarbach et al., 2021) and the US (the largest economy in the sample) began to implement voluntary reform in 2010. In addition, the study addresses the unequal distribution of observations in the cross-country sample, applying weighted DiD regression model as a robustness test.

I use venturing risk and PHR as dependent variables and examine the effect of board gender reforms. Specifically, I estimate the following models using DiD and DDD models respectively:

***Quota Reform***

$$Risk_{i,c,t} = \beta_1(QPost_{After=1}\ x\ QTreatment_{reform=1}) + \beta_2 QPost_{After=1} + \beta_3 QTreatment_{reform=1} + \sum \beta_m\ Controls_{i,c,t} + \sum \beta_n\ FE + \varepsilon_{i,,c,t} \quad (3.2)$$

$$Risk_{i,c,,t} = \beta_1(QPost_{After=1} * QTreatment_{reform=1} * FBP) + \beta_2(QTreatment_{reform=1} * FBP) + \beta_3(QPost_{After=1} * QTreatment_{reform=1}) + \beta_4 QPost_{After=1} + \beta_5 QTreatment_{reform=1} + \sum \beta_m \ Controls_{i,c,t} + \sum \beta_n \ FE + \varepsilon_{i,c,t} \quad (3.3)$$

***Comply-or-explain Reform***

$$Risk_{i,c,t} = \beta_1(CPost_{After=1} \ x \ CTreatment_{reform=1}) + \beta_2 CPost_{After=1} + \beta_3 CTreatment_{reform=1} + \sum \beta_m \ Controls_{i,c,t} + \sum \beta_n \ FE + \varepsilon_{i,,c,t} \quad (3.4)$$

$$Risk_{i,c,,t} = \beta_1(CPost_{After=1} * CTreatment_{reform=1} * FBP) + \beta_2(CTreatment_{reform=1} * FBP) + \beta_3(CPost_{After=1} * CTreatment_{reform=1}) + \beta_4 CPost_{After=1} + \beta_5 CTreatment_{reform=1} + \sum \beta_m \ Controls_{i,c,t} + \sum \beta_n \ FE + \varepsilon_{i,c,t} \quad (3.5)$$

$QPost_{After=1}$ is a dummy variable that equals one from the time of the intervention of board diversity quota reform and $CPost_{After=1}$ is a dummy variable that equals one from the time of the intervention of board diversity comply-or-explain reform. $QTreatment_{reform=1}$ is a dummy variable indicating firms treated by quota reform in the form of including female directors on boards. $CTreatment_{reform=1}$ is a dummy variable indicating firms that have treated by comply-or-explain reform on boards. The coefficient on $\beta_1 =$ in (Eq3.2) & (Eq3.4) represents the changes for the treatment group compared to the changes for the control group. The control group in Eq3.2 incorporates countries without interventions to bring in board gender quota reform. The control group in Eq3.4 comprises countries without interventions to bring in voluntary comply-or-explain reform or any gender diversity reform. The DDD coefficient on $\beta_1$ (Eq3.3) and (Eq3.5) represents changes in the treatment group compared to the change in the non-treated group with respective to gender diversity reforms in countries with stronger FBP.

### 3.3 Variables

I use board gender reforms under two categories: (1) gender quotas and (2) comply-or-explain reforms. Each intervention is coded as one from the year in which the gender reform becomes effective and 0 otherwise. First, the analysis distinguished between regulation and non-regulation reforms. Quota reform is recognised as regulatory reform. Non-regulatory reforms include both voluntary and non-policy countries (i.e., all samples). Second, analysis of comply-or-explain reforms compares voluntary and non-policy reforms. As a result, the sample under analysis excluded the years from which a quota was introduced where comply-or-explain led to a quota reform.

All models represent control variables to measure firm- and country-level temporal variations, which ensure that the effects of gender diversity reforms on risk-taking are not driven by confounding factors (see appendix 3.1 for definitions of all variables).

Like Fauver et al. (2017) and Chen et al. (2020), I control for firm size by considering the natural logarithm of total assets, as the asset size of firms plays a major role in their appetite to make risky investment decisions (Whited & Wu, 2006). I also included the nature of the capital structure of the firm using the leverage ratio, as risk-taking in investment decisions depends on financial decisions (Fauver et al., 2017; Campello et al., 2010). In addition, firms' growth prospects are calculated using the logarithm of market-to-book value of equity (Poletti-Hughes & Briano-Turrent, 2019).

Following Chen et al. (2020), private credit to GDP (Private Credit) to control for a country's financial sector development, and GDP growth (GDP Growth) were used to control the country's economic status level as a firm's risk-taking decisions depend on the country's economic stability level. In addition, country-level governance is important to consider as it

offers protection in making investment decisions. Therefore, I follow Fauver et al. (2017) and include regulatory quality to control for country-level governance.

Board governance structure can affect corporate risk-taking levels (Ballester et al., 2020). I control for firm-level governance by using board independence, board size and CEO–Chair duality. Finally, I control for country, industry and year fixed effect to capture time-invariant countries, industries and the effects of time-events.

I examine the moderating effects of FBP to estimate Eq3.3. This is measured using the meta-analytic score of family-controlled firm prevalence from Berrone et al. (2020). A dummy variable for FBP was then created using the median score at country level. The dummy variable of FBP equals 1 if the score is above the median value and zero otherwise.

### 3.3.1. Descriptive Statistics

Table 3.1 – Panel A reports descriptive statistics for the main variables of the study. The main dependent variables – venturing risk and PHR – have reported means of 0.01 and 0.29 respectively. *Post_Quota* has a mean of 0.13, indicating that 13% of observations represent a board gender quota reform during the sample period. *Post_Comply* shows a mean of 0.48, which represents 48% of comply-or-explain reform observations during the sample period. Average FBP is 0.38 with a deviation of 0.12 in the sample based on the index score of Berrone et al. (2020).

Panel B shows the findings of the Pearson correlation coefficients between the main variables of the study. As the correlation coefficients between the main variables are low, I cannot claim a multicollinearity problem in our results.

**Table 3.1. Descriptive Statistics & Correlation Matrix**

**Panel A - Descriptive Statistics**

| Variable | Mean | Quantile 1 | Median | Quantile 3 | SD |
|---|---|---|---|---|---|
| **Firm Level Variables** | | | | | |
| Performance hazard risk (PHR) | 0.29 | 0 | 0 | 1 | 0.45 |
| Venturing risk (VR) | 0.01 | -0.82 | -0.27 | 0.35 | 1.53 |
| Post_Quota | 0.13 | 0 | 0 | 0 | 0.34 |
| Post_Comply | 0.48 | 0 | 0 | 1 | 0.50 |
| Firm size | 8.74 | 5.86 | 8.12 | 11.41 | 3.90 |
| Leverage | 0.23 | 0.03 | 0.19 | 0.35 | 0.22 |
| Current ratio | 0.49 | 0.29 | 0.48 | 0.67 | 0.25 |
| ROA | 0.04 | -0.02 | 0.09 | 0.17 | 0.85 |
| CAPEX ratio | 0.29 | 0.02 | 0.06 | 0.18 | 0.69 |
| Sales growth rate | 0.18 | -0.02 | 0.07 | 0.19 | 0.69 |
| Market to book value | 1.39 | 0.44 | 0.84 | 1.63 | 1.68 |
| Board size | 8.29 | 6 | 8 | 10 | 3.66 |
| CEO-Chair | 0.38 | 0 | 0 | 1 | 0.49 |
| Board independence | 0.53 | 0.33 | 0.56 | 0.75 | 0.28 |
| **Country- Level Variables** | | | | | |
| Regulatory quality | 1.35 | 1.27 | 1.50 | 1.70 | 0.59 |
| GDP growth rate | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 |
| Domestic credit | 1.46 | 1.16 | 1.62 | 1.83 | 0.47 |
| Family business Prevalence (FBP) | 0.38 | 0.33 | 0.33 | 0.44 | 0.12 |

**Table 3.1. Panel B – Pearson Correlation Analysis**

| | | Ln Mkt/Book | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Leverage | -0.160* | | | | | | | | | | | | |
| 3 | Firm size | -0.104* | 0.072* | | | | | | | | | | | |
| 4 | Current ratio | 0.258* | **-0.344*** | -0.255* | | | | | | | | | | |
| 5 | Sales growth | 0.121* | -0.015* | -0.038* | 0.033* | | | | | | | | | |
| 6 | GDP growth | 0.058* | -0.026* | 0.036* | 0.039* | 0.043* | | | | | | | | |
| 7 | Domestic credit | 0.010* | -0.010* | -0.196* | 0.022* | 0.007* | -0.259* | | | | | | | |
| 8 | Regulatory quality | 0.018* | -0.078* | -0.052* | 0.0004 | 0.026* | **-0.454*** | 0.493* | | | | | | |
| 9 | Board Independence | 0.009* | -0.008* | -0.226* | -0.026* | -0.006 | 0.027* | **0.395*** | 0.063* | | | | | |
| 10 | CEO-Chair | -0.040* | 0.001 | -0.061* | 0.030* | -0.009* | 0.064* | 0.057* | -0.072* | -0.124* | | | | |
| 11 | Board size | -0.113* | 0.092* | **0.328*** | -0.158* | -0.075* | 0.003 | -0.174* | -0.159* | -0.088* | 0.110* | | | |
| 12 | Female Independent Ratio | 0.025* | 0.038* | 0.073* | -0.064* | 0.043* | -0.024* | 0.032 | 0.044* | **0.361*** | -0.123* | 0.119* | | |
| 13 | FBP | -0.097* | 0.055* | 0.246* | 0.037* | -0.046* | -0.081* | **-0.341*** | -0.139* | **-0.304*** | 0.034* | 0.190* | -0.314* | |
| 14 | CAPEX/TA | 0.012* | 0.096* | 0.038* | -0.277* | 0.102* | 0.056* | -0.016* | -0.031* | 0.018* | 0.016* | -0.036* | 0.051* | 0.010* |

* p<0.5. Bold highlights correlation coefficients larger than 30%

### 3.4. Empirical Analysis

#### 3.4.1 Gender Diversity Reforms and Corporate Risk-taking

In Table 3.2 (Panel A), I test whether the impact of gender diversity reforms on risk-taking is significant to the application of the DiD regression and weighted DiD regression specifications. I use PHR as the dependent variable in Columns 1 and 3 under the DiD regression model. I find that the coefficients on Post_Quota and Post_Comply are significantly negative, suggesting that PHR drops following gender diversity reforms. Column 1 shows that the likelihood of PHR drops by 49% following quota reforms, ceteris paribus.[17] Column 3 shows that the likelihood of PHR drops on average by 9.6% following comply-or-explain reforms, ceteris paribus.[18] For further discussion of the DiD coefficient, I used mean differences of treated and controlled groups based on DiD regression in Table 4 (Panel B). According to the findings in Table 3.2 (Panel B), the difference between the average PHR of treated and controlled (non-treated) firms is 0.05 before quota reforms, suggesting that treated firms show a greater propensity to PHR than non-treated firms during the pre-intervention period of quota reform. The propensity towards PHR for treated firms thus becomes lower than non-treated firms following quota reforms (i.e., the mean difference becomes -0.138, and significant). This is reflected in the DiD coefficient of -0.143 (0.005-0.138), which explains that the likelihood of PHR drops significantly among treated firms following the intervention of quota reform when compared to non-treated firms. A similar pattern of mean difference of PHR between treated and controlled groups following comply-or-explain reforms is found in Table 3.2 (Panel B). These claim that gender diversity reforms are effective in reducing PHR, which confirms

[17] 49% = 0.143/0.29, where 0.143 is β1 in Column 1 of Table 4, Panel A and 0.29 is the mean PHR in Table 3.2, Panel A.
[18] 9.6% = 0.028/0.29, where 0.028 is β1 in Column 3 of Table 4, Panel A and 0.29 is the mean PHR in Table 3.2, Panel A.

H1. In addition, the weighted DiD regression model (Columns 5 and 7 in Table 3.2 – Panel A) are also consistent with H1.

I tested the impact of regulatory quota reforms on venturing risk in the DiD model (Column 2) and the weighted DiD model (Column 6) in Table 3.2 – Panel A. I found a positive, albeit insignificant, estimator for a Post_quota on the venturing risk in DiD specification in Column 2 (Table 3.2). Moreover, Table 3.2 (Panel B) elaborates on the DiD coefficients on venturing risk. Accordingly, average venturing risk-taking is greater among quota-treated firms than non-treated firms during the pre-intervention period of quota reform (mean difference = 0.058) because of adequate investors' protection to ensure sufficient resources from developed capital markets and the quality of the institutional environment in quota-treated countries (Terjesen et al., 2015). After introduction of quota reform, venturing risk-taking levels among treated firms are also greater than among non-treated firms (mean difference = 0.068). The DiD specification (0.068 of post-reform > 0.058 of pre-reform) did not find a significant intervention effect of quota reform on venturing risk ($\beta$=0.010, P>0.05). However, the weighted DiD specification (Column 6, Panel A – Table 3.2) found a significant quota reform intervention effect on venturing risk ($\beta$=0.068, P<0.10) after considering the distribution of observations (in support of H2a).

I examined the impact of voluntary comply-or-explain reforms on venturing risk in Column 4 in the DiD model and Column 8 in the weighted DiD model (Table 3.2 – Panel A). I found a negative impact of comply-or-explain reforms on venturing risk. Moreover, Table 3.2 (Panel B) gives further detail on the mean difference in venturing risk between treated and controlled groups for comply-or-explain reforms. Moreover, the average venturing risk in treated firms with comply-or-explain reforms is greater than in non-treated firms before the intervention of voluntary reform (the mean difference between the treated and controlled groups is 0.012). However, the average measure of venturing risk among treated firms became lower than for

controlled firms following the intervention of voluntary comply-or-explain reforms (the mean difference between treated and controlled groups is 0.034). This indicates that voluntary reform intervention is significant in reducing venturing risk (β= -0.034 -0.012 = -0.046). The findings of weighted DiD specification (Column 8, Panel A – Table 3.2) are consistent with a detectable impact of comply-or-explain reform intervention on reducing venturing risk (in support of H2b) as a further robustness check.

For the control variables, PHR is greater in leveraged firms as higher debt levels lead to an increased probability of bankruptcy. PHR is lower when firms achieve historical sales targets, reflected in positive and significant coefficients. In addition, greater board independence and separation of CEO and Chair roles show lower PHR, possibly because of the strength of board monitoring against any performance hazards (Poletti-Hughes & Briano-Turrent, 2019). In addition, PHR is greater when countries have lower regulatory quality and GDP growth levels. Venturing risk is greater with highly market-based performed and leveraged firms, possibly because of more capital from the market may be required to pursue venturing risk. Larger firms and lower sales growth encourage pursuit of venturing risk. In addition, venturing risk-taking is higher in countries with greater domestic credit in the private sector and regulatory quality. Leverage, firm size and market-to-book value ratio are significant and positively associated with the rise of venturing risk, which is consistent with the findings of Poletti-Hughes and Briano-Turrent (2019).

**Table 3.2. Results of Difference in Difference – Corporate Risk-taking**

**Panel A: DiD Regression on Corporate Risk-taking**

| | DiD | | | | Weighted DiD | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) PHR | (2) VR | (3) PHR | (4) VR | (5) PHR | (6) VR | (7) PHR | (8) VR |
| Post_Quota | -0.143*** | 0.010 | | | -0.061*** | 0.068* | | |
| | (-15.44) | (0.47) | | | (-4.03) | (1.79) | | |
| Post_Comply | | | -0.028*** | -0.046** | -0.056*** | | -0.020*** | -0.061*** |
| | | | (-3.09) | (-2.17) | (-36.47) | | (-2.58) | (-3.18) |
| Ln Market to book | -0.056*** | 1.218*** | -0.051*** | 1.233*** | -0.056*** | 1.213*** | -0.054*** | 1.217*** |
| | (-32.49) | (18.14) | (-27.61) | (17.27) | (-36.47) | (39.54) | (-33.09) | (29.83) |
| leverage | 0.121*** | 1.530*** | 0.109*** | 1.584*** | 0.087*** | 1.683*** | 0.083*** | 1.694*** |
| | (15.29) | (48.50) | (13.22) | (47.01) | (12.57) | (97.39) | (11.21) | (91.34) |
| firmsize | -0.065*** | 0.048*** | -0.068*** | 0.043*** | -0.087*** | 0.045*** | -0.088*** | 0.045*** |
| | (-68.84) | (17.65) | (-67.35) | (14.58) | (-97.97) | (20.32) | (-92.55) | (18.97) |
| Sales growth | 0.022*** | -0.176*** | 0.020*** | -0.177*** | 0.020*** | -0.194*** | 0.020*** | -0.194*** |
| | (8.85) | (-19.52) | (7.56) | (-18.53) | (9.25) | (-35.33) | (8.55) | (-33.00) |
| GDP growth rate | -0.191 | -1.976*** | 0.143 | -1.921*** | -1.564*** | -3.006*** | -1.789*** | -3.015*** |
| | (-1.28) | (-5.37) | (0.88) | (-4.93) | (-6.94) | (-5.36) | (-7.10) | (-4.80) |
| Domestic credit | -0.031** | 0.098*** | 0.090*** | 0.066 | 0.082*** | 0.037 | 0.103*** | 0.006 |
| | (-2.12) | (2.64) | (5.46) | (1.50) | (4.31) | (0.77) | (4.61) | (0.11) |
| RegulatoryQuality | -0.055*** | 0.048 | -0.069*** | 0.020 | -0.072*** | 0.152*** | -0.045** | 0.173*** |
| | (-4.03) | (1.44) | (-4.43) | (0.51) | (-3.63) | (3.05) | (-1.97) | (3.03) |
| Independence | 0.020*** | -0.129*** | 0.015*** | -0.126*** | 0.058*** | -0.235*** | 0.057*** | -0.234*** |
| | (3.89) | (-5.12) | (2.67) | (-4.51) | (11.96) | (-11.03) | (11.14) | (-10.18) |
| ln_boardsize | 0.001 | -0.239*** | -0.019** | -0.250*** | -0.023*** | -0.356*** | -0.024*** | -0.353*** |
| | (0.06) | (-16.86) | (-2.13) | (-16.20) | (-2.67) | (-29.58) | (-2.66) | (-27.59) |
| CEO_Chair | -0.037*** | 0.008 | -0.040*** | 0.035*** | -0.051*** | 0.014 | -0.052*** | 0.018* |
| | (-11.15) | (1.00) | (-10.83) | (3.85) | (-14.88) | (1.60) | (-14.03) | (1.92) |
| *N* | 79031 | 78499 | 68149 | 67628 | 79031 | 78499 | 68149 | 67628 |
| $R^2$ | 0.18 | 0.55 | 0.21 | 0.56 | 0.24 | 0.57 | 0.24 | 0.57 |

Country, year and industry effects are included in all regressions. t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01.

**Table 3.2. Panel B: Mean Differences of Treated and Controlled Groups based on DiD Regression**

| | | Difference between treated and control (T-C) | | |
|---|---|---|---|---|
| Reform | Corporate Risk | Before Reform | After Reform | DID |
| Quota reform | PHR | 0.005 | -0.138** | -0.143*** |
| | VR | 0.058** | 0.068** | 0.010 |
| Comply or explain reform | PHR | 0.003 | -0.025*** | -0.028*** |
| | VR | 0.012 | -0.034** | -0.046** |

### 3.4.2. Gender Diversity Reforms and the Role of FBP

Table 3.3 shows that the role of FBP in gender diversity reform affects corporate risk-taking. According to the findings presented in Column 1, the effects of quota reform do not influence improvements in PHR in countries with a FBP context. The findings of weighted DiD regression set out in Column 5 also confirm that quota-treated companies do not interfere with PHR in a FBP context. This means that quota reform promises to establish a goal congruence in family boards, aligning SEW with financial goals.

The findings shown in Columns 2 and 6 suggest that regulatory quota reforms improve venturing risk in a context with a greater FBP. This suggests that gender diversity practices complement female talents with resources in family businesses enabling achievement of value-enhancing corporate practices (García-Meca & Santana-Martín, 2022). These findings confirm that quota reform is effective in increasing venturing risk among firms with greater levels of FBP (in support of H3). However, companies with higher levels of FBP do not face more PHR following quota reforms, as shown in Columns 1 and 5 (Table 3.3). This indicates that quota reforms ensure a critical mass in an FBP context (García-Meca et al., 2022) to neutralise any adverse impact of SEW on performance hazards.

Countries with FBP moderate the effects of voluntary reforms on PHR because of the greater weight of SEW goals in a FBP context. Accordingly, Table 3.3 (Column 3) confirms that firms improve PHR ($\beta = 0.163$, $P<0.05$) following comply-or-explain reforms (i.e., positive coefficients conceptualise the likelihood of failure to achieve reference targets – country average EBIT/TA), in countries with stronger FBP (in support of H3). As a further robustness check, this finding is consistent with the weighted DDD regression model in Column 7, Table 3.3. Concurrently, companies in higher levels of FBP accept more venturing risk following voluntary comply-or-explain reforms when current performance is not as desired. This is shown in the DDD specification ($\beta = 0.217$, $P=0.000$) in Column 4 and is consistent with the weighted DDD specification ($\beta = 0.346$, $P=0.000$) in Column 8, Table 3.3.

**Table 3.3. DDD Regression on Corporate Risk-taking in Family Business Prevalence**

| | DiD | | | | Weighted DiD | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) PHR | (2) VR | (3) PHR | (4) VR | (5) PHR | (6) VR | (7) PHR | (8) VR |
| Post_quota | -0.145*** | -0.199*** | | | -0.144*** | -0.352** | | |
| | (-2.69) | (-4.51) | | | (-7.12) | (-2.07) | | |
| Post_comply | | | -0.216* | -0.614* | | | -0.216*** | -0.378*** |
| | | | (-1.97) | (-1.90) | | | (-8.68) | (-6.11) |
| Post_quota#FBP | 0.012 | 0.154** | | | 0.213 | 0.424** | | |
| | (0.34) | (2.48) | | | (0.98) | (2.43) | | |
| Post_comply#FBP | | | 0.163*** | 0.217*** | | | 0.160*** | 0.346*** |
| | | | (4.20) | (2.73) | | | (4.72) | (4.10) |
| Ln Market to book | -0.055*** | 1.219*** | -0.051*** | 1.234*** | -0.055*** | 1.214*** | -0.054*** | 1.218*** |
| | (-32.34) | (58.12) | (-27.43) | (47.26) | (-36.12) | (39.75) | (-32.72) | (29.00) |
| leverage1 | 0.121*** | 1.531*** | 0.110*** | 1.584*** | 0.087*** | 1.682*** | 0.083*** | 1.694*** |
| | (15.36) | (48.51) | (13.29) | (47.01) | (12.50) | (97.36) | (11.20) | (91.37) |
| firmsize | -0.065*** | 0.048*** | -0.068*** | 0.043*** | -0.087*** | 0.045*** | -0.088*** | 0.045*** |
| | (-68.90) | (17.65) | (-67.31) | (14.57) | (-98.11) | (20.27) | (-92.62) | (18.91) |
| Sales growth | 0.022*** | -0.176*** | 0.020*** | -0.177*** | 0.020*** | -0.194*** | 0.020*** | -0.194*** |
| | (8.83) | (-19.53) | (7.57) | (-18.53) | (9.14) | (-35.43) | (8.49) | (-33.06) |
| GDP growth rate | -0.136 | -1.877*** | 0.359** | -1.619*** | -0.512** | -1.354** | -0.633** | -1.017 |
| | (-0.91) | (-5.08) | (2.19) | (-4.09) | (-2.06) | (-2.18) | (-2.21) | (-1.42) |
| Domestic credit | -0.038*** | 0.083** | 0.054*** | 0.015 | 0.054*** | -0.009 | 0.049** | -0.087 |
| | (-2.63) | (2.21) | (3.17) | (0.33) | (2.79) | (-0.18) | (2.13) | (-1.51) |
| RegulatoryQuality | -0.064*** | 0.038 | -0.077*** | 0.007 | -0.075*** | 0.148*** | -0.054** | 0.160*** |
| | (-4.62) | (1.13) | (-4.95) | (0.18) | (-3.80) | (2.97) | (-2.37) | (2.80) |
| Independence | 0.003 | -0.126*** | -0.015* | -0.121*** | -0.018** | -0.228*** | -0.020** | -0.227*** |
| | (0.37) | (-4.98) | (-1.69) | (-4.31) | (-2.16) | (-10.70) | (-2.21) | (-9.85) |
| ln_boardsize | 0.020*** | -0.239*** | 0.013** | -0.252*** | 0.057*** | -0.358*** | 0.056*** | -0.356*** |
| | (3.89) | (-16.87) | (2.45) | (-16.32) | (11.74) | (-29.74) | (10.84) | (-27.80) |
| CEO_Chair | -0.039*** | 0.007 | -0.041*** | 0.033*** | -0.055*** | 0.011 | -0.053*** | 0.015 |
| | (-11.47) | (0.82) | (-11.25) | (3.58) | (-36.12) | (1.31) | (-14.49) | (1.60) |
| *N* | 79031 | 78499 | 68149 | 67628 | 79031 | 78499 | 68149 | 67628 |
| $R^2$ | 0.18 | 0.55 | 0.21 | 0.56 | 0.24 | 0.57 | 0.24 | 0.57 |

Country, year and industry effects are included in all regressions. t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01

### 3.4.3. Endogeneity of Board Reforms

The effects of major confounding shocks resulting from gender diversity reform intervention could have existed in these findings. Like Fauver et al. (2017), I conducted a placebo test to address the existence of pre-existing trends. I designed pseudo-shock periods, restricting the sample time period to two years before reforms had taken place and two years after reform shock had set in, while remaining our treated and control groups as the same in the main model. I re-ran the DiD regression after altering the dummy variable of 'post' to the pseudo year under restrictive sampling. Table 3.4 – Panel A reports that the findings of the post are insignificant for both quota and comply-or-explain reforms. These findings therefore demonstrate that major events relating to gender diversity reforms do not drive our results.

Comparison between the control and treatment groups had potential to be difficult as these groups differ in their economic and financial dimensions. I therefore implemented propensity score matching to generate more comparable treatment and control groups as part of quota and comply-or-explain reform separately. Both the treatment and control groups were matched with firm-level and country-level control variables from Eq3.2, using the nearest neighbour-matching technique. Table 3.4 – Panel B reports the findings of PSM-DiD regression for the subsets of quota and comply-or-explain reforms. According to the findings shown in Columns 1 and 3, PHR reduces following gender diversity reforms, confirming H1. Contrary to the findings relating to venturing risk following quota reforms in the DiD model in the unmatched sample (Table 3.2), firms pursue higher levels of venturing risk ($\beta = 0.070$, P=0.000) following quota reform in the propensity score-matched sample. After implementation of comply-or-explain reforms, firms reduced venturing risk-taking levels, which is consistent with the main model in Table 3.2. Table 3.4 – Panel C reports the findings of PSM-DDD regression in a FBP context for the subsets of quota and comply-or-explain reforms. All the findings are consistent with the main DDD model.

**Table 3.4. Endogeneity of Board Reforms**

**Panel A – Placebo Tests**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | PHR | | VR | |
| | Quota | Comply-or-explain | Quota | Comply-or-explain |
| DiD | -0.040 | -0.006 | 0.003 | 0.032 |
| | (1.11) | (0.45) | (0.04) | (0.97) |
| *N* | 5480 | 18157 | 5470 | 18031 |
| $R^2$ | 0.23 | 0.21 | 0.50 | 0.56 |

**Panel B. Endogeneity of Board Reforms -Matched Sample by All Control Variables**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Variables | PHR | VR | PHR | VR |
| Post_quota | -0.100*** | 0.070** | | |
| | (-9.31) | (2.67) | | |
| Post_comply | | | -0.022** | -0.037* |
| | | | (-2.38) | (-1.68) |
| Observations | 38,418 | 38,309 | 62,949 | 62,457 |
| r2 | 0.19 | 0.56 | 0.22 | 0.55 |

Country, year and industry effects are included in all regressions. t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01.

**Panel C. Endogeneity of Board Reforms & Family Business Prevalence -Matched Sample by All Control Variables**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Variables | PHR | VR | PHR | VR |
| Post_quota | -0.157*** | -0.178*** | | |
| | (4.39) | (3.76) | | |
| Post_comply | | | -0.162 | -0.208 |
| | | | (-0.82) | (-1.11) |
| Post_quota#FBP | 0.045 | 0.153* | | |
| | (1.06) | (1.88) | | |
| Post_comply#FBP | | | 0.139** | 0.361** |
| | | | (1.70) | (2.44) |
| Observations | 38,418 | 38,309 | 62,949 | 62,457 |
| r2 | 0.20 | 0.56 | 0.21 | 0.57 |

Country, year and industry effects are included in all regressions. t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01.

### 3.4.4. Alternative Measures of Corporate Risk-taking

As noted in the main model, PHR is recognised as the probability of negative outcomes. Like Gómez-Mejía et al. (2007), I build on sales growth as a historical target achievement which compares current sales performance with past performance. Growth of sales is recognised as the extent to which the historical target is achieved. As the PHR expresses the difference between actual performance and target, I use the natural logarithm of sales growth as a measure of PHR (Poletti-Hughes & Briano-Turrent, 2019). From this perspective, the extent to which sales performance is increased between periods is negatively proportional to PHR. Therefore, this proxy conceptualises the likelihood of a performance hazard by reducing sales performance. I found that quota reforms positively affect historical sales target achievements while comply-or-explain reforms do not interfere with PHR, as shown in Columns 1 and 3 (Table 3.5 – Panel A). In the context of FBP, I found that quota reform does not interfere with improving PHR, as shown in Column 2. Overall, the key findings of quota reforms are robust with the main model. However, the role of FBP prevents achievement of historical targets following comply-or-explain reforms, while showing an insignificant drop.

Previous literature discusses that capital expenditure (CAPEX) decisions forecast future profitability, business risk and capital budgeting decisions in new venturing projects (Amir et al, 2007; To et al., 2020). Therefore, I use the CAPEX ratio as a proxy for venturing risk, finding. I find quota reform positive with a rising CAPEX ratio, even in a FBP context (Table 3.5 – Panel B). This expands the growth opportunities of businesses in a FBP context. In addition, R&D-to-asset ratio is used as a proxy for venturing risk as it shows greater uncertainty for future returns than the CAPEX ratio (Amir et al., 2007). The findings in Column 1, Panel C (Table 3.5) show that R&D intensity is greater following quota reforms ($\beta$= 0.094, P=0.000). However, a rise in the R&D-to-asset ratio exhibits no detectable effect following quota reforms in the FBP context. This may be because family ownership invests fewer resources in R&D as

it brings greater uncertainty than CAPEX allocations (Block, 2012) irrespective of gender diversity reforms.

**Table 3.5. Alternative Measures of Corporate Risk-taking**

**Panel A. Alternative Measure of PHR – Historical Target Achievement (Sales Growth)**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Variables | Sales growth | Sales growth | Sales growth | Sales growth |
| Post_quota | 0.031** | 0.011 | | |
| | (2.33) | (0.38) | | |
| Post_comply | | | 0.015 | -0.104 |
| | | | (0.97) | (-0.87) |
| Post_quota# FBP | | 0.007 | | |
| | | (0.70) | | |
| Post_comply#FBP | | | | -0.030 |
| | | | | (-1.52) |
| Observations | 79033 | 79033 | 68,151 | 68,151 |
| r2 | 0.05 | 0.05 | 0.05 | 0.04 |

Country, year and industry effects are included in all regressions. t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01.

**Panel B. Alternative Measure of Venturing Risk (CAPEX ratio)**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Variables | CAPEX ratio | CAPEX ratio | CAPEX ratio | CAPEX ratio |
| Post_quota | 0.068*** | 0.048 | | |
| | (2.87) | (0.90) | | |
| Post_comply | | | -0.085*** | 0.338 |
| | | | (-3.64) | (1.49) |
| Post_quota# FBP | | 0.141* | | |
| | | (1.78) | | |
| Post_comply#FBP | | | | 0.075 |
| | | | | (0.72) |
| Observations | 77438 | 77438 | 66774 | 66774 |
| r2 | 0.16 | 0.16 | 0.16 | 0.20 |

Country, year and industry effects are included in all regressions. t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01.

**Panel C. Alternative Measure of Venturing Risk (R&D ratio)**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Variables | R&D ratio | R&D ratio | R&D ratio | R&D ratio |
| Post_quota | 0.094*** | 0.048 | | |
| | (2.10) | (0.32) | | |
| Post_comply | | | -0.001 | -1.126*** |
| | | | (-1.35) | (-3.71) |
| Post_quota# FBP | | -0.027 | | |
| | | (-0.15) | | |
| Post_comply#FBP | | | | -0.107 |
| | | | | (-0.75) |
| Observations | 35674 | 35674 | 30810 | 30810 |
| r2 | 0.51 | 0.45 | 0.49 | 0.49 |

Country, year and industry effects are included in all regressions. t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01.

### 3.4.5. Quota Reforms, Corporate Risk, and Firm Performance

This section addresses concerns relating to whether taking more risks improves firms' profitability. To test this conjecture, I investigate whether corporate risk increases firm performance following quota reforms. To do so, I use the following regressions (Eq 3.6 and Eq 3.7) with ROA and a lagged risk-taking component:

$$LnROA_{i,c,t} = \beta_1(Post_{After=1}\ x\ FBP) * Venturing\ risk_{t-1} + \beta_2(Post_{After=1}\ x\ FBP) + \beta_3 Post_{After=1} + \beta_4 FBP + \beta_5 Venturing\ risk_{t-1} + \sum \beta_m\ Controls_{i,c,t} + \sum \beta_n\ FE + \varepsilon_{i,,c,t} \quad (3.6)$$

$$LnROA_{i,c,t} = \beta_1(Post_{After=1}\ x\ FBP) * PHR_{t-1} + \beta_2(Post_{After=1}\ x\ FBP) + \beta_3 Post_{After=1} + \beta_4 FBP + \beta_5 PHR_{t-1} + \sum \beta_m\ Controls_{i,c,t} + \sum \beta_n\ FE + \varepsilon_{i,,c,t} \quad (3.7)$$

The above equations are controlled for firm-level and country-level fixed effects to correct for unobservable heterogeneity that might be presented in the relationship between gender diversity reforms and firm performance. Venturing risk represents the error term of Tobin's Q equation as specified in Eq3.1 as a measure for venturing risk. The equations will be used to test the impact of venturing risk/PHR impact on firm performance in a family business context following quota reforms. As current financial performance is affected by past corporate risk-taking, I used lagged corporate risk-taking and included a lag of ROA to capture the dynamic effect of past firm performance on the current performance of board structure (Akbar et al., 2017).

I report the findings of Eq3.6 in Columns 1 and 2 in Table 3.6. The findings in Column 1 report that lagged venturing risk improves current firm performance following quota reform ($\beta$=0.015, P<0.10). I found a positive impact of lagged venturing risk on current ROA, albeit an insignificant estimator for venturing risk in a FBP context following the quota reforms set out in Column 2. Columns 3 and 4 report findings of lagged PHR impact on ROA, as shown in Eq3.7. Column 3 reports a negative impact of lagged PHR on current financial performance, albeit an insignificant estimator. However, the negative impact of lagged PHR on ROA becomes significant in the FBP context ($\beta$= -1.481, P=0.000). In sum, the findings of past venturing risk-taking support current financial performance and past PHR adversely impacts current financial performance following quota reforms.

**Table 3.6. Quota reforms, Risk-taking, and Firm Performance**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Variables | LnROA | LnROA | LnROA | LnROA |
| Post_quota *Venturing risk $_{t-1}$ | 0.015* | | | |
| | (1.89) | | | |
| Post_quota * FBP* Venturing risk $_{t-1}$ | | 0.035 | | |
| | | (1.50) | | |
| Post_quota * PHR t-1 | | | -0.01 | |
| | | | (-0.76) | |
| Post_quota * FBP* PHR t-1 | | | | -1.481*** |
| | | | | (-5.04) |
| Observations | 50,761 | 50,761 | 52,701 | 52,701 |
| r2 | 0.16 | 0.16 | 0.11 | 0.12 |

Country, year and industry effects are included in all regressions. t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01.

### 3.4.6. Evidence for the Effectiveness of Gender Reforms in Latin America

#### 3.4.6.1. The Effectiveness of Comply-or-explain Gender Reforms

This section sets out a specific case study for the Latin American (LA) region, where family businesses are prevalent (Jara et al., 2019). In Table 3.7, the variable for FBP is replaced with a dummy that equals one for all firms belonging to a Latin American region and zero otherwise. An interaction term was then constructed with the Latin American dummy and the Post_Comply intervention. I found an insignificant reduction in PHR following voluntary reforms in the region. In addition, I found that voluntary reforms reduce venturing risk levels in the Latin American region. A possible reason for reduction in venturing risk is a negative spillover effect of voluntary reform on proportion of external female directors and board independence in this region (see Chapter 2). This suggests that voluntary reform would

promote the appointment of inside directors (Lim et al., 2021) to ensure more SEW weight in family firms and therefore lack of resource support to pursue venturing risk and a greater possibility of PHR to preserve SEW aims. The findings in Columns 3 and 4 (Table 3.7) suggest that corporate risk-taking following the intervention of voluntary reform is not significantly influential in improving the performance of Latin American firms.

**Table 3.7. The Latin American Region and the Family Business Prevalence**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Variables | PHR | VR | LnROA | LnROA |
| Post_comply | 0.022*** | 0.013 | 0.136 | 0.016 |
| | (3.07) | (0.76) | (0.60) | (0.71) |
| Post_comply# Latin | -0.009 | -0.102* | | |
| | (-0.36) | (-1.81) | | |
| Post_comply#Latin# Venturing risk $_{t-1}$ | | | -0.086 | |
| | | | (-0.96) | |
| Post_comply#Latin# PHR $_{t-1}$ | | | | 0.443 |
| | | | | (1.03) |
| Observations | 68,149 | 67,628 | 42,709 | 43,223 |
| r2 | 0.20 | 0.55 | 0.21 | 0.21 |

### 3.5. Conclusion

I explore the effect of diversity reforms and the moderating effects of FBP on corporate risk-taking. I use behavioural agency theory to conceptualise corporate risk-taking and resource dependency theory to explain the effects of quota reforms on corporate risk-taking. I measure corporate risk-taking using venturing risk and PHR to incorporate loss aversion and the risk-bearing nature of agents (Wiseman & Gómez-Mejía, 1998).

Previous literature has examined the benefits of gender diversity practices on reducing corporate failure or performance hazards (Abdou et al., 2021; Garcia-Sanchez et al., 2017). I confirm this argument from findings relating to the effectiveness of gender diversity reforms (i.e. regulatory quota and comply-or-explain reforms) in reducing PHR. Martínez-García et al. (2022) claimed that the inclusion of previous experience, education qualifications and networks in corporate boards is higher following quota reforms. This is effective in enhancing the quality of board decisions and searching for better investment opportunities (Poletti-Hughes & Williams, 2019). Supporting this, I found that quota reform positively influences venturing risk, even in a FBP context. Overall, these findings suggest that quota reform performs more than an ethical role, providing positive economic outcomes.

Previous studies offer a SEW framework to explain corporate risk-taking in family businesses (Gómez-Mejía et al., 2011; Poletti-Hughes & Briano-Turrent, 2019). I confirmed the limited effectiveness of comply-or-explain reforms on above-target performance resulting from greater weight placed on SEW relative to less FBP context. Supporting this view, firms in FBP assume more PHR following comply-or-explain reforms to protect SEW and concurrently pursue venturing risk when they do not achieve desired performance targets. Therefore, voluntary reforms could be less influential in aligning the objectives of shareholders to the objectives of the family business unit.

This study offers several implications for policy-makers. Understanding how informal institutions affect gender diversity reforms is important in determining the positive outcomes of such reforms in a corporate context. Voluntary reforms are less effective in countries with a strong FBP culture because of SEW preservation. In such cases, firms in a FBP would struggle to achieve favourable financial outcomes. Policy-makers therefore have potential to strengthen institutions by introducing regulatory diversity reforms in a FBP context to compensate for weaknesses in family boards and management.

This study is subjected to the limitation of using the FBP index to measure SEW weight at country level. However, the weight placed on SEW could be determined by family involvement in ownership and management (García-Meca & Santana-Martín, 2022). An interesting question for future studies is therefore how family ownership and/or management moderates the effectiveness of gender reforms at firm level.

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## Appendix 3.1. Definition of Variables

| | |
|---|---|
| Post_Quota | Dummy variable equals 1 if gender quota reforms with sanctions became effective in the country in the fiscal year, and 0 otherwise. |
| Post_Comply | Dummy variable equals 1 if gender comply and explain reforms became effective in the country in the fiscal year, and 0 otherwise (exclude the countries treated with board quota reforms with sanctions) |
| Performance hazard risk (PHR) | Dummy variable equals 1 when the firm's EBIT/TA is below the country and year-adjusted EBITA/TA and zero otherwise |
| Venturing risk (VR) | Unpredicted value of corporate performance regression. i.e. error term of the equation (Eq1) |
| Firm Size | Log of total asset |
| Leverage | Total debt, including all short-and long-term debt, as a percent of total assets. |
| Current Ratio | Ratio of current assets to current liabilities |
| ROA | Natural logarithm of net income divided by total assets |
| CAPEX ratio | Natural logarithm of the ratio of CAPEX to total assets |
| Sales growth | Annual growth of sales revenue |
| Ln Market to book | Natural logarithm of ratio of market value to book value of assets |
| **Country- Level Variables** | |
| Regulatory Quality | Perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development (World governance report). Ranges from -2.5 to 2.5. |
| GDP growth rate | GDP growth rate (World Development Indicators). |
| Domestic credit | Domestic credit to private sector as a percentage of GDP measured by the amount of financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment (World bank database). |
| Family business Prevalence (FBP) | A dummy variable which equals 1 when a family business prevalence index (using the index from Berrone, 2020) is greater than the median score, and 0 otherwise. |
| **Corporate Governance Variables** | |
| CEO_Chair | If the chair and CEO are the same individual, set to 1; otherwise, set to 0; dummy variable (Boardex) |
| Board Independence | Independent directors as a percentage of board size |
| ln_boardsize | Natural logarithm of board size |

**Appendix 3.2. Authors Declaration**

# University of Liverpool Management School
# PhD Thesis – PhD Structured as Papers
## AUTHORSHIP DECLARATION – joint authored papers - Appendix B

## 1. Candidate

| Name of the Candidate | Student number |
|---|---|
| DIMUNGU HEWAGE DILRUKSHI NADEESHA | 201382808 |
| Thesis Title | |
| GENDER DIVERSITY REFORMS AND CORPORATE RISK-TAKING: THE ROLE OF FAMILY BUSINESS PREVALENCE. | |

## 2. FORMAT OF THE THESIS

| | | |
|---|---|---|
| Is the candidate intending to structure their thesis as papers? | **Yes** / ~~No~~ | If Yes, please complete Section 3 (sole authored paper) OR 4 (joint paper)<br>**If No, you do not need to complete this form** |

## 3. PAPER INCLUDED IN THE THESIS – JOINT AUTHORED PAPER

| Title of the paper | Has this paper been published, presented at a conference or under review with a journal | If Yes, please complete the boxes below. If No, go to section 4 |
|---|---|---|
| Gender diversity reforms and corporate risk-taking: The role of family business prevalence. | No | |
| If the paper has already been published please refer to the University guidelines on presentation of publications within a PGR Thesis - https://www.liverpool.ac.uk/media/livacuk/tqsd/code-of-practice-on-assessment/annex-7.2-PGR-CoP.pdf | | |
| If the paper is under review with a journal, give details of the journal, including submission dates and the review stage | | |
| If the paper is presented at a conference, give details of the conference | | |

## 4. DESCRIPTION OF ALL AUTHOR CONTRIBUTIONS (including the PhD candidate)

| Name and affiliation of author | Contribution(s) (for example, conception of the project, design of methodology, data collection, analysis, drafting the manuscript, revising it critically for important intellectual content, etc.) |
|---|---|
| DIMUNGU HEWAGE DILRUKSHI NADEESHA | Conception of the empirical study, data collection and developing the database, methodologies, data analysis, and drafting manuscript. Revise the study based on the comments of IPAP reviewers. |
| DR. JANNINE POLETTI-HUGHES | Conception of the empirical study, revise the manuscript. |
| DR. YANG ZHAO | Review research methodologies and revise manuscript. |

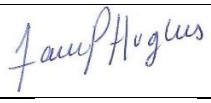
## 5. AUTHOR DECLARATIONS (including the PhD candidate)

*I agree to be named as one of the authors of this work, and confirm:*

*iv. that the description in Section 4 of my contribution(s) to this publication is accurate,*

*v. that there are no other authors in this paper,*

*vi. that I give consent to the incorporation of this paper/publication in the candidate's PhD thesis submitted to the University of Liverpool*

| Name of author | Signature* | Date |
|---|---|---|
| DIMUNGU HEWAGE DILRUKSHI NADEESHA |  | 28/11/2022 |
| DR. JANNINE POLETTI-HUGHES |  | 28/11/2022 |
| DR. YANG ZHAO |  | 01/12/2022 |

## 6. OTHER CONTRIBUTOR DECLARTION

*I agree to be named as a non-author contributor to this work.*

| Name and affiliation of contributor | Contribution | Signature* and date |
|---|---|---|
| | | |
| | | |

**This consent form (Appendix B) or the sole author consent form (Appendix A) for each paper must be completed and kept by the PhD candidate once the paper is finalised. If the paper is to be included as part of the thesis, a copy of this form must be included in the PhD thesis with each publication.**

# Chapter 4. Does Board Diversity Decrease Corporate Fraud? International Evidence from Family vs. Non-family firms.

## 4.1. Introduction

A frail market's institutional system is one of the challenges when doing business because of the increased investors' exposure to the impact of weak legality, such as fraud, bribery and corruption (La Porta et al., 2000; Klappler & Love, 2004). These aspects highlight the importance of strategically adapting institutional corporate governance practices to overcome the value-decreasing risks associated with low investors' protection in the region (Poletti-Hughes, 2009).

Literature on internal corporate governance processes have focused attention on board diversity as a mechanism to increase effectiveness (Buse et al., 2016). Scholars have theorized that greater corporate board diversity will lead to a better strategic decision-making, organisational behaviour, and financial performance (Ramirez, 2018), but whether board diversity impacts on the likelihood of corporate fraud is still an open question.

Inconclusive evidence on the effectiveness of board diversity on the probability of fraud calls for further empirical enquiry. In particular, because many results about the effects of board diversity, mainly in gender, derived from developed economies (Capezio & Mavisakalyan, 2016; Naumovska et al., 2020; Wahid, 2019), but have been limited in less developed markets (González et al., 2020), where the culture of the region influences corporate behaviour (Boateng et al., 2021) and warrant further investigation into the role of board diversity and the likelihood of fraud.

To address this research gap, this paper focuses in the Latin American (LA) region as a pertinent setting for study to explore what I know about family businesses around the world, and the generalizability of these ideas to other less developed markets (Müller et al., 2019). In this region, most companies are controlled by its founders (Jara et al., 2019), and the

involvement of family members in key executive positions is very common (Bertrand & Schoar, 2006) increasing the prevalence of established networks that diminish opportunities to appoint a diverse board. Recent corporate scandals of family firms in the region have highlighted ethical concerns on whether family firms are more or less likely to commit corporate misconducts as a result of fragilities of the legal system that offer weak investors' protection - i.e. exacerbating principal–principal agency conflicts between majority and minority shareholders (La Porta et al., 1999). The uncertain economic, social, political and legal environment that influence family firms in this region require governance structures that differ from other regions in the world (Monteferrante & Piñango, 2011), which range from leadership within the company to political connections that facilitate the success of the company as a going concern (Lansberg & Perrow, 1991), without neglecting the perpetuation of the company in the family as a point of reference when making managerial decisions (Gomez-Mejia et al., 2011).

This article addresses concerns that current perspectives on family business should capitalise on the distinctive context of the concept of socioemotional wealth (SEW) (Berrone et al., 2012). Therefore, I extend current research on the impact of board diversity on corporate fraud by incorporating developments in the family business literature stressing the influence of a social configuration on the corporate conduct of family firms (Zellweger et al., 2019). This empirical study that develops in the context of family firms, considers that financial malpractice from family controllers might occur as a means for survival when aiming to preserve the business for future generations (Krishnan and Peytcheva, 2019). Also, the findings of the study contribute to addressing the broader question of how the diversity of boards is more effective in decreasing fraud. I adopt a logit regression modelling approach to investigate whether board diversity (i.e. gender, education and tenure) influence the likelihood of corporate fraud with a

sample of 1842 firm-year observations from 2008 to 2019. Results are robust to endogeneity concerns, methodological techniques and model specifications.

The findings of this study suggest that family firms have a positive and significant association with the likelihood of fraud, which aligns to potential traits that develop from director's connectedness to the controlling family, suggesting that human capital leads social ties in family firms. These results shed some light on the impact of social ties for the development of independent boards, indicating that family firms favour shared networks of education to keep the control of family businesses. This is consistent with a "nepotism" view, which develops throughout the years of education of future board directors (Chua et al., 2009). Further, I find that board size is instrumental in minimizing the likelihood of fraud only for family firms, as it opens the possibility of diversity in the boardroom. The findings suggest that family firms achieve a larger benefit from gender and educational diversity in reducing the probability of fraud than non-family firms, possibly because more diversity constrains social connectedness and increases objectivity from board members. Additionally, I find that while long tenured independent directors increase the likelihood of fraud for all firms, family firms benefit from a board structure that comprises both longer-tenured and newly appointed independent directors (i.e. tenure diversity). Probably, because the role of directors is valuable as both monitors and strategists (Hillman & Dalziel, 2003), which is enhanced by both their independence and experience (Vafeas, 2003; Patro et al., 2018). I conjecture that current board experience deters board diversity in family firms, because experienced directors are overconfident (Zhu et al., 2015), becoming entrenched and less likely to recognise the corporate benefits from diversity when appointing new members.

This study contributes to the literature in several ways. First, it advances understanding in the association between board diversity (including and beyond gender) and corporate fraud. To the extent that board diversity reduces the prevalence of related party transactions (Mahenthiran et

al., 2020) and social connectedness (Ahn et al., 2010), it is expected to reduce the probability of fraud.

Second, the particular characteristics of the region warrant to frame this study through the lens of the SEW, that differentiates the significance and impact of fraud to the literature on corporate governance in family firms. I identify that behavioural agency costs also pertain to independent directors, since they develop ties with family firms (i.e. throughout their networks) which adversely affect the best interest of minority shareholders. This connectedness is particularly the case for longer tenured independent directors and those with education networks, who possess greater incentives to protect SEW in family firms. Therefore, I incorporate aspects of socioemotional endowment framed by the behavioural agency theory, which is relevant for my analytical framework, stressing that the behaviour of family firms aligns to social relationships and social structures (Berrone et al., 2012), that motivates actions towards the interests of the family, expropriating resources from minority investors (Miller & Le Breton-Miller, 2006). Thus, the SEW framework is pertinent to study the benefits of board diversity where complex board structures and management are represented by interests which not always align to an economic outcome (Kumeto, 2015).

Third, I assimilate into my analysis the notion that the benefits from board diversity are more effective mechanisms to offset the likelihood of fraud in family firms than in non-family firms. That is, boards that are diverse in gender, education and tenure of independent directors enhance the monitoring ability of the board in family firms. In line with Corbetta and Salvato (2004), I reason that board characteristics echo the dominance of family firms and the culture of the region, providing an insight to effective board compositions that strengthen corporate governance practices. In this quest, I distinguish that family firms with experienced boards have less diversity in gender, and directors are entrenched to their appointments (i.e. long tenures).

### 4.2. Literature Review and Hypotheses Development

Corporate fraud has been a topic of attention because of recent scandals of insidious actions from top management, such as Brazil's Odebrecht and Petrobras (Zysman-Quirós, 2019). The U.S. Association of Certified Fraud Examiners (ACFE) groups fraud into three main categories: fraudulent statements, asset misappropriation and corruption (Sabau, 2012). Recent academic literature studied fraud that ranges from inside the company (i.e. financial statements and reporting) (Shapiro, 2011) to against the company (i.e. misappropriation of assets) (Soltani, 2014). Another debate of corporate fraud in the accounting and auditing literature is based on the concept of the fraud triangle, where the probability of fraud increases based on its opportunity, pressure and rationalisation (Cressey, 1953). Roden et al. (2016) found that these components were significant in increasing fraud measured as board composition, stock compensation and auditor changes, respectively.

The impact of fraud in corporations is large. On the one hand, fraudulent financial statements mislead investors and/or regulators regarding the financial health and prospects of the organisation. Such misrepresentation of the use of internal funds leads to altered accounting systems (Reurink, 2018). On the other hand, assets misappropriation is damaging for corporations because it is difficult to recognise by internal and external auditors (Sabau, 2012). Since, the influence of the institutional setting regarding corporate governance is relevant in determining cultural values and the legal environment (Sadique et al., 2019), the risk factors (i.e. fraud triangle) that impact on the probability of fraud might differ accordingly. Then, not only culture and traditions influence business practices (Hofstede, 1980), but also the legal environment (La Porta et al., 2000).

Although the incentives (e.g. reputation) to preserve integrity might differ among firms, weak external governance facilitates the incidence of corporate malpractice (Aguilera et al., 2019;

González & García-Meca, 2014). Hence, weak enforcements, poor shareholder protection and political connections may motivate corporate malpractice in emerging economies.

From a corporate governance perspective, the role of the board in monitoring incidences of corporate fraud becomes relevant irrespective of whether the consequences of such actions are damaging for the company or any other stakeholders. Given that board diversity models firms' performance through board's monitoring intensity (Ararat et al., 2015), its relevance to decrease financial malpractice through the provision of a greater range of perspectives and different sources of previous experiences is clear (Magnanelli, 2021). Also, a diverse board signals the firms' commitment towards the creation of social value, positively impacting on its reputation and improving its discernment of the external environment (Bear et al., 2010).

### 4.2.1. Family Firms and the Impact of Board Size

Family and non-family firms are distinctive in their organisational forms (i.e. goals, governance, and resources) (Chrisman et al., 2013). Managerial entrenchment in family firms creates an opportunity for family members to misappropriate minority shareholders' wealth (Bardhan et al., 2015) and corporate opacity (Anderson et al., 2009). The concentration of family ownership eases the extraction of private benefits of control at the expense of minority shareholders through earnings manipulation and related party transactions (Chen et al., 2020), financial misreporting (Anderson et al., 2017), rent-seeking activities (Fan & Wong, 2002), among others.

A SEW perspective provides one interpretation to the behaviour of family firms, which suggests that family firms are loss-averse (Keasey et al., 2015) and aim to pass a viable business to future generations, even when such financial actions both lead to suboptimal performance (Berrone et al., 2012) and ignore/eliminate controls that prevent financial malpractice (Kidwell & Kidwell, 2010).

Family firms tend to have more informal practices for ethical formulation (Vazquez, 2016) and such informal practices increase the possibility of having weaker controls (Krishnan & Peytcheva, 2019). To this end, the institutional framework is crucial to understand not only the actions of family firms but also their impact on firms' outcomes (Husted & de Sousa-Filho, 2019). An effective system prevents companies from mismanagement that eventually affects the operation of the corporation (Kuan et al., 2017). However, family firms are still heterogeneous in their behaviour toward stakeholders and their strategic initiatives (Miller & Le Breton-Miller, 2021) and internal governance structures (e.g. boards of directors) (Corbetta & Salvato, 2004). Therefore, concentrated ownership (La Porta et al., 2009) together with a lack of internal controls in family firms (Krishnan & Peytcheva, 2019) are perceived as a major corporate governance issue because expropriation risks increase (Perkins, 2019) by not only limiting transparency but also impacting on the effectiveness of external governance structures. Since family firms have a strong socioemotional endowment (Poletti-Hughes & Williams, 2019), the involvement of independent directors is limited (González & García-Meca, 2014), decreasing the effectiveness of internal controls. For instance, family firms may be more likely to utilise their connections to achieve a relaxed regulatory oversight (Kuvvet & Maskara, 2018), preferential treatment in competitions for government contracts and bailout funds (Faccio, 2006) and less supervision on firm's activities (Duh et al., 2010). Also, senior management of family firms are often appointed based on connections/family ties as opposed to merit and talent, which could result in greater financial malpractice (Anderson et al., 2017). As the appointment of non-family directors frequently develops from family members' closed networks, long tenures are common (Berrone et al., 2012), which limit the benefits of board independence. While family members are dominant in both the management and the board, outside directors act more as strategists than monitors exercising narrow control over executives (Lester & Cannella, 2006).

Overall, the institutional framework, sophisticated regulatory system, and connections (i.e. opportunity), as well as, weak internal controls (i.e. pressure) are conducive for opportunistic behaviour of family firms, which by choosing to preserve SEW (i.e. rationalization) pose risks in financial malpractice and specifically increase the risk of fraud, leading to the following hypothesis:

**H1a.** The likelihood of corporate fraud is greater in family than non-family firms.

From the perspective of the SEW theory, family firms aim to preserve the company as a family going concern, therefore the involvement of independent directors is limited (Cuadrado-Ballesteros et al., 2015). In this regard, family firms have smaller boards and less independent directors (Lam & Lee, 2012), increasing group cohesiveness. Since family firms are less likely to give up family control to preserve family's SEW (Gomez-Mejia et al., 2007), and considering that board capital depends on board size (Corbetta & Salvato, 2004), the involvement of more directors in family firms may potentially open an opportunity to increase board diversity, which together with the above discussion leads to the following hypothesis:

**H1b.** The probability of fraud in family firms is lower with larger boards.

### 4.2.2. Gender Diversity in Family Firms

Current research posits that the influence of board characteristics on corporate fraud is relevant (Beasley, 1996; Chen et al., 2006; Virk, 2017). In particular, gender plays an important role in recent research and its association with financial fraud (Capezio & Mavisakalyan, 2016; Naumovska et al., 2020) and financial malpractice (Wahid, 2019). Gender diversity in the board facilitates effective monitoring and protects shareholders' interests by widening board's human capital such as expertise, experience and perspectives (Cumming et al., 2015).

From the view of ethical sensitivity, female directors show a positive approach towards codes of ethics and are more sensitive to moral issues that arise from business practices (Ibrahim et al., 2009). In terms of risk-taking, extant literature suggests that women are more risk-averse

than men (Croson & Gneezy, 2009). However, there is a differential towards risk-taking in family firms when culture associates with risk preferences from female directors (e.g. as in the Latin American region), which depends on the female directors' affiliations to the firm (Müller et al., 2019). Female directors with ties to the family firm assume more PHR, such as the possibility of performing below target, to preserve SEW (Poletti-Hughes & Briano-Turrent, 2019). That is, inside female directors align risk preferences towards the perpetuation of the family dynasty and protection of firm reputation as explained by the SEW theory.

Since, the presence of a female on the board improves the quality of financial reporting and transparency of decision-making when external governance is weak (González et al., 2020), the relevance of the firm's regional setting becomes apparent in differentiating family firms attitudes towards board gender diversity. In a developing institutional environment, the internal governance system and transparency of the business complements corporate frailties and increases investors protection (Aguilera et al., 2019). Therefore, if diversity on the board solves the information asymmetric problem and improves transparency (Gul et al., 2011), then it could be hypothesised that the inclusion of female directors may act as a substitution mechanism to improve transparency in a weaker corporate governance environment, but will adjust in accordance to the objectives of a corporation, differentiating the outcome in family and non-family firms.

As the board configuration of family firms pursues a family status to maintain power and legitimacy towards stakeholders (Mitchell et al., 2011), the motivators of family firms towards gender diversity are not intrinsic. For instance, patriarchal practices make female kin less important and emphasise male kin to a position of power (Mulholland, 1996). Therefore, succession practices favour male relatives to leadership, who assume a role early in their career (González et al., 2012) gaining valuable experience that increases the prevalence of men leadership in family businesses (Lansberg & Perrow, 1991). Herein, in alignment with the SEW

theory, the benefits from gender diversity might be more relevant for family firms. Overall, the presence of female directors may increase ethical sensitivity, and bring different perspectives towards risk-taking and governing roles when external governance is weaker. Based on this discussion the following hypotheses are formulated:

**H2a.** The probability of corporate fraud decreases with the increase on the proportion of female directors.

**H2b.** Independent female directors are more effective in decreasing the probability of corporate fraud.

**H2c.** A gender diverse board is more effective in decreasing the probability of corporate fraud in family firms than non-family firms.

### 4.2.3. Educational Diversity and Alumni Networks

Based on the resource dependence view, educational background and knowledge have contributed to enhance board's effectiveness (Payne et al., 2009). However, there are still examples where such characteristics did not enhance board's effectiveness suggesting that education, qualifications or merit in isolation do not enrich the monitoring role, but the environment where those attributes are applied becomes relevant.[19]

Education based diversity on boards enhances knowledge and team performance (Midavaine et al., 2016). Likewise, boards with members from different educational backgrounds are more likely to take corporate investment which is more favourable to enhance firm's performance (Boadi et al., 2019) and thus might mitigate financial pressure. Diversity on educational background promotes debate in strategical decision that not only concentrates on profit, but

[19] Enron's board was integrated by appropriate financial competencies and experience (i.e. multiple MBAs and legal experts), and yet members have claimed that they have been confused by the financial transactions (O'Connor, 2002).

also highlights issues of law enforcement and ethicality (Bertrand & Schoar, 2003; Chidambaran et al., 2011).

Since educational diversity on boards facilitates the perception of different viewpoints, strategical decisions that favour the opportunity for profit, the reduction of financial pressures and ethical concerns can reconcile towards optimal resolutions, decreasing the probability of corporate fraud, and leading to the following hypothesis:

**H3a.** Board educational diversity decreases the probability of corporate fraud.

The strict definition of an independent director is ambiguous when adding the concept of social connectedness (Chidambaran et al., 2011; Kuang & Lee, 2017), which might be a favourable factor for the survival of a company (Xia et al., 2019). The social connections of independent directors with CEOs and executive directors restrict the monitoring function of boards (Chidambaran et al., 2011) and develop barriers for fraud detection. A root of developing social connectedness is through family ties and/or educational affiliations (Berger et al., 2013). These relationships might facilitate agreement on board decisions as directors hold similar attitudes, qualifications, experience and knowledge, but more importantly from a SEW perspective, a sense of loyalty towards the value of their network (Ng et al., 2019).

According to SEW theory, family firms behave differently from other business firms regarding the emotional and sociocultural relationships among the members such as spouses, children, siblings and other relatives (Poletti-Hughes & Williams, 2019). Most of the family business literature has discussed the existence of nepotism especially in emerging markets with a weak institutional environment (Liu et al., 2015). The social closeness becomes a key driver which expects loyalty and commitment towards the family business, generating a significant economic cost for minority shareholders (Perez-Gonzalez, 2006). If nepotism is a driver to motivate family members and friends' involvement in firms, social connectedness might impede directors' independence and limit the monitoring function.

Although, board members may have access to director roles because of their connections (Sonnenfeld, 2002), directors recruitment is also based on professional experiences and educational backgrounds (Cumming et al., 2015).

The family business environment usually tends to have less hierarchical structures and less formal modes of operations (Duh et al., 2010) that impact on enforcing ethicality (Vazquez, 2016). As a consequence, the appointment of independent directors by family firms utilizes established networks (e.g. through educational affiliations) fostering the presence of cross-directorships (González & García-Meca, 2014; Lefort & Urzúa, 2008). Therefore, mutual academic discipline and sharing the same alumni networks create direct friendship which may impede independent judgement (Hwang & Kim, 2009), leading to the following hypotheses:

**H3b.** Alumni networks developed between independent and executive directors increase the probability of corporate fraud.

### 4.2.4. Tenure of Independent Directors

Tenure of independent directors is an influential factor in board effectiveness (Khanna et al., 2015). Several studies have shown that a lengthy tenure influences a wide array of decisions and behaviour, including risk-taking (Serfling, 2014), effective decision-making (Ng & Feldman, 2008), ethicality (Shin, 2012), and firm strategy (Hambrick et al., 1996). Tenure increases director's knowledge about the firm and its business environment (Livnat et al., 2021), but also interferes with the delivery of unbiased decisions as the relationship with the firm strengthens (Chidambaran et al., 2011).

The SEW dimension of binding social ties (Gomez-Mejia et al., 2011) extends beyond family members (i.e. to long-tenured directors), where independent board directors might be more likely to respond to the concerns of family members and relax monitoring activities. In this setting, longer tenured independent directors might develop a cosy relationship with the

management or family members impairing objectivity and independence, which might decrease actions to prevent financial malpractice, leading to the following hypotheses:

**H4a.** Tenure of independent directors increases the likelihood of corporate fraud.

Diversity on tenure among independent directors encourages different perspectives and experiences (Ali et al., 2014). Indeed, long-tenured independent directors have more experience and knowledge of the firm while shorter tenured directors have the energy and drive to perform the advisory and monitoring role (Kang et al., 2007). Therefore, the diversity of tenure of independent directors brings together different skills, expertise and social networks that drive board effectiveness. This aspect is particularly important for family firms because the appointment of new independent directors may not create incentives to protect SEW aims (Gomez-Mejia et al., 2011). Since long-tenured directors may hinder monitoring activities, the appointment of new independent directors which leads to tenure diversity on the board may enhance board effectiveness in family firms by trading off the limitations of binding social ties in the monitoring role. In this setting, tenure diversity among independent directors might reduce the incentives for collective benefits that arise from time-honoured independent directors and contribute to the independence on the board, which leads to the following hypotheses:

**H4b**. Diversity on independent director's tenure decreases the likelihood of corporate fraud in family firms.

### 4.3. Data and Regression Model

#### 4.3.1. Sample Selection

I compile a unique data set of the main markets from the Latin American region as in Jara et al. (2019), which include Argentina, Brazil, Chile, Colombia, Mexico, and Peru (917 firms). The sample includes all non-financial listed firms available in DataStream (i.e. for financial variables) from 2000 through 2019. This sample is matched with data from BoardEx (i.e. for director and board characteristics), and only those observations with a match are kept in the sample that consists of an unbalanced panel of 1839 firm-years with 244 unique firms, representing approximately 25% of the population of listed active non-financial companies in the stock exchange in the selected countries. Data on fraud is obtained from news items in Bloomberg press releases for the fiscal years from 2008 to 2019. I define fraud based on the definition of the Association of Certified Fraud Examiners including fraudulent statements, asset misappropriation, and corruption (Sabau, 2012). I use the keywords fraud, corruption, embezzlement, CEO and fraud, misappropriation, bribes and materiality in order to classify fraud firms (Hayek & Atinc, 2018). I search the web (i.e. google) for few cases with missing information and/or the fraud commitment date. With these criteria, there are 86 cases of corporate fraud in this sample, with 707 fraud observations - ranging from the date when the alleged fraud occurred until the year when the alleged fraud ended, which is comparable to prior studies in emerging markets (Nasir et al., 2019). Table 4.1 presents the distribution of firms per country (Panel A) and year (Panel B). According to the news items collected for the sample, the highest number of fraud cases were recorded in 2010 (see Table 4.1, Panel B), following the period of the financial crisis. Also, a higher number of fraud observations were recorded from 2010 to 2018, which represent the fraud committing period - fraud duration. For instance, certain companies in the region paid bribes in several years to win contracts as a business practice before fraud was even detected. Fraud cases have been gradually decreased

since 2012 possibly because the strengthening of corporate governance reforms in the Latin American region. However, there is also the possibility that fraud cases among the sample have not been detected (especially because of the weaknesses of the institutional system). Therefore, a limitation of this study is that there might be observations that have been misclassified within the non-fraud cohort.

**Table 4.1. Fraud Cases and Observations per Country and Year**

**Panel A. Fraud by country**

| Country | No. of firms | Fraud cases | Non-Fraud | No. Observations | Fraud | Non-Fraud |
|---|---|---|---|---|---|---|
| Argentina | 18 | 9 | 9 | 150 | 61 | 89 |
| Brazil | 113 | 40 | 73 | 868 | 349 | 519 |
| Chile | 25 | 4 | 21 | 169 | 37 | 132 |
| Colombia | 13 | 5 | 8 | 86 | 34 | 52 |
| Mexico | 66 | 24 | 42 | 503 | 198 | 305 |
| Peru | 9 | 4 | 5 | 63 | 28 | 35 |
| **Total** | **244** | **86** | **158** | **1839** | **707** | **1132** |

**Panel B. Fraud by year**

| Year | Fraud Cases | Fraud Observations | Year | Fraud Cases | Fraud Observations |
|---|---|---|---|---|---|
| 2000 | 0 | 0 | 2011 | 8 | 56 |
| 2001 | 1 | 1 | 2012 | 10 | 66 |
| 2002 | 1 | 1 | 2013 | 9 | 72 |
| 2003 | 1 | 1 | 2014 | 8 | 71 |
| 2004 | 1 | 1 | 2015 | 6 | 76 |
| 2005 | 2 | 8 | 2016 | 4 | 77 |
| 2006 | 2 | 9 | 2017 | 5 | 75 |
| 2007 | 3 | 16 | 2018 | 4 | 74 |
| 2008 | 4 | 26 | 2019 | 1 | 1 |
| 2009 | 5 | 27 | **Total** | **86** | **707** |
| 2010 | 11 | 49 | | | |

Fraud cases are based on the fraud date of commission reported from the source. Fraud observations indicates fraud duration, which ranges from the date of commission of the alleged fraud until the year when the alleged fraud ended.

### 4.3.2. Empirical Analysis

The fraud indicator $Fraud_{ijt}$ is modelled as a function of being a family firm, board diversity and control variables. Therefore, the following function is to be used to develop the panel data logistic regression model;

$Fraud_{it} = \int[\, Gen_{it-1}, HC_{it-1}, Fam_{it}, Con\ (CG_{it-1}), Con\ (FE_{it-1})]$

$Fraud_{it}$ is the dependent binary variable where $Fraud_{it}$ = 1 if a firm has committed corporate fraud at time t and 0 otherwise. The vector of $Gen_{it-1}$ measures the variables of gender diversity, the vector of $HC_{it-1}$ measures the human capital variables (i.e. education and tenure) and $Fam_{it}$ measures family control. The vectors *Con* for $(CG_{it-1})$ and $(FE_{it-1})$ measure control variables for corporate governance and firm economic characteristics, respectively (see appendix 4.1 for full definitions). A one-year time lag of the explanatory variables with fraud is allowed for the predictor to precede the outcome (Ali et al., 2014), except for the family firm dummy. Using the above function, a binary logit model was estimated which assumes that the explanatory variables are strictly exogenous. In order to control heteroscedasticity, robust standard errors are clustered by firms.

The key variables on this study incorporate the concept of SEW (Berrone et al., 2012), which include family control and influence, identification of family members with the firm, binding social ties and emotional attachment of family members. I identified family versus non-family firms based on the ownership structure. Therefore, a family firm is defined with a dummy variable which takes the value of one when both the share ownership by a family is at least 20 percent (La Porta et al., 1999) and there is at least one family member in the board, zero otherwise.

Gender Diversity (Gen) defines the ratio of female directors to board size, as well as the proportion of independent female directors in the board.

Human Capital (HC) defines the education and tenure of board members. The board educational diversity was measured by two variables: board's education on business administration and board education on non-business administration. Among them, board educational diversity was calculated using the $u\ Index\ (1 - \sum_{t=1}^{n} p_i^2)$ , where, $p_i$ is the percentage of board members qualified in each education category such as business education and non-business education. Drawing on the research of Campbell and Mínguez-Vera (2008), the purpose of the Blau index is to measure the balance/ evenness of board education. The minimum value of the index is 0 which represents an evenness/ homogeneity of board education and diversity is maximized when two categories of education present in equal proportions. Thus, the Blau index for educational diversity lies between 0 and 0.5, with a value of 0.5 indicating that the board consists of an equal number of business and non-business education qualified members. As social ties created from the education network become a threat to conceal corporate fraud (Boivie et al., 2016), I identified a dummy variable that equals to 1 if executive and independent directors do not share the same education qualification, and 0 otherwise (Edushare).

Tenure is measured using the number of appointment years in the current board and diversity of tenure in the board was measured using the standard deviation of tenure.

Past studies have found that more external independent directors have less chance to incur into financial fraud due to the increase of the internal audit quality (Beasley, 1996). Therefore, this study controls for the proportion of outside independent directors in the board.

The size of the board determines the social ties among the members where smaller boards share stronger ties (Boivie et al., 2016). Board size is measured with the natural logarithm of the number of board directors. CEO/Chair duality represents unfettered power in the board. It is measured with a dummy variable that equals one when the CEO and Chair are the same individual.

Firm size is the natural logarithm of total assets. Firm age is the natural logarithm of age of the firm since establishment (Beasley, 1996). Financial leverage is the ratio of total debt to total assets. Sales growth is the five-year average annual sales growth rate. Return on assets represents financial performance and is measured with the ratio of earnings before interest and taxes to total assets. All financial continuous variables are winsorised at the top and bottom 1% to mitigate outlier bias.

To control for other possible differences in corporate financial fraud across different industries and countries in the region, I included industry, year and country dummies (Chen et al., 2006).

### 4.4. Analysis and Results

Descriptive statistics reported in Table 4.2 are consistent with the prior Latin American literature (Jara et al., 2019). Panel A in Table 4.2 presents univariate comparisons between the fraud firms and non-fraud firms and Panel B in Table 4.2 presents univariate comparisons between the family firms and non-family firms. Firms in the fraud cohort have lower diversity in education and proportion of female directors in the board. With respect to financial performance, fraud firms have higher level of leverage, sales growth, firm size, but lower return on assets than non-fraud firms. Corporate governance of fraud firms tends to have a larger board (Chen et al., 2006), higher frequency of Chair-CEO duality (Sharma, 2004), greater firm age (Xu et al., 2018) and lack of board independence (Chidambaran et al., 2011). Family firms from the fraud cohort (Panel B – Table 4.2) present less independent female representation (1.2%) and higher tenure of independent directors.

## Table 4.2. Descriptive Statistics

**Panel A: Univariate Comparisons between Fraud and Non-fraud firms**

| | Overall (1) | | Fraud = 0 (2) | | | | Fraud = 1 (3) | | | | Mean Difference |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable | Mean | Std. Dev. | Mean | Std. Dev. | Min | Max | Mean | Std. Dev. | Min | Max | (2)-(3) |
| **Gender diversity** | | | | | | | | | | | |
| Fem | 0.07 | 0.09 | 0.08 | 0.10 | 0.00 | 0.60 | 0.06 | 0.09 | 0.00 | 0.40 | 0.02** |
| InD Fem | 0.02 | 0.06 | 0.03 | 0.07 | 0.00 | 0.50 | 0.02 | 0.04 | 0.00 | 0.38 | 0.01** |
| InD Male | 0.83 | 0.17 | 0.85 | 0.19 | 0.00 | 0.92 | 0.82 | 0.13 | 0.00 | 0.95 | 0.03** |
| **Tenure and Experience** | | | | | | | | | | | |
| Tenure InD | 6.06 | 4.34 | 5.95 | 4.26 | 0.10 | 24.50 | 6.28 | 4.46 | 0.10 | 24.10 | -0.33* |
| Blau Edu Index | 0.33 | 0.15 | 0.34 | 0.15 | 0.00 | 0.50 | 0.31 | 0.16 | 0.00 | 0.50 | 0.03** |
| SD Tenure InD | 3.79 | 3.17 | 3.85 | 3.38 | 0.20 | 15.30 | 3.74 | 2.81 | 0.10 | 17.60 | 0.11** |
| Edu share | 0.18 | 0.39 | 0.22 | 0.37 | 0.00 | 1.00 | 0.16 | 0.41 | 0.00 | 1.00 | 0.06** |
| **Firm Financial and Governance Characteristics** | | | | | | | | | | | |
| ROA | 0.04 | 0.09 | 0.05 | 0.09 | -0.40 | 0.31 | 0.03 | 0.08 | -0.40 | 0.30 | 0.02 |
| Size | 8.37 | 1.58 | 7.92 | 1.37 | 4.41 | 11.13 | 9.09 | 1.64 | 4.42 | 12.80 | -1.17** |
| Leverage | 0.57 | 0.22 | 0.55 | 0.21 | 0.13 | 0.95 | 0.61 | 0.24 | 0.14 | 0.98 | -0.06** |
| Sales growth | 0.05 | 0.19 | 0.05 | 0.17 | 0.04 | 0.10 | 0.06 | 0.203 | 0.04 | 0.11 | -0.01* |
| Chair CEO | 0.29 | 0.45 | 0.24 | 0.24 | 0.00 | 1.00 | 0.38 | 0.48 | 0.00 | 1.00 | -0.14** |
| Independence | 0.38 | 0.20 | 0.39 | 0.20 | 0.00 | 0.91 | 0.37 | 0.20 | 0.00 | 0.95 | 0.02* |
| Board size | 9.31 | 3.21 | 8.84 | 2.97 | 3 | 22 | 10.06 | 3.37 | 2 | 22 | -1.22** |
| Firm age | 41.12 | 31.17 | 41.11 | 32.58 | 1 | 181 | 41.13 | 30.33 | 1 | 171 | -0.02 |

**, * represent significance at the 0.05, and 0.1 levels (two-tailed).

**Panel B: Comparison of Fraud and non-Fraud Samples in Family and Non- Family Firms**

| | Family = 0 | | | Family = 1 | | | Difference in means | |
|---|---|---|---|---|---|---|---|---|
| | Overall (n=919) | Fraud = 0 (n = 567) | Fraud = 1 (n = 352) | Overall (n=920) | Fraud = 0 (n = 565) | Fraud = 1 (n = 355) | Fraud =1 | Fraud = 0 |
| | (1) | (2) | (3) | (4) | (5) | (6) | (3) -(6) | (2)-(5) |
| **Gender Diversity** | | | | | | | | |
| Fem | 0.06(0.09) | 0.04(0.06) | 0.07(0.09) | 0.07(0.10) | 0.07(0.10) | 0.05(0.098) | 0.02* | -0.03** |
| InD Fem | 0.03(0.67) | 0.03(0.07) | 0.02(0.05) | 0.02(0.05) | 0.02(0.03) | 0.01(0.03) | 0.01** | 0.01** |
| InD Male | 0.92(0.16) | 0.72(0.17) | 0.74(0.14) | 0.95(0.16) | 0.73(0.19) | 0.76(0.11) | -0.02* | -0.01** |
| **Tenure and Experience** | | | | | | | | |
| Tenure InD | 4.65(1.12) | 5.64(1.22) | 4.78(2.82) | 7.47(1.25) | 6.02(1.30) | 6.54(1.63) | -1.76** | -0.38 |
| Blau Edu Index | 0.32(0.16) | 0.39(0.06) | 0.32(0.01) | 0.33(0.14) | 0.35(0.05) | 0.31(0.01) | 0.01* | 0.04* |
| SD Tenure InD | 2.91(1.12) | 2.97(3.04) | 2.79(2.15) | 2.91(1.25) | 3.93(3.51) | 4.05(2.86) | -1.26** | -0.96 |
| Edu share | 0.17(0.44) | 0.21(0.41) | 0.31(0.46) | 0.19(0.47) | 0.15(0.36) | 0.20(0.39) | 0.11** | 0.06* |
| **Firm Financial and Governance Characteristics** | | | | | | | | |
| ROA | 4.89(9.35) | 3.77(7.03) | 6.61(10.17) | 3.49(8.42) | 4.55(10.79) | 3.70(1.22) | 2.91 | -0.78 |
| Size | 8.53(1.77) | 7.57(1.57) | 8.56(1.47) | 8.21(1.36) | 7.98(1.36) | 9.23(2.14) | -0.67** | -0.41** |
| Leverage | 0.54(0.22) | 0.53(0.20) | 0.54(0.24) | 0.59(0.21) | 0.55(0.21) | 0.73(1.73) | -0.19 | -0.02 |
| Sales growth | 0.05(0.02) | 0.06 (0.02) | 0.04 (0.01) | 0.05(0.01) | 0.05 (0.01) | 0.06 (0.02) | -0.02 | 0.01 |
| Independence | 0.37(0.22) | 0.32(0.21) | 0.39(0.19) | 0.39(0.19) | 0.38(0.21) | 0.32(0.21) | -0.07** | -0.06** |
| Board size | 9.00(2.85) | 8.50(2.92) | 10.24(3.23) | 9.60(3.49) | 8.84(2.97) | 10.09(3.42) | 0.15** | -0.34 |
| Chair CEO | 0.28(0.45) | 0.28(0.45) | 0.48(0.50) | 0.31(0.46) | 0.24(0.43) | 0.35(0.48) | 0.13** | 0.04 |
| Firm age | 40.25(34.85) | 40.08(36.98) | 40.52(31.18) | 41.99(28.25) | 42.14(27.47) | 41.74(29.48) | -1.22** | -2.06** |

**, * represent significance at the 0.05, and 0.1 levels (two-tailed). Standard deviation of variables is in the parentheses.

### 4.4.1. Family and Board Size

Table 4.3 reports the results (marginal effects) of the bivariate logit regressions on the association between family firms and corporate fraud. Column 1 presents the regression for family firms showing a significant and positive effect on fraud in support of H1a. Similarly, I find that family ownership and the presence of family members on the board (defined in appendix 1) show a positive and significant impact on fraud (Columns 2 and 3). These findings suggest that family firms are more likely to commit fraud when family members have more power in the firm (Chen and Chung, 2019).

Firm size and financial leverage increase the likelihood of fraud whereas firm's age decreases it. CEO/Chair duality shows a positive effect on the fraud commitment, albeit significance decreases in some models, suggesting managerial entrenchment in fraud commitment signals low monitoring efficacy of independent directors.

Boards in family firms might maintain a group cohesiveness which would build connectedness with family owners. For which, H1b tests whether board size might offset the increase on the probability of fraud in family firms by opening the opportunity to increase diversity in a setting where binding social ties is a cultural norm. To test H1b, I subsample by family and non-family firms and test the impact of board size on the likelihood of fraud in columns 4 and 5, respectively. The marginal effect for board size is negative and significant on the likelihood of corporate fraud for family firms, which implies that larger boards in family firms reduce the likelihood of corporate fraud in support of H1b. In contrast, larger boards in non-family firms increase the likelihood of corporate fraud, because very large boards can be inefficient for decision-making, as a result of problems of coordination and communication (Gonzalez & Garcia-Meca, 2014).

**Table 4.3. Fraud and Family Firm (Marginal Effects)**

| | (1) | (2) | (3) | (4) Fam | (5) Non-Fam |
|---|---|---|---|---|---|
| Fam | 0.064** | | | | |
| | (2.10) | | | | |
| Fam in Board | | 0.068** | | | |
| | | (2.24) | | | |
| Fam Own | | | 0.083* | | |
| | | | (1.84) | | |
| Board size | -0.073 | -0.052 | -0.032 | -0.918*** | 1.696*** |
| | (-1.39) | (-0.84) | (-0.66) | (-3.77) | (3.24) |
| ROA | 0.002 | 0.001 | 0.002 | 0.006 | 0.003 |
| | (0.92) | (0.79) | (0.74) | (0.45) | (1.07) |
| Size | 0.096*** | 0.089*** | 0.085*** | 0.865*** | 0.137*** |
| | (5.93) | (3.97) | (4.83) | (3.91) | (5.01) |
| Leverage | 0.199** | 0.150* | 0.156* | 0.234** | 0.151 |
| | (2.60) | (1.64) | (1.67) | (2.47) | (1.60) |
| Firm age | -0.018*** | -0.001** | -0.005 | -0.001 | -0.001 |
| | (-2.94) | (-2.18) | (-0.71) | (-1.18) | (-1.38) |
| Sales growth | -0.005 | -0.004 | -0.006 | -0.018 | -0.022 |
| | (-0.62) | (-0.47) | (-0.65) | (-1.28) | (-1.30) |
| Independence | 0.003 | 0.004 | 0.015 | -0.127 | -0.210* |
| | (0.46) | (0.54) | (0.21) | (-0.90) | (-1.65) |
| Chair CEO | 0.040 | 0.027 | 0.021 | 0.257*** | 0.086 |
| | (1.35) | (0.81) | (0.67) | (5.37) | (1.53) |
| Observations | 1839 | 1839 | 1839 | 920 | 919 |
| Log pseudo likelihood | -94.649 | -95.900 | -95.291 | -191.62 | -96.534 |
| Wald chi2 | 192.39 | 244.12 | 206.76 | 170.13 | 170.99 |
| Wald chi2(P-Value) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

This table presents the marginal effects from a panel data logistic regression. Fraud is a dummy variable which equal one when a firm committed fraud and zero otherwise. Country, year and industry dummies are included in all models. Robust standard errors clustered by firm in parentheses *** p<0.01, ** p<0.05, * p<0.10. Definitions of variables in appendix 4.1.

### 4.4.2. Female Directors

Table 4.4 presents the results for female presence on the board. Columns 1 and 2 present the female proportion on the board and the ratio of female to male directors, respectively, showing significantly negative coefficients (in support of H2a). From column 1, I find that the marginal effect on the female proportion is -0.213 (p<0.01), implying that if the female proportion increases by one standard deviation (9.9%), the likelihood of being in the fraud sample decreases by 2.11% (9.9 x -0.213). In column 3, I distinguish between independent female and independent male directors and find that only the proportion of independent female directors

decreases the likelihood of fraud by 0.240% (6.0 x -0.040). Column 4 presents results distinguishing the impact of independent female and inside female (executive female directors) separately and find that the impact of the former is greater and more significant in decreasing the likelihood of fraud (in support of H2b). Columns 5 and 6 model the impact of the female ratio for subsamples of family and non-family firms.

**Table 4.4. Fraud and Female Director (Marginal Effects)**

| | (1) | (2) | (3) | (4) | (5) Fam | (6) Non-Fam | (7) Fam | (8) Non-Fam |
|---|---|---|---|---|---|---|---|---|
| Fem | -0.213** | | | | -0.073** | -0.034* | | |
| | (-2.05) | | | | (-1.97) | (-1.78) | | |
| Fem/male ratio | | -0.438** | | | | | | |
| | | (-2.00) | | | | | | |
| InD Male | | | 0.005 | | | | | |
| | | | (0.63) | | | | | |
| InD Fem | | | -0.040* | -0.093*** | | | -0.094 | -0.103* |
| | | | (-1.92) | (-2.78) | | | (-1.44) | (-1.74) |
| Ins fem | | | | -0.021* | | | | |
| | | | | (-1.81) | | | | |
| Fam | 0.064** | 0.017** | 0.054* | 0.023* | | | | |
| | (2.21) | (2.30) | (1.89) | (1.78) | | | | |
| ROA | 0.001 | 0.001 | 0.003 | 0.095* | 0.003 | 0.003 | 0.061 | 0.007 |
| | (0.70) | (0.71) | (0.21) | (1.79) | (0.55) | (0.60) | (1.21) | (0.81) |
| Size | 0.094*** | 0.134*** | 0.104*** | 0.119*** | 0.031*** | 0.124** | 0.116*** | 0.125*** |
| | (4.67) | (7.25) | (4.86) | (5.05) | (5.11) | (2.19) | (5.01) | (3.59) |
| Leverage | 0.188*** | 0.442*** | 0.224*** | 0.369*** | 0.137*** | 0.157 | 0.398*** | 0.290* |
| | (2.90) | (4.78) | (4.05) | (3.68) | (3.83) | (1.00) | (3.51) | (1.68) |
| Firm age | -0.005 | -0.013** | -0.001** | -0.001 | -0.001 | -0.001 | -0.001 | -0.001 |
| | (-1.00) | (-2.10) | (-2.19) | (-1.28) | (-1.42) | (-0.94) | (-1.38) | (-1.38) |
| Sales growth | -0.004 | -0.003 | -0.005 | -0.002 | -0.006 | -0.020 | -0.001 | -0.005 |
| | (-0.62) | (-0.72) | (-0.66) | (-1.17) | (-0.33) | (-0.78) | (-0.66) | (-0.35) |
| Board size | -0.011 | 0.045 | 0.011 | 0.047 | -0.058 | 0.073 | -0.336 | 0.092 |
| | (-0.81) | (0.63) | (0.24) | (0.66) | (-0.92) | (0.64) | (-1.34) | (0.78) |
| Independence | -0.015 | -0.001 | | | -0.044** | -0.012* | | -0.021 |
| | (-1.01) | (-0.11) | | | (-2.67) | (-1.71) | | (-1.61) |
| Chair CEO | 0.022 | 0.093*** | 0.040* | 0.113*** | 0.136* | 0.023* | 0.122** | 0.0155** |
| | (1.44) | (2.59) | (1.95) | (3.22) | (1.66) | (1.75) | (2.08) | (2.41) |
| Observations | 1839 | 1839 | 1839 | 1839 | 920 | 919 | 920 | 919 |
| Log pseudo likelihood | -93.785 | -84.659 | -87.401 | -93.918 | -47.085 | -43.314 | -47.043 | -55.780 |
| Wald chi2 | 269.34 | 176.64 | 187.52 | 222.92 | 86.43 | 84.89 | 86.42 | 89.32 |
| Wald chi2(P-Value) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.000 |

This table presents the marginal effects from the panel data logistic regression. *t* statistics in parentheses All models used robust standards errors, clustered by firm. ***, **, * represent significance at the 0.01, 0.05, and 0.1 levels (two-tailed), respectively. All regressions include dummies for industrial sectors, year and countries. Definitions of variables in appendix 4.1.

In support of H2c, I find that a board with female directors have a greater impact in decreasing the likelihood of fraud in family firms than in non-family firms [0.77% (-0.073 * 10.6%) vs

0.31% (-0.034 * 9.1%), respectively]. Columns 7 and 8 present the impact of the independent-female ratio for subsamples of family and non-family firms, where a significant estimator is only found for the sample of non-family firms. This finding might be explained by the lower participation of independent female directors in family firms (see panel B in Table 4.2 for comparative statistics), which consequently decreases the power of their actions to influence decision-making.

### 4.4.3. Educational Diversity and Alumni Networks

I regress corporate fraud with different estimations of board educational diversity and alumni networks that developed between independent and non-independent directors (Table 4.5). Column 1 uses the Blau Education Index showing a significant and negative impact on corporate fraud. Column (2) & (3) include the sub-sample analyses by family and non-family of the Blau index. In support of H3a, I find that family firms that have directors with diverse education are 6.81% (-0.463 * 14.7%) less likely to be in the fraud sample, whereas in non-family firms this likelihood is of 1.72% (-0.107 * 16.1%). Column 4 & 5 model the impact of alumni networks for family firms and non-family firms by measuring whether independent and executive directors share the same education qualification and university (Edushare), which has a greater impact in increasing the probability of fraud in family than non-family firms [17.50% (0.370*47.3%) vs 8.07% (0.181*44.6%), respectively].

**Table 4.5. Board Education and Corporate Fraud (Marginal Effects)**

| | (1) Blau index | (2) Blau index Fam | (3) Blau index Non-Fam | (4) Edu share Fam | (5) Edu share Non-Fam |
|---|---|---|---|---|---|
| Blau Edu Index (1) | -0.164* | -0.463*** | -0.107* | | |
| | (-1.79) | (-3.43) | (-1.70) | | |
| Edu share (2) | | | | 0.370*** | 0.181*** |
| | | | | (7.11) | (3.58) |
| Fam | 0.039* | | | | |
| | (1.94) | | | | |
| ROA | 0.001 | 0.003 | 0.001 | 0.002 | 0.004 |
| | (0.60) | (1.00) | (0.70) | (0.79) | (1.03) |
| Size | 0.113*** | 0.072*** | 0.108*** | 0.111*** | 0.102*** |
| | (5.04) | (2.93) | (5.08) | (7.06) | (4.37) |
| Leverage | 0.351*** | 0.040 | 0.337* | 0.299*** | 0.116 |
| | (3.85) | (0.29) | (1.72) | (3.50) | (0.85) |
| Firm age | -0.001* | -0.001 | -0.008 | -0.001* | -0.001* |
| | (-1.86) | (-1.40) | (-1.37) | (-1.73) | (-1.75) |
| Sales growth | 0.001 | 0.018 | 0.001 | 0.006 | 0.024* |
| | (0.08) | (1.17) | (0.69) | (0.49) | (1.66) |
| Board size | 0.037 | -0.035 | 0.049 | -0.030 | 0.162* |
| | (0.47) | (-0.41) | (0.62) | (-0.44) | (1.93) |
| Independence | -0.002 | 0.001 | -0.003 | -0.007 | 0.013 |
| | (-0.44) | (1.18) | (-0.76) | (1.00) | (1.15) |
| Chair CEO | 0.112*** | 0.200*** | 0.110*** | 0.106*** | 0.171*** |
| | (3.07) | (3.94) | (3.04) | (3.34) | (4.03) |
| Observations | 1839 | 920 | 919 | 920 | 919 |
| Log pseudo likelihood | -125.913 | -194.394 | -91.755 | -162.170 | 130.755 |
| Wald chi2 | 103.92 | 162.64 | 120.59 | 196.28 | 157.04 |
| Wald chi2(P-Value) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

This table presents the marginal effects from the panel data logistic regression. All models include country, year and industry dummy variables. T-statistics in parentheses with robust standards errors, clustered by firm. ***, **, * represent significance at the 0.01, 0.05, and 0.1 levels (two-tailed), respectively. Definitions of variables in appendix 4.1.

### 4.4.4. Tenure of Independent Directors

Table 4.6 examines the association between tenure of the independent directors and fraud. Columns 1 to 3 present results for the tenure of independent directors, which coefficients are positive and significant in support of H4a. Independent directors increase the access to a wide range of information and resources when they stay longer on the board, but the effectiveness of their monitoring decreases.

To examine this relationship further, I regress the plausible effect of the standard deviation of tenure of independent directors in columns 4 & 5. In support of H4b, I find that diversity in

tenure decreases the probability of fraud in family firms by 0.02% (-0.017*1.25), but increases it for non-family firms by 0.04% (0.038*1.12). This implies that diversity in tenure of independent directors provides incentives for better corporate governance practices in family firms. That is, long tenured independent directors that become internally well-connected over time in family firms are disciplined by newly appointed independent directors, improving the effectiveness of the board.

**Table 4.6. Fraud and Tenure of Independent Directors in Family Firms (Marginal Effects)**

| | (1) Tenure InD | (2) Tenure InD Fam | (3) Tenure InD Non-Fam | (4) SD Tenure InD Fam | (5) SD Tenure InD Non-Fam |
|---|---|---|---|---|---|
| Tenure InD | 0.009** | 0.048*** | 0.024*** | | |
| | (2.23) | (3.70) | (4.14) | | |
| SD Tenure InD | | | | -0.017** | 0.038*** |
| | | | | (-2.53) | (3.33) |
| Fam | 0.007 | | | | |
| | (1.41) | | | | |
| ROA | 0.002* | 0.001 | 0.006*** | 0.001 | 0.001 |
| | (1.75) | (1.43) | (4.11) | (0.98) | (0.07) |
| Firm size | 0.109*** | 0.114*** | 0.123*** | 0.122*** | 0.121*** |
| | (4.87) | (5.08) | (5.57) | (4.96) | (5.42) |
| Leverage | 0.360*** | 0.330*** | 0.167* | 0.304*** | 0.130 |
| | (3.37) | (3.49) | (1.94) | (2.92) | (1.47) |
| Firm age | -0.001** | -0.001** | -0.001** | -0.001 | -0.001** |
| | (-2.17) | (-2.13) | (-2.14) | (-1.68) | (-2.04) |
| Sales growth | 0.002 | 0.001 | -0.012 | 0.002 | -0.011 |
| | (0.23) | (0.72) | (-0.92) | (1.13) | (-0.81) |
| Independence | -0.002 | -0.003 | 0.019 | -0.003 | 0.158 |
| | (-0.33) | (-0.36) | (1.58) | (-0.41) | (1.27) |
| Board size | 0.059 | 0.066 | 0.115 | 0.055 | 0.718 |
| | (0.89) | (0.95) | (1.30) | (0.91) | (1.08) |
| Chair CEO | 0.121*** | 0.123*** | 0.027* | 0.122*** | 0.030 |
| | (3.76) | (3.73) | (1.70) | (3.71) | (1.61) |
| Observations | 1839 | 920 | 919 | 920 | 919 |
| Log pseudo likelihood | -95.732 | -93.768 | -93.956 | -97.59 | -94.287 |
| Wald chi2 | 193.83 | 178.26 | 200.12 | 196.57 | 174.66 |
| Wald chi2(P- Value) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

This table presents the marginal effects from the panel data logistic regression. All models include country, year and industry dummy variables. All the models used robust standards errors, clustered by firm. ***, **, * represent significance at the 0.01, 0.05, and 0.1 levels (two-tailed), respectively. Definitions of variables in appendix 1.

### 4.5. Endogeneity and Further Analysis

#### 4.5.1. Two-stage Least Squares (2SLS)

Endogeneity arises in my study because variables of human capital, gender diversity and fraud are not random which might cause bias and inconsistent estimates (Johnson et al., 2013). Therefore, I conduct several tests to address the potential endogeneity issue and confirm the robustness of the findings.

In order to remove unobservable factors, which result in selection bias, I adopt an instrumental variable two-stage least square approach (Kuang and Lee, 2017). The relevancy and exclusion criteria of the instruments were assessed using partial R2 which measures the strength of instrumental variables in the first stage after removing the contribution of the control variables (Larcker & Rusticus, 2010). I treat the family firm variable as endogenous because family firms in Latin America achieve financial outcomes based on non-financial decisions, following SEW objectives (Poletti-Hughes & Briano-Turrent, 2019). Therefore, family firms are not independent from their corporate governance choices in the fraud model (i.e. appointment of female directors, board size, etc.). I instrument family firms with operating expenses to represent firm efficiency (Opex) and dividends pay-out ratio (Dividend) as family firms incur in lower agency costs (from the principal/agent relationship) in comparison to non-family firms. That is, dividend policies and firm's efficiency reflect choices made by family firms but are exogenous from other explanatory variables in the fraud model (Gomez–Mejia et al., 2014). Board size is instrumented with the percentage of free float (float) because shares distributed in the public are not likely to involve board characteristics or family choices on corporate governance practices (Nakano & Nguyen, 2012). The partial R2 of 42% claims the strength of the instrument for board size. To instrument gender diversity, I follow Low et al. (2015) and consider that the lack of female appointments to boards can be explained by female economic participation in the country. Therefore, I employ the ratio of female to male labour force

participation of the respective countries (female_part) as the instrumental variable for gender diversity. Although the adjusted R2 for the entire first stage model is 24.5%, the partial R2 for determining the strength of the instrument for female proportion is 19.6% which claims that the strength of the instrument is high excluding the explanatory power of the control variables (Larcker & Rusticus, 2010).

To instrument education diversity, I employ the number of directors' foreign educational affiliations (foreign_edu) to represent directors' cultural diversity in human capital (Johnson et al., 2013). The strength of the instrument for educational diversity is 21.6% (partial R2), which proves the relevancy of the instrument in this model.

Further, to address the possibility of reverse causality between fraud and tenure, I use the age of the longest tenured director at the time of appointment or the average of this variable if there is more than one director in this category (Bonini et al., 2017). This is a plausibly exogenous (not simultaneous) instrumental variable, with a partial R2 of 52.3%.

Following Kuang and Lee (2017), I estimate the first-stage regression for the fraud model. In particular, I used the same sets of control variables as in the main model and the instruments described above in the regressions (Table 4.7 - Panel A). I then use the predicted value from each stage one regression to instrument the endogenous variables in the second stage regressions. Panels B and C in Table 4.7 present the results of the instrumented regressions for family and non-family firms, respectively, and indicate that the results remain consistent.

## Table 4.7. Instrumental Variables Regressions

I adopt an Instrumental Variable Logit regression approach (Burgess, 2013) to mitigate the endogeneity issue in the models. The Instrumental Variable Logit regression used the following model,

First Stage:

$$q_{it} = \alpha_{it} + \beta_n \text{Instrumental Variables} + \sum \beta_k (CG_{kit}) + \sum \beta_c (FE_{cit}) + \varepsilon_{i,t}$$

Second Stage:

$$Fraud_{it} = \alpha_{it} + \beta_i q_{it}\hat{} + \sum \beta_k (CG_{kit}) + \sum \beta_c (FE_{cit}) + \varepsilon_{i,t}$$

| **Panel A: First Stage (Instrumental Regression)** | | | | | |
|---|---|---|---|---|---|
| Dependent variable: | (1) Fam | (2) Board Size | (3) Fem | (4) Blau Edu Index | (5) Tenure |
| Opex | -0.005*** | | | | |
| | (-4.14) | | | | |
| Dividend | 0.934*** | | | | |
| | 2.37 | | | | |
| Float | | 0.008* | | | |
| | | (1.82) | | | |
| Female_part | | | 0.004** | | |
| | | | (1.96) | | |
| Foreign_edu | | | | 0.033*** | |
| | | | | (8.88) | |
| Max age | | | | | -0.583*** |
| | | | | | (-9.01) |
| Observations | 1839 | 1839 | 1839 | 1839 | 1839 |
| Adj. R2 | 0.210 | 0.491 | 0.245 | 0.295 | 0.608 |
| F –statistics | 20.62 | 72.12 | 22.41 | 26.92 | 105.95 |
| Partial R2 | 0.183 | 0.427 | 0.196 | 0.216 | 0.523 |
| **Panel B: Second Stage (Dependent Variable – Fraud) – Family Firms** | | | | | |
| Famhat | 0.675 *** | | | | |
| | (2.38) | | | | |
| Bsizehat | | -0.444** | | | |
| | | (-3.09) | | | |
| Femhat | | | -1.951** | | |
| | | | (-2.26) | | |
| Eduhat | | | | -1.935*** | |
| | | | | (-3.82) | |
| Tenhat | | | | | 0.025** |
| | | | | | (2.06) |
| R2 | 0.210 | 0.489 | 0.414 | 0.375 | 0.355 |
| chi2 | 258.08 | 247.23 | 242.26 | 262.88 | 284.83 |
| p-value | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Panel C: Second Stage (Dependent Variable – Fraud) - Non-Family Firms** | | | | | |
| Bsizehat | | 0.937 | | | |
| | | (0.25) | | | |
| Femhat | | | -0.156*** | | |
| | | | (-3.17) | | |
| Eduhat | | | | -1.279*** | |
| | | | | (-3.21) | |
| Tenhat | | | | | 0.018** |
| | | | | | (2.10) |
| R2 | | 0.531 | 0.486 | 0.359 | 0.341 |
| chi2 | | 127.46 | 183.27 | 189.85 | 147.30 |
| p-value | | 0.041 | 0.000 | 0.000 | 0.000 |

Panel A reports instrumental variable 2SLS regression results from the first stage for the bivariate logit model. Panels B and C report marginal effect of second stage regressions in sub-sample of family firms and non-family firms, respectively. Control variables included in the model but unreported. All regressions include dummies for industrial sectors, year and countries. *t* statistics in parentheses. * p<0.10, ** p<0.05, *** p<0

### 4.5.2. Board Experience as a Determinant of Diversity

According to the upper echelon theory, experienced board members might be overconfident with regards to their judgements and contribution to board effectiveness, impeding actions to change membership, including those that would increase diversity in gender and human capital (Zhu et al., 2015). As experienced boards gain legitimacy and good reputation, restructuring a board to reflect more diversity might be a counterintuitive action from the perspective of a family firm. Johnson et al. (1993) found that board involvement in restructuring board membership takes place only when managerial strategy implementation appears to be deficient. Board restructuring is less likely in family firms as members of the family are board members themselves and family influence impacts on the organisational effectiveness of the family firm because of SEW aims (Barros et al., 2017). Also, it is not uncommon the prevalence of related party transactions in Latin American companies (Mahenthiran et al., 2020), which might increase the likelihood of fraud and the decrease of board membership renewal.

I address that average board experience might have a positive impact on fraud, because of the lack of independence (i.e. limited diversity) that arises from interlocking directorates in firms that have related party transactions (Kuang & Lee, 2017) and because of the weaker quality of oversight that arises as a consequence of external social connectedness (Ahn et al., 2010). Therefore, the reduced monitoring quality from experienced boards suggests that the board may overlook instances of managerial opportunistic behaviour which could precede financial malpractice (i.e. increased likelihood of fraud). I test whether more experienced boards impair diversity on gender, education and tenure, which might be an explanation for board quality (Ali et al., 2014).

I measure board experience with the board average number of directorships in quoted companies hold to date. Table 4.8 presents the results and indicate that board experience

significantly increases the probability of fraud in family firms (Column 1) while decrease the probability of fraud in non-family firms (Column 2). This finding indicates that experienced family boards may embrace decisions on diversity in order to preserve the SEW (Gomez-Mejia et al. 2007). Overall, board experience adversely impacts on probability of fraud and board re-structuring in family firms. The family business environment usually tends to have less hierarchical structures and less formal modes of operations (Duh et al., 2010). It is indicated that experienced boards in family firms have less gender diversity (Columns 3 and 4) and less diversity in education (albeit no significant, Column 5). Column (6) shows that experience increases the tenure of independent directors. These findings provide an explanation to illustrate a mechanism in which family firms have less board diversity.

**Table 4.8. Board Experience, Fraud and Diversity (Marginal Effects)**

| | (1) Family | (2) Non-Family | (3) Female Proportion | (4) InD Fem | (5) Blau Index | (6) Tenure_ID |
|---|---|---|---|---|---|---|
| Experience* Fam | | | -0.078** | -0.009** | -0.008 | 0.590** |
| | | | (-2.33) | (-2.01) | (0.11) | (2.14) |
| Experience | 0.068** | -0.092*** | 0.024 | 0.014* | 0.041 | 0.120*** |
| | (2.43) | (-3.72) | (0.98) | (1.78) | (0.46) | (3.41) |
| Fam | | | 0.221** | 0.042 | -0.007 | 0.014 |
| | | | (2.26) | (1.51) | (-0.52) | (1.65) |
| ROA | 0.002 | 0.003 | -0.008 | -0.002 | -0.004** | 0.014** |
| | (1.28) | (1.06) | (-1.14) | (-1.18) | (-2.10) | (2.34) |
| Firm size | 0.110*** | 0.135*** | -0.003 | 0.059*** | -0.042*** | 0.661*** |
| | (4.90) | (5.18) | (0.43) | (3.73) | (-2.76) | (3.35) |
| Leverage | 0.400*** | 0.317** | -0.087 | -0.016 | -0.073 | 1.273** |
| | (3.10) | (2.12) | (-0.28) | (-0.04) | (-1.41) | (2.13) |
| Firm age | -0.001 | -0.001* | 0.002 | 0.001 | 0.003 | 0.042*** |
| | (-0.74) | (-1.93) | (0.74) | (1.14) | (1.04) | (2.64) |
| Sales growth | 0.001 | -0.021 | 0.018 | -0.014* | -0.002 | -0.034 |
| | (-0.80) | (-1.39) | (0.62) | (-1.68) | (-0.69) | (-0.76) |
| Independence | -0.006 | 0.018 | 0.003 | | 0.005 | -0.287*** |
| | (-1.05) | (1.44) | (0.69) | | (1.43) | (-3.37) |
| Board size | 0.033 | 0.141 | 0.291*** | 0.033 | 0.050 | -0.514 |
| | (-0.01) | (1.44) | (3.89) | (0.58) | (-0.14) | (-1.31) |
| Chair CEO | 0.121*** | -0.158*** | -0.102** | -0.010 | -0.108*** | -0.406 |
| | (3.72) | (-2.58) | (-2.50) | (-0.59) | (-3.05) | (-0.53) |
| Observations | 920 | 919 | 1839 | 1839 | 1839 | 1839 |
| chi2 | 30.88 | 35.94 | 39.01 | 84.40 | 63.47 | 125.60 |
| p-value | 0.099 | 0.000 | 0.019 | 0.000 | 0.000 | 0.000 |

This table reports the alternative estimations of board experience on board diversity characteristics for family and non-family firms. Standards errors are robust. All regressions include dummies for industrial sectors, year and countries. ***, **, * refer to significance at the 0.01, 0.05, and 0.1 levels (two-tailed), respectively. t statistics in parentheses.

### 4.6. Discussion & Conclusions

The motivation of this study is the distinguishable characteristics of family and non-family firms, which have been framed by the SEW framework (Gomez-Mejia et al., 2011) by highlighting that family firms take financial actions with a non-financial aim (e.g. perpetuate the ownership and control of the family firm), which may intensify resource expropriation from minority investors. Therefore, corporate outcomes are influenced by the familial culture (Poletti-Hughes & Briano-Turrent, 2019), which is predominant in the Latin American region (Gonzalez & Garcia-Meca, 2014), as is the weakness of the institutional system (La Porta et al., 1999), making this region a pertinent setting to study the association of board diversity and fraud.

Grounded on the behavioural agency theory, my argument is that family firms preserve their SEW and consequently take actions that increase the probability of fraud, damaging firms' reputation (Naumovska et al., 2020) and the prospects of future investment (Gomez-Mejia et al., 2014). Therefore, this research centres on corporate governance mechanisms that offset the probability of corporate fraud in family firms, taking the perspective that the concept of SEW in family firms is essential in disentangling such relationship. The first hypothesis (H1a) supports that corporate fraud is greater in family firms. This finding is in line with the argument that the frailty of the institutional system contributes to opportunistic behaviour of family firms (Solís et al., 2017). Therefore, highlighting the relevance of good corporate governance practices as a substitute of a weak legal system to protect minority investors (Poletti-Hughes, 2009).

This theoretical framework incorporates the notion that the opportunities to preserve emotional endowment over economic value maximization are rooted in the culture and traditions where the family firms are established (Poletti-Hughes & Briano-Turrent, 2019). In such context, I contend that the propensity of fraud in family firms is mainly driven by boards that are homogenous in gender and human capital (i.e. education and tenure). Therefore, a focal point

of this study is that board diversity is more relevant for family firms in decreasing the likelihood of fraud, because board diversity decreases entrenchment in family controllers (Bardhan et al., 2015) and consequently reduces the likelihood of fraud. In this process, the stand towards diversity is of utmost importance, because board diversity is the main component to align socioemotional goals to minority shareholders' goals.

By modelling the relationship between family firms and fraud, I incorporate the notion that board diversity increases in line to board size (Carter et al. 2003), and hypothesise that family firms benefit from having larger boards to decrease the probability of fraud (H1b). In support of H1b, I conclude that smaller boards align to the family interests because of the social ties among members, but dissipate when boards are larger because the inclusion of more members provides a potential source for diversity.

In this analytical framework, I assume that because of SEW objectives, the choices towards diversity from family firms differ from those of non-family firms and are driven by independent directors who develop ties with the family board members. In coherence with my theoretical predictions, I find that gender and board educational diversity significantly decrease fraud. The results of gender diversity are also consistent with the literature positing that female directors make a firm less probable to commit fraud (H2a). For instance, Chidambaran et al. (2011) finds that SEC violations are more likely in boards with less female directors and less independent directors (i.e. longer tenure, executives and CEO/Chair duality). More importantly and relevant to the main contribution of this research is that gender diversity in family firms is more impactful (H2c). Greater gender diversity suggests an improvement of financial reporting quality and transparency in decision-making in a weaker corporate governance environment (González et al., 2020). I highlight a difference between non-independent and independent female directors in family and non-family businesses, respectively (H2b). I find that independent female directors are more effective in decreasing the probability of fraud.

However, in family firms the monitoring role of non-independent female directors is impaired (i.e. showing a non-significant relationship with the likelihood of fraud). A possible explanation for this effect is that the proportion of independent female directors in Latin American family companies is lower than that of inside female directors (i.e. 1.8% vs 5.3%, respectively). The low participation of independent female directors might represent tokenism in response to strong institutional pressures as opposed to aiming to achieve the benefits from gender diversity (Konrad et al., 2008). Notably, the benefits from gender diversity on boards are palpable when more than one female director are present within a board (Torchia et al., 2011).

Also, I find that corporate fraud decreases in line with educational diversity (i.e. business vs non-business in independent directors), but increases when independent directors have previously developed alumni networks with executive directors). Such an impact is significant for family and non-family firms (H3a), but more impactful for the later (H3b), because of the emotional bonds that arise between independent directors and inside directors that share same educational backgrounds could harm the monitoring role of directors. That is, future firm directors that belong to a family firm might establish their network throughout their education years (González & García-Meca 2014; Lefort & Urzúa, 2008), which fosters the use of such connectedness to appoint future directors. These outside directors do not classify to the strict definition of independence, as are close to family owners through friendships and tend to hold cross-directorships, impairing their independence in line to the quality and quantity of their relationships (Avina-Vazquez & Uddin, 2016). Similarly, Hsu et al. (2014) find that in the UK not only the monitoring function of independent directors is relevant, but also and consistent with my findings, their affiliations with the firm and its management might impact on corporate failure.

Following this view, I further explore how fraud relates to family firms through the process in which external independent directors develop ties with the family firm, as human capital led social ties might create more connected directors (Chidambaran et al., 2011). I show that independent directors' ties weaken their input as represented by longer board tenures, increasing the likelihood of fraud (H4a). In addition, I find that family firms benefit from diversity in tenures contributing to a decrease in fraud (H4b). Based on these findings, I assert that independent directors that can provide both experience in the company and unbiased input respond to the needs of family firms more efficiently, resulting in a decrease of fraud.

These findings contribute to research on board structure of family firms in important ways. First, I use the theoretical framework of SEW as a possible interpretation to explain the entrenchment effect of family controllers which is common in the Latin American regional setting to explain the probability of fraud. Second, I contribute by explaining the social ties between family and outside directors, which decrease their independence and increasing the likelihood of corporate fraud. This study shows the benefits that arise from gender and human capital diversity, which are more impactful in family firms and do not contradict SEWs aims, yielding important implications for regulators in the Latin American region for improving corporate governance mechanisms in family firms.

In my research, I have provided SEW as a possible interpretation for the association of family firms and fraud. Future research could aim to directly measure SEW as the mechanism in which family firms affect fraud.

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## Appendix 4.1. Definition of Variables

| Definitions of Variables | |
|---|---|
| **Variable** | **Definition** |
| Fem | Ratio of the number of female directors to board size |
| InD Fem | Ratio of the number of independent female directors to board size |
| InD Male | Ratio of the number of independent male directors to board size |
| Fem male | Ratio of independent female to independent male directors. |
| InD fem Dum | Indicator variable with the value of 1 if there is at least one independent female director on the board, 0 otherwise |
| Ins_fem | Ratio of female non-independent to board size |
| Female part | Ratio of female to male labour force participation |
| Femhat | Predicted values for Fem from the first-stage regression (Table 7) |
| Tenure InD | Years of experience in the board by non-executive independent directors |
| Blau Edu Index | An index to measure board education diversity, calculated using the $u\ Index\ (1 - \sum_{i=1}^{n} p_i^2)$ , where, $p_i$ is the percentage of board members qualified in business education. The value fluctuates between 0 and 0.5. |
| Edushare | Dummy variable equal to 1 if the independent directors do not share the same education qualification and same university with executive directors and otherwise. |
| SD Tenure InD | Standard deviation measured within independent director's tenure in the board |
| Foreign edu | The number of foreign educational affiliations |
| Eduhat | Predicted values for Blau Educational Diversity Index from the first-stage regression (Table 7) |
| Max Age | The average age that the longest-tenured independent directors were hired |
| Max Tenhat | Predicted values for tenure of independent directors from the first-stage regression (Table 7). |
| InD Age | Natural logarithm of average age of independent directors in the board |
| Size | Natural log of total assets |
| Sales growth | The five-year average annual sales growth rate. |
| Leverage | Ratio of Debt divided by equity |
| ROA | Ratio of operating profit to total assets |
| Firm age | Natural logarithm of the number of years since firm's year of incorporation |
| Opex | Natural logarithm of Earnings before interest and tax |
| Dividend | Ratio of dividend per share divided to Earnings per share |
| Float | Float in the market as percentage of total shares outstanding |
| Independence | Ratio of Independent directors' seat to board size |
| Board size | Logarithm of the total number of members on the boards |
| Chair CEO | If the chair and CEO are the same individual, set to 1; otherwise, set to 0; dummy variable |
| Fam | Dummy variable equal to 1 if the family is the family hold more than 20% of share ownership and at least one family member in the board, and 0 otherwise |
| Fam Own | Proportion of shares hold by family members |
| Fam in Board | If at least one family member in the board, set to 1; otherwise, set to 0; dummy variable |
| Famhat | Predicted values for family firm from the first-stage regression (Table 7) |
| boardhat | Predicted values for board size from the first-stage regression (Table 7) |
| Board experience | Board average number of quoted directorships hold to date. |

## 4.2. Authorship Declaration

# University of Liverpool Management School
# PhD Thesis – PhD Structured as Papers

**AUTHORSHIP DECLARATION – joint authored papers - Appendix B**

**1. CANDIDATE**

| Name of the Candidate | Student number |
|---|---|
| DIMUNGU HEWAGE DILRUKSHI NADEESHA | 201382808 |
| Thesis Title | |
| THE EFFECTIVENESS OF BOARD DIVERSITY REFORMS AND CORPORATE PRACTICES: THE MODERATING ROLE OF A FAMILIAL CULTURE, THE PREVALENCE OF FAMILY BUSINESSES AND FAMILY OWNERSHIP. | |

**2. FORMAT OF THE THESIS**

| | | |
|---|---|---|
| Is the candidate intending to structure their thesis as papers? | **Yes** / ~~No~~ | If Yes, please complete Section 3 (sole authored paper) OR 4 (joint paper)<br>**If No, you do not need to complete this form** |

**3. PAPER INCLUDED IN THE THESIS – JOINT AUTHORED PAPER**

| Title of the paper | Has this paper been published, presented at a conference or under review with a journal | If Yes, please complete the boxes below. If No, go to section 4 |
|---|---|---|
| Does board diversity decrease corporate fraud? International evidence from family vs. non-family firms. | Yes | |
| If the paper has already been published please refer to the University guidelines on presentation of publications within a PGR Thesis - https://www.liverpool.ac.uk/media/livacuk/tqsd/code-of-practice-on-assessment/annex-7.2-PGR-CoP.pdf | | |
| If the paper is under review with a journal, give details of the journal, including submission dates and the review stage | | |
| If the paper is presented at a conference, give details of the conference<br>World Finance conference (3th to 6th August, 2021)<br>SLAS conference, University of Aberdeen (13th April, 2021) | | |

**4. DESCRIPTION OF ALL AUTHOR CONTRIBUTIONS (including the PhD candidate)**

| Name and affiliation of author | Contribution(s) (for example, conception of the project, design of methodology, data collection, analysis, drafting the manuscript, revising it critically for important intellectual content, etc.) |
|---|---|
| DIMUNGU HEWAGE DILRUKSHI NADEESHA | Conception of the empirical study, data collection and developing the database, methodologies, data analysis, and drafting manuscript. Revise the study based on the comments of IPAP and conference reviewers |

| | |
|---|---|
| DR. JANNINE POLETTI-HUGHES | Revise the manuscript. Revise the study based on the comments of journal reviewers |

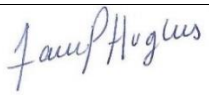
**5. AUTHOR DECLARATIONS (including the PhD candidate)**

*I agree to be named as one of the authors of this work, and confirm:*

*vii. that the description in Section 4 of my contribution(s) to this publication is accurate,*

*viii. that there are no other authors in this paper,*

*ix. that I give consent to the incorporation of this paper/publication in the candidate's PhD thesis submitted to the University of Liverpool*

| Name of author | Signature* | Date |
|---|---|---|
| DIMUNGU HEWAGE DILRUKSHI NADEESHA |  | 24/11/2022 |
| DR. JANNINE POLETTI-HUGHES |  | 28/11/2022 |

# 6. OTHER CONTRIBUTOR DECLARTION

*I agree to be named as a non-author contributor to this work.*

| Name and affiliation of contributor | Contribution | Signature* and date |
|---|---|---|
| - | - | - |
| - | - | - |

**This consent form (Appendix B) or the sole author consent form (Appendix A) for each paper must be completed and kept by the PhD candidate once the paper is finalised. If the paper is to be included as part of the thesis, a copy of this form must be included in the PhD thesis with each publication.**

# Chapter 5: Conclusion

## 5.1. Introduction

This chapter summarises and discusses the findings of three empirical studies of the effectiveness of board diversity reforms and corporate practices. These findings indicate that board gender diversity practices are perceived as having a significant impact on governance and financial outcomes. However, national institutional and firm-level settings are recognised as contingent characteristics that moderate board diversity effectiveness. The theoretical contributions and practical implications for academics, governance professionals and policymakers are discussed. Finally, the limitations of this thesis suggest further related research areas.

## 5.2. Thesis Overview

Board diversity has become a major concern amongst the top ten ESG related shareholder proposals (SIF, 2020). Internationally, board diversity has been gradually addressed by the introduction of board gender diversity reforms. These gender diversity reforms take different forms: (1) regulatory quotas; and (2) voluntary (comply-or-explain) reforms. These reforms have encouraged companies to appoint female directors to boards, which would affect board composition and corporate decision-making. Previous studies have examined the effect of gender diversity reform on corporate outcomes by relying on data from a single country (Ahern & Dittmar, 2012; Bøhren & Staubo, 2016; Reguera-Alvarado et al., 2017) and the impact of quota reforms using worldwide evidence (Atinc et al., 2022; Fauver et al., 2022; Ding et al., 2022). I extended these studies by separating the effectiveness of gender diversity quota and voluntary reforms on corporate outcomes using worldwide evidence. To the best of my knowledge, this is the first study to investigate how different types of gender diversity reforms could affect board independence, i.e. the proportion of female independent directors and the

proportion of independent directors on the board, and corporate risk-taking, conducting quasi-experiments on data from 10,313 unique companies from 41 countries for the period 2000-2019. In research and practice, board diversity and its outcomes differ across countries (Ferreira, 2015; Pucheta-Martinez et al., 2021). I address these differences by incorporating the role of i) national culture, i.e. familial culture, and (ii) the prevalence of family businesses (FBP).

The literature recognises that board diversity is endogenous because its effectiveness is influenced by a firm's ownership and control structure in a less developed/regulated market, wherein regional culture influences corporate conduct (Poletti-Hughes & Briano-Turrent, 2019). Here, I recognise that a social configuration of family businesses is necessary to understand the impact of board diversity, i.e. education, gender and tenure of independent directors. Additionally, the principal-principal agency problem is prominent in family ownership structures, resulting in the expropriation of minority shareholders' interests (Basheer et al., 2021; Singla et al., 2014). Consequently, the third empirical study of this thesis aimed to investigate the effectiveness of board diversity in decreasing corporate fraud in family businesses compared to non-family businesses in the Latin American region.

To analyse these prepositions, hypotheses were developed in the respective chapters. This thesis followed the positivist approach, using quantitative methods for data collection and analysis. A longitudinal design was selected to test the effects of gender diversity practices. Overall, this thesis analyses board diversity practices at national and firm levels.

## 5.3. Discussion of Findings

### 5.3.1. The Effectiveness of Gender Diversity Reforms and the Impact of a Familial Culture: A Spillover Effect on Board Independence

As there is scant evidence of how gender diversity reforms affect corporate outcomes, as mentioned in the previous section, the first empirical study (in Chapter 2) examines the impact of board gender diversity reforms, i.e. voluntary vs. regulatory, on both their effectiveness in increasing the number of female directors on boards and board independence. I hypothesised that there would be a reduction in independent female directors following voluntary (comply-or-explain) reform intervention, also leading to a negative effect on board independence. A possible explanation for this hypothesis is that companies may signal to markets that they comply by appointing inside/non-independent female directors to their boards (Smith & Parrotta, 2018). As gender diversity reforms aim to protect investors at the national level, I use an institutional perspective to incorporate the country's familial culture, which defines the strength of family ties and loyalty amongst family members (Lim et al., 2021). Familial culture is measured using three variables – IMPORTANCE, LOVE and DUTY, which were collected from the World Values Survey (WVS) and the European Values Survey (EVS). Based on previous literature, a society with a stronger familial culture tends to be more passive in initiatives of an individual nature (Reher, 1998), and more oriented towards social collectivism (Lyu et al., 2017), increasing not only corporate ownership concentration and control, but also, stronger social ties amongst corporate insiders, to the detriment of board independence (Chau & Grey, 2010). In this case, this chapter hypothesises that the negative impact of voluntary gender diversity reform on the ratio of independent female directors and the negative spillover effect on board independence is greater in countries with a familial culture.

Using DiD analysis, I accept the hypothesis that voluntary (comply-or-explain) reform is ineffective in increasing the number of independent female directors on boards, having a negative impact on board independence. After incorporating familial culture, I find that companies in countries with a strong familial culture have a negative spillover effect on board independence after voluntary gender reform. To further explain these findings, I focus on the appointment of female-inside/non-independent female directors following gender diversity reforms. I find that voluntary reform is favourable for improving the proportion of inside/non-independent female directors on boards in countries with a stronger familial culture. This supports the evidence that a negative spillover effect arises in a familial culture. Furthermore, this chapter identifies that, for companies in countries with a greater familial culture, quota reforms boost the appointment of independent female directors and board independence, signifying positive action regarding good corporate governance practices. These results indicate that gender diversity comply-or-explain reform is less effective in countries with a stronger familial culture.

The findings of this study contribute to the existing literature in the following ways. Voluntary reform negatively impacts improvement in the proportion of independent female directors and, consequently, there is a negative spillover effect on board independence. Possibly, a tokenistic culture with internal/non-independent female directors' appointments may impede the effectiveness of voluntary reform of appointing external female directors. Based on the theoretical framework of agency theory, the findings suggest that quota reform positively impacts board independence, supporting shareholder protection. I observe this behaviour in a familial culture where less-developed formal institutions exist (Alesina and Guiliano, 2010). As quota reform offers measurable targets to achieve (Mensi-Klarbach et al., 2020), regulation-based reforms are the way forward to achieve board independence to protect shareholders in

such an informal setting where ownership concentration is present (Berrone et al., 2020), along with managerial entrenchment (Dimungu-Hewage & Poletti-Hughes, 2022) and lack of transparency in decision-making and strategy (Lim et al., 2021).

### 5.3.2. The Effect of Board Gender Diversity Reform on Corporate Risk-taking: The Role of Family Business Prevalence

After ensuring that gender diversity reforms significantly contributed to influence the composition of board independence in the previous chapter, the second empirical study, i.e. Chapter 3, investigates whether corporate risk-taking is impacted following gender diversity reforms intervention, using the same data as in Chapter 2. According to behavioural agency theory, corporate risk-taking is an important factor in influencing both governance and performance by aligning the conflicting goals of agents and principals. The existing literature supports differing views on the impact of board gender diversity on corporate risk-taking (see the meta-analysis in Teodósio et al., 2021) and confirms that this board gender diversity impact is contingent on the institutional context. I address this by considering the importance of the institutional context in the impact of gender diversity reforms on corporate risk-taking. Therefore, this chapter recognises family business prevalence (FBP) as an informal institution representing favourable societal approval for family business growth with the majority of resources being controlled by family lines (Berrone et al., 2020). In this case, strategic decision-making in family businesses is distinct due to socioemotional wealth (SEW) preservation. Hence, this chapter hypothesises that countries with stronger FBP have greater SEW weighting than countries with less FBP. Based on the SEW framework, I recognise corporate risk-taking as (i) venturing risk, which represents the degree of acceptance of firm value-enhancing strategies and (ii) PHR, which represents the probability of failure in achieving financial targets to protect agents' wealth or aspirations (Gómez-Mejía et al., 2007).

The findings in Chapter 2 reveal that venturing risk improves following gender quota reform, suggesting that gender legislation is successful in improving a firm's value-enhancing initiatives to align the interests of agents and principals. After incorporating the FBP to capture the socioemotional goals of family businesses that contribute significantly to explaining the association between gender diversity reforms and risk-taking, I find that family business prevalence plays a moderating role in improving PHR following voluntary gender reform and venturing risk following both types of gender diversity reforms, i.e. quotas or voluntary. It is reasonable to conclude that voluntary gender diversity reforms are less effective in limiting the adverse impact of SEW on corporate risk-taking in countries with greater family business prevalence.

These findings contribute to the understanding of the differential effects of gender diversity reforms on corporate risk-taking. Although corporate governance reforms add an additional compliance burden to corporate performance (Bargeron et al., 2010; Cohen & Dey, 2013), these findings demonstrate that gender quota reform is conducive to board restructuring in order to access human and social capital resources from the market. As a result, the board would make venturing decisions and support agents in pursuing value-enhancing risky investments. Although the voluntary gender diversity reform is ineffective to increase board independence, the voluntary reform is successful to increase female directors' proportion on board based on the findings in the second chapter. The majority of studies claim that female directors are reputational concerned and strengthening the monitoring and communication system which leads to reduced likelihood of corporate misconduct, financial distress and corporate failure (Guizani & Abdalkrim, 2022; Mittal & Lavina, 2018; Zhou, 2019). This thesis extends this recent literature by establishing that gender diversity reform has become an effective tool in reducing PHR, leading to a decreased probability of financial distress and

failure. In addition, this chapter suggests that the impact of gender diversity reforms on risk-taking depends on the prevalence of family businesses context. Therefore, this chapter contributes to the literature on informal institutions by demonstrating the importance of family business prevalence in shaping the effectiveness of gender diversity reforms on corporate risk-taking.

### 5.3.3. Does Board Diversity Decrease Corporate Fraud? International Evidence from Family vs. Non-family firms

An informal institutional system is one of the challenges in the protection of shareholders from exposure to corporate fraud, bribery and corruption (La Porta et al., 2000). As noted in the previous chapters, regulatory quota reforms have the benefit of improving board independence and corporate risk-taking in a setting of informal institutional structure, which could have a greater positive impact on meeting shareholders' interests. However, most emerging markets do not adopt regulatory gender diversity reforms because of the level of masculinity (Pucheta-Martinez et al., 2021) and gendered policies (Terjesen et al., 2015). Therefore, I expect voluntary gender diversity practices on boards in such settings. Along with voluntary gender diversity practices on boards, investors demand strong internal governance practices, e.g. strengthening additional diversity measures such as education, networks and tenure, at firm level (Katmon et al., 2019), to overcome the weaknesses of the informal institution system.

Many studies have focused on board diversity as a mechanism for protecting shareholders' interests in a developed market context. However, limited literature on the effectiveness of board diversity on investors' protection has been derived from the emerging market context in which informal institutions exist (Buse et al., 2016). Further, concentrated ownership structures are prevalent in emerging markets which poses an agency problem between majority and minority shareholders or where shareholdings or ownership are contained within a few

individuals or family members (Panda & Leepsa, 2017). In such cases, there is a possibility corporate fraud and earnings management (Ramírez-Orellana et al., 2017) and therefore call for good corporate governance practices to limit such opportunistic behaviour of majority shareholders (Holderness & Sheehan, 2000). To address this gap, this study focuses on the Latin American region which constitutes an informal institutional setting with greater prevalence of family businesses. As the involvement of family owners in businesses is more intense in this region (Jara et al., 2019), there is a lower possibility of appointing external directors to boards on merit basis to improve board diversity effectiveness (Gonzalez et al., 2020). Recently, corporate fraud amongst family businesses in the region has highlighted the importance of internal corporate governance. Therefore, the objective of this study is to examine the impact of board diversity, i.e. gender, education and tenure, on the likelihood of corporate fraud in family businesses, using the socioemotional wealth framework.

The findings on gender diversity are consistent with existing literature on reducing the likelihood of fraud (Cumming et al., 2015). However, the effectiveness of independent female directors in reducing the likelihood of corporate fraud is weakened as the representation of independent female directors in Latin American family firms is lower than that of non-independent female directors, i.e. 1.8% vs 5.3%, respectively. Additionally, the lack of human capital diversity on family boards contributes to an increase in fraud. I show that the absence of education diversity, i.e. business vs non-business amongst independent directors, and alumni networks shared amongst directors impair the monitoring role and, consequently, increases the likelihood of corporate fraud in family firms. Furthermore, longer board tenure of independent directors increases the likelihood of fraud, whereas diversity in tenures amongst directors contributes to reducing the likelihood of fraud. Based on the homogeneous nature of education, tenure and longer board tenure in family firms, the strict definition of independence is not

provisioned, as independent directors display social ties with family owners through human capital.

These findings contribute to SEW perspectives in important ways. Firstly, I find that family firms have a higher likelihood of corporate fraud compared to non-family firms. These findings align with the argument that family firms are likely to gain from weaknesses of the institutional system, which contributes to opportunistic behaviour at the expense of non-family stakeholders (Solis et al., 2017). I find that such opportunistic behaviour is driven mainly by the homogeneous nature of corporate boards. Therefore, my findings support the idea that board diversity in gender and human capital, i.e. education and tenure, reduces the likelihood of fraud because board diversity reduces entrenchment in family controllers and offers impactful board independence in family firms by solving principal-principal agency problem. In this sense, gender and human capital diversity in family firms align socioemotional goals with those of minority shareholders and other non-family stakeholders. In addition, larger boards contribute to reducing the likelihood of fraud in family firms, as they provide a greater opportunity to improve diversity and reduce both social ties, and emotional attachment dimensions of SEW.

### 5.4. Implications for Policy-making and Practice

The general findings of this thesis emphasise the importance of board diversity practices at national and firm levels. The role of board diversity practices has been discussed as an important instrument for resolving issues in the relationship between management and shareholders. Therefore, the findings of this thesis have implications for corporations as well as for policymakers. Initially, the findings in the second chapter highlight the importance of regulatory gender diversity reforms in enhancing board independence. Regulatory gender diversity reforms are also equally effective in a worldwide context. These results have implications for corporations to consider the adoption of regulatory gender diversity reform as

a corporate governance model that offers an opportunity to reduce agency problems. Additionally, institutional and market forces are relevant to reaping the benefits of gender diversity reforms (Pucheta-Martinez et al., 2021). For instance, the impact of a country's familial culture reduces the effectiveness of non-legally binding reform (comply-or-explain) in improving board independence and the proportion of independent female directors, possibly due to a tokenistic culture of appointing internal female directors. This suggests that regulation-based reforms are a way forward to achieve board independence and the appointment of independent female directors in a stronger familial cultural setting. The role of independent female directors could assist shareholders by assuring independence in monitoring activities and reducing incentives for managerial entrenchment amongst firms in a familial culture that features corporate ownership concentration and control. In this case, policymakers need to consider introducing legally binding reform (quota) as this brings promising results for improving board independence which supports the protection of shareholders at country level.

Secondly, the findings of the third chapter show the importance of regulatory gender diversity reform in enhancing corporate risk-taking in favour of management and shareholders. Management would perceive gender diversity reform beyond ethical consideration as an instrument for improving corporate risk-taking. This positive aspect is highlighted by Poletti-Hughes and Briano-Turrent (2019), who state that independent female directors motivate corporate risk-taking to improve expected performance. My study further finds positive aspects of regulatory reform for improving venturing risk and reducing any possibility of PHR. This might assist management in considering the appointment of female directors, who bring resources to improve expected performance, on a merit basis (Zhou, 2019). Even firms in an informal institutional framework where there is FBP would reap the benefits of regulatory quota reform in improving corporate risk-taking. As family firms deal with the conflict between

affective/SEW goals and financial goals (Berrone et al., 2012), it is important to enhance the quality of board decisions to protect minority shareholders. In this context, regulatory quota reform contributes to improving venturing risk in favour of minority shareholders in countries with stronger FBP. As family directors are more loyal to SEW goals, there is an opportunity to improve PHR (Gómez-Mejía et al., 2007) which also results in a principal-principal agency problem (Basheer et al., 2021). Board independence reduces the importance placed on SEW related goals (Goel et al., 2013). In this instance, regulatory quota reform assists more in reducing the PHR, as this reform has the potential to increase board independence. This might support boards in resolving conflicts between majority and minority shareholders, which are common in family businesses. In this case, policymakers could consider regulatory reform of board diversity to protect minority shareholders in a family business prevalence setting.

Finally, the findings of the third chapter further contribute to mechanisms for solving the principal-principal agency problem in a region which has greater FBP along with weak institutions to protect minority shareholders. This emphasises that board diversity, i.e. gender, education and tenure, reduces corporate fraud risk in family firms. Therefore, such findings have implications for management in terms of improving transparency and resolving information symmetry problems in family businesses and attracting funding opportunities for venturing projects. Consequently, board diversity can act as an internal control system to improve governance practices and protect investors in family businesses.

The findings of Latin American regional case studies suggest that more specific regulation based instructions are important to capitalise on the effectiveness of board diversity reforms. For example, Latin American policymakers should make provisions to promote external female directors on merit bases, which could bring a pool of talent to the board. The findings suggest that quota reforms do not automatically improve external independent female director

proportions and, therefore, quota and qualifications of independent female directors should be considered when drafting such reforms.

### 5.5. Theoretical Contributions

As explored in literature review, agency theory offers a theoretical contribution to corporate governance reforms. Given that, corporate governance reforms support the effectiveness of board monitoring performance. However, the theory does not provide a complete understanding of how board diversity reforms improve monitoring performance in different institutional setting. Therefore, the second chapter contributes to existing literature by providing understanding of board diversity reforms effects on board independence. The results also suggest that the governance reforms (such as gender diversity reforms) should be customized according to the characteristics of national institutional setting.

Second, the findings of the second and third chapter indicate for the contention that the institutional contexts moderate the impact of gender diversity reforms on corporate behaviour. With respect to legitimacy theory, improving the presence of women in the management/board is an effective way to create firm's legitimacy and fidelity among shareholders and other key stakeholder groups (Jeong & Harrison, 2017). Therefore, findings of the thesis contribute that inclusion of women in upper echelon via regulation or voluntary practice become a globally acceptable practice. Corporates in familial culture adopt gender diversity reform by appointing executive female directors to perceive legitimacy. However, this harms the balance of executive and non-executive independent directors on boards. Therefore, it should be noted that adoption of gender diversity reforms to gain legitimacy should not harm the independence of board structure.

Third, the study bridges a theoretical gap in the board diversity and corporate fraud literature (Cummings et al., 2015). The findings of the fourth chapter provided some interesting views

into family business governance structure and its impact on corporate fraud. It should be noted that diversity in gender, education and tenure on family boards determine the socioemotional wealth of family firms and significantly impact on board decisions.

### 5.6. Research Limitations and Future Recommendations

Overall, this thesis delineates the importance of gender diversity reform and practices in corporate governance and firm performances, particularly by highlighting the role of board gender diversity in familial culture, FBP and family business settings. Nevertheless, these three studies have some limitations and further research areas that will be discussed separately.

Chapter 2 depends on Lim et al's (2021) worldwide identification of familial culture and focuses on micro-level survey studies to recognise the strength of family ties at national level. However, recent studies recommend capturing the institutional environment and other aspects of national culture (Pucheta-Martinez et al., 2021), such as Hofstede's cultural dimensions. Therefore, it is recommended that a broader definition of cultural setting at the national level as an informal institution is captured in further studies. Although I recognised national familial culture as an informal institution, I did not consider different ownership structures such as family ownership and/or state ownership which might be relevant moderating factors in further explaining the effective adoption of gender diversity reform in a country with a familial culture.

Chapter 3 relies on Berrone et al's (2020) measurements of family business prevalence at national level, derived from a worldwide meta-analysis. However, I do not consider family ownership structure at firm level to reflect SEW traits. Therefore, this thesis considering family ownership structure to reflect the weight of SEW in further studies. In addition, this study focuses on the two types of corporate risk-taking, i.e. venturing risk and PHR. This study calls for further research to explore whether gender diversity reform affects other types of risk.

Chapter 4 encapsulates an empirical study of corporate board diversity and corporate fraud in the Latin American region. Fraud cases in this region were detected from news items in Bloomberg. However, fraud cases may not be detected due to weaknesses in firm and institutional system transparency. Therefore, a limitation of this study is that there is a chance of fraudulent firm misclassification within the non-fraud cohort. Moreover, this study only examined firms in the Latin American region as these firms sustain in a weaker institutional, legal, and economic setting. Additionally, OECD recognised South Asian region also shares similar institutional characteristics as Latin American region. However, economic development in Latin American region is much greater than the South Asian region. As a result, Latin American region set as a preview to development in other emerging markets. Nevertheless, future studies might consider different emerging market contexts to investigate board diversity impact on corporate fraud as a comparative study. This study used a SEW framework to interpret the effect of a family business's board on the likelihood of corporate fraud. Accordingly, further research could directly investigate the impact of SEW dimensions on the likelihood of fraud in family firms.

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