University of Southampton

Faculty of Social Sciences

Southampton Business School

Corporate governance in the insurance industry: Global evidence on risk-taking and performance

by

Faris Mohammed Alzughaibi

Thesis for the degree of Doctor of Philosophy

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Abstract

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The insurance industry plays a pivotal role in maintaining both domestic and international economic stability, making the governance of insurance companies and the mechanisms influencing their operations and performance crucial areas of academic and practical interest. This thesis aims to expand the existing body of knowledge on the role of corporate governance (CG) in the insurance industry from a global perspective through three distinct but interconnected papers.

The first paper presents a comprehensive systematic literature review (SLR) on the effects of CG in the insurance industry. It appraises, synthesises and extends knowledge on the theoretical perspectives and empirical evidence regarding internal and external governance mechanisms and their impacts on a wide range of financial and non-financial outcomes for insurance firms. This review, encompassing 130 articles published in 63 journals from 1980 to 2021, reveals several key findings: (a) agency theory is the most commonly applied theory, with a lack of application of multi-theoretical frameworks; (b) certain internal governance mechanisms, such as state, family and foreign ownership, board diversity, finance and Shariah committees and debt-based compensation, are rarely investigated; (c) external governance mechanisms, such as Shariah law and external actuaries, receive limited attention; (d) cross-country studies are scarce; and (e) methodological limitations include a scarcity of qualitative studies, inconsistency and lack of precision in certain variable measurements. The paper concludes by outlining several opportunities for future research.

Building on insights from the SLR, the second paper investigates the influence of multiple facets of board diversity (i.e., gender, nationality, tenure and age) on two critical aspects of risk-taking in insurance firms: insolvency risk (financial risk) and underwriting risk (operational risk). Using an international sample of 3,333 firm-years from publicly traded insurers across 44 countries over 2003–2019, the paper finds that board diversity in terms of gender, nationality and age significantly reduces both insolvency and underwriting risk. However, board tenure diversity shows mixed results, with a negative association with insolvency risk but a positive association with underwriting risk. Further analysis uncovers the mechanisms through which diverse boards influence risk management, demonstrating that they tend to adopt more conservative investment and financial policies. Yet importantly, this conservative approach does not compromise financial returns. Additionally, the implementation of gender quotas leads to a significant reduction in insurer risk.

The third paper completes the picture of how board diversity affects risk-taking by considering the moderating role of institutional factors and adopting a holistic view of diversity through a composite board diversity index encompassing gender, nationality, tenure, and age. Using a global dataset of 3,187 firm-year observations from publicly listed insurers over a 17-year period, the findings confirm that increased board diversity is associated with reduced insolvency and underwriting risk among insurance firms. The paper further reveals significant moderating effects of institutional factors on this relationship. Specifically, strong national governance quality amplifies the risk-mitigating benefits of board diversity. Moreover, drawing on Hofstede's (1980) cultural dimensions, the paper demonstrates that societies with high uncertainty avoidance strengthen the risk-reducing effects of board diversity, while cultures characterised by high individualism, power distance, and masculinity attenuate these benefits. Additional analyses focused on the global financial crisis (2007-2009) reveal that the effectiveness of diverse boards in mitigating risk is especially pronounced during periods of economic stress.

Keywords: Corporate governance, insurance industry, corporate outcomes, systematic literature review, board diversity, gender diversity, nationality diversity, tenure diversity, age diversity, risk-taking, institutional factors, national governance quality, national culture, international evidence

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Research Thesis: Declaration of Authorship

Print name: Faris Mohammed Alzughaibi

Title of thesis: Corporate governance in the insurance industry: Global evidence on risk-taking and performance

I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission.

Signature: Faris Mohammed Alzughaibi Date: 01/01/2025

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To my family, I dedicate this thesis

Abbreviations

CG	Corporate Governance
SLR	Systematic Literature Review
BOD	Board of Directors
CEO	Chief Executive Officer
SSB	Sharia Supervisory Board
CSR	Corporate Social Responsibility
BIS	Bank for International Settlements
NAIC	National Association of Insurance Commissioners
AIG	American International Group
EU	European Union
EBSCO	Business Source Premium
WGI	Worldwide Governance Indicator
ROA	Return on Assets
ROE	Return on Equity
ABS	Association of Business Schools
VIF	Variation Inflation Factor
OLS	Ordinary Least Squares
PSM	Propensity Score Matching
DID	Difference-in-Differences

Chapter 1: Introduction and background

1.1 Research background

Corporate governance (CG) research has grown significantly in business and management fields over recent decades (Farah et al., 2021). This growth has been shaped by several factors: mounting public concern over executive actions (Dorff, 2014), major corporate failures (Brown et al., 2011), the far-reaching implications of the 2008 financial crisis (Yousaf et al., 2024), and growing demands for corporate accountability and sustainability (Kavadis et al., 2023). These changes have coincided with rapid market globalisation and technological advancement, changing how organisations operate and compete (Li and Singal, 2021; Post et al., 2020). Contemporary corporations now face unprecedented scrutiny from an expanding stakeholder base, including institutional investors demanding greater accountability, regulators seeking enhanced oversight and a public increasingly concerned with both financial performance and societal impact (Aguilera et al., 2015; Ullah et al., 2022). This intensified oversight has established CG as a critical determinant of organisational legitimacy, stakeholder trust and long-term sustainability (Claessens and Yurtoglu, 2013; Pandey et al., 2023).

The growing recognition of governance's importance has led to successive waves of regulatory reform across different countries, each responding to specific challenges while contributing to an increasingly comprehensive governance framework (Wang and Hussainey, 2013). The UK's Cadbury Code of 1992 marked a pivotal moment, establishing foundational principles that would influence governance standards globally (Cuomo et al., 2016). Its emphasis on structural reforms, particularly the separation of CEO and chairperson roles, reflected a fundamental shift toward more balanced power distribution in corporate leadership (Cadbury, 1992). Subsequent corporate failures, including the collapse of Barings Bank, BCCI, WorldCom, Enron, Parmalat, and Polly Peck, revealed persistent governance weaknesses and resulted in more stringent regulatory responses (Mardjono, 2005). The U.S. Sarbanes-Oxley Act of 2002 exemplified this enhanced approach, introducing comprehensive requirements for internal control systems, financial transparency and audit independence (Sarbanes, 2002). The 2008 financial crisis triggered yet another regulatory evolution, addressing newly exposed systemic vulnerabilities (Boubakri, 2011). This ongoing regulatory development has sparked extensive academic investigation into governance mechanisms' impact on corporate outcomes, highlighting both the complexity of governance systems and the continuing need for evidence-

based policy development (Agyei-Boapeah et al., 2019; Erhardt et al., 2003; Katmon et al., 2019; Phuong et al., 2022).

These regulatory developments reflect a broader understanding of CG as an integrated system of rights, responsibilities and relationships among corporate stakeholders, designed to ensure effective organisational management while balancing diverse interests (Aguilera et al., 2015; Daily et al., 2003). This system serves dual fundamental purposes: establishing clear accountability mechanisms for executive actions while creating frameworks for responsible resource allocation and stakeholder protection (Brennan and Solomon, 2008; Gillan, 2006). Effective governance structures facilitate optimal resource allocation, enable strategic adaptation to changing conditions, and maintain firm stability across different economic cycles (Bebchuk and Weisbach, 2010; Denis, 2001). Strong governance frameworks enhance firm resilience and stakeholder commitment while fostering innovation and ethical business practices (Aguilera et al., 2008; Filatotchev and Boyd, 2009). This multifaceted impact underscores governance's central role in modern organisational management, bridging operational effectiveness with broader societal responsibilities.

While governance practices have evolved in response to market developments and corporate failures, the theoretical foundation of CG research has similarly progressed to explain these changes and provide important insights into governance dynamics. Agency theory initially provided a powerful framework for understanding governance mechanisms, emphasising the alignment of managerial actions with shareholder interests through accountability structures and incentive systems (Fama and Jensen, 1983; Lu and Boateng, 2018). However, recognition of this framework's limitations in addressing broader stakeholder concerns led to the development of complementary theoretical perspectives (Daily et al., 2003). Stakeholder and stewardship theories expanded the conceptual landscape, introducing more inclusive frameworks that challenge traditional agency assumptions while acknowledging broader corporate responsibilities (Davis et al., 1997; Donaldson and Preston, 1995). Yet these alternatives, while valuable, struggled to fully capture the complexity of modern corporate environments (Filatotchev and Boyd, 2009). Institutional theory emerged as a crucial bridge, examining how external forces—regulatory, cultural, and social—shape governance practices and organisational legitimacy (North, 1990). Contemporary research has further enriched this theoretical framework by incorporating psychological and behavioural insights, exploring how cognitive processes and group dynamics influence governance outcomes (Hambrick et al., 1996; Harjoto et al., 2018). This theoretical evolution reflects a growing recognition that

effective governance requires integrated frameworks capable of addressing both traditional principal-agent conflicts and broader societal considerations.

Complementing these theoretical perspectives, empirical research has validated the crucial role of governance mechanisms while revealing their complex impact on corporate outcomes. Studies demonstrate that well-designed governance systems enhance market confidence (Fields et al., 2012), mitigate agency conflicts (Jia, 2019), and improve financial performance through multiple channels (Sarhan et al., 2019). Research by Adams and Jiang (2016) illustrates how effective governance structures enhance decision-making quality and strategic alignment, leading to superior financial outcomes. Specific governance mechanisms, such as board independence and diversity, strengthen risk oversight capabilities and operational efficiency (Wang et al., 2007) while reducing corporate vulnerability to financial distress (Ali et al., 2022). Contemporary research has expanded beyond traditional financial outcomes to examine governance's broader impact on organisational behaviour and societal engagement. Evidence indicates that robust governance systems promote firm transparency (Han et al., 2018), strengthen ethical practices (Kavadis et al., 2023), enhance social responsibility initiatives (Katmon et al., 2019), and advance environmental sustainability efforts (Ullah et al., 2022). These findings demonstrate how effective governance simultaneously enhances operational performance through improved oversight while strengthening organisational legitimacy through broader stakeholder engagement and societal contribution.

The effectiveness of CG relies on the interplay between various internal and external mechanisms. Internal mechanisms, such as board structures, committee compositions and risk management processes, form the core framework of organisational oversight (Adams and Ferreira, 2009; Ames et al., 2018). These are reinforced by external mechanisms, including regulatory supervision and stakeholder monitoring, which provide additional layers of control and accountability (La Porta et al., 2000; Gaver and Paterson, 2001). However, the effectiveness of these mechanisms varies significantly across different institutional environments and industry contexts, highlighting the need for a more holistic and systematic understanding of how governance structures function within specific sectors (Aguilera et al., 2008; Filatotchev et al., 2013).

Within board-related governance mechanisms, board diversity has emerged as a critical focus area, garnering significant global attention through legislative efforts, academic research, and media coverage (Bhat et al., 2019; Khatib et al., 2021). Initially centred on advancing gender

equality through increased female board representation (Carter et al., 2010), this focus has led several countries to adopt mandatory or voluntary quotas to promote gender diversity on boards[1] (Bernile et al., 2018). The scope has since broadened to encompass multiple dimensions of diversity, including nationality, tenure, and age (Khatib et al., 2023). This evolution is particularly evident in the financial sector, where regulatory reforms have increasingly emphasised board diversity in governance frameworks (Fan et al., 2019). For instance, in Europe and the United States, regulators have introduced specific requirements for board composition in insurance companies through frameworks such as Solvency II and the Corporate Governance Annual Disclosure Act (Caporale et al., 2017; Li and Cheng, 2023). These regulatory developments reflect growing recognition that diverse boards may be better equipped to oversee complex risks and balance varied stakeholder interests, particularly in highly regulated industries.

As one of the most highly regulated sectors requiring robust governance frameworks, the insurance industry serves as a cornerstone of global financial stability and economic growth through its unique dual role as both a major institutional investor and an ultimate risk bearer (Eling and Jia, 2018). Managing vast assets totalling USD 35.73 trillion globally in 2022 (Financial Stability Board, 2023), insurance firms create distinct governance challenges that set them apart from other non-financial firms. These firms operate in an environment characterised by highly complex and opaque operations, particularly in risk selection and pricing mechanisms designed to protect policyholders against unexpected economic losses (Adams and Jiang, 2016, 2017). Such complexity not only exposes insurance firms to greater risk but also creates significant information asymmetries that can impair stakeholders' ability to effectively monitor managerial actions (Ma and Ren, 2021; Uyar et al., 2022). The industry's critical role in financial stability and consumer protection has led to a uniquely stringent regulatory environment, with requirements spanning capital adequacy, risk-reporting disclosure, and solvency margins (Agyei-Boapeah et al., 2019; Hsu et al., 2019). These regulatory demands add another layer of complexity to insurers' governance frameworks.

Beyond regulatory oversight, the insurance industry is also subject to scrutiny from a variety of stakeholders, including reinsurers, agents, brokers and policyholders, each with their

[1] For instance, France, Norway and Spain require a compulsory board representation of 40% for females, with sanctions imposed on non-compliance, such as the adverse impact on state contract awards and delisting from the stock exchange (Terjesen et al., 2015; Terjesen and Sealy, 2016). In states that follow a voluntary approach (comply or explain principle), such as the United States, the United Kingdom and Australia, companies are required to adopt and publish their gender diversity policies or present an explanation in case of non-compliance (Abbasi et al., 2020; Nekhili et al., 2020).

own objectives and motivations (Eling and Marek, 2014; Boubakri, 2011). While their interests may vary, these stakeholders share a common goal of ensuring the financial stability of insurers (Cole et al., 2011). Furthermore, within the industry, different organisational structures compete and coexist effectively in the same market, such as stock, mutual and takaful (Islamic) insurers (Ho et al., 2021; Karbhari et al., 2018; O'Sullivan, 1998). Despite competing for a similar target consumer base, each has a unique governance system that faces different conflicts of interest among shareholders, managers and policyholders (Diacon and O'Sullivan, 1995; Mayers and Smith, 2010). Thus, in environments where multiple stakeholders are involved, the complexity of agency issues often surpasses that typically encountered in non-financial firms (Akbar et al., 2017). These industry complexities necessitate rigorous CG mechanisms to balance competing priorities such as risk management, regulatory compliance and value creation.

The need for effective governance mechanisms in managing these complexities was dramatically illustrated by the high-profile failures of AIG and Yamato Life in 2008, which raised significant concerns about board oversight within the insurance sector (Abdoush et al., 2022; Eling and Jia, 2018). These governance failures triggered serious questions about board effectiveness in preventing firm collapse (Uyar et al., 2022). One widely discussed reason for these failures was the lack of diversity among board members (Hoang and Wu, 2024). Drawing from agency and resource dependence theories, research suggests that diverse boards enhance governance by fostering independent thinking and bringing varied perspectives to complex decision-making processes (Sarhan et al., 2019). This diversity extends beyond demographic characteristics to encompass broader access to valuable external resources and networks crucial for effective oversight (Carter et al., 2003). Empirical evidence supports these theoretical propositions, demonstrating board diversity's positive impact on both risk management capabilities and financial performance (Alzayed et al., 2024; Mohsni et al., 2021). Yet, despite risk-taking being at the core of insurance operations and the theoretical importance of board diversity for risk oversight, empirical evidence on how board diversity influences risk-taking specifically in insurance firms remains limited.

Understanding this relationship is further complicated by the global scope of modern insurance operations, which adds another layer of complexity to the board diversity-risk relationship. Institutional factors, including regulatory frameworks and cultural norms, can significantly shape board effectiveness and decision-making processes across different countries (Filatotchev et al., 2013). Institutional theory suggests that the regulatory frameworks and

cultural norms present in their national contexts deeply influence firms' CG practices (Hall and Soskice, 2003). This variability underscores the need to move beyond a one-size-fits-all approach and instead explore the moderating role of institutional factors on this relationship, which remains largely unexplored in the board diversity literature. Given the insurance industry's vital role in economic stability and its increasing interconnectedness, developing a more comprehensive understanding of the relationship between board diversity and risk-taking has become crucial for advancing both theoretical knowledge and practical governance implementation.

1.2 Research motivation

As discussed in the research background, although CG has been extensively explored in academic research, including several literature reviews (e.g., Abbasi et al., 2020; Aguilera et al., 2016; Alhossini et al., 2021; Asad et al., 2023; Barroso et al., 2011; Brown et al., 2011; Chiu et al., 2016; Farah et al., 2021; Kavadis and Thomsen, 2023; Lu et al., 2022; Nguyen et al., 2020; Pandey et al., 2023; Yousaf et al., 2024; Zattoni et al., 2023), significant gaps remain in understanding governance within specific industries and regulatory frameworks. Industry context is crucial to shaping governance mechanisms, as it is tied to distinctive competitive dynamics, disruption risks, and profitability variations (McGahan and Porter, 1997). Specifically, previous reviews of CG in the insurance industry have been limited in scope, focusing on select governance aspects (e.g., ownership and board structures), a narrow range of outcomes (e.g., risk-taking), and specific countries (e.g., the US and UK) (Boubakri, 2011; O'Sullivan, 1998) or specialised markets (e.g., Islamic insurance) (Khan et al., 2020). Furthermore, these reviews were non-systematic, neglecting various theoretical perspectives and covering only a small set of past research from limited fields over a relatively short period[2]. Such limitations hinder a deeper understanding of CG's role in the insurance industry and its theoretical and empirical progression. While these contributions are valuable, they lack a comprehensive, systematic, and multidisciplinary approach to evaluating CG's effects in the insurance sector.

[2] Non-systematic reviews, unlike SLR, are more susceptible to unintentional bias from researchers and frequently lack the comprehensive scope necessary to accurately interpret and represent study findings, potentially leading to misunderstandings or errors in synthesising the collected research (Roberts et al., 2006).

Additionally, reflecting global developments in the insurance industry, extensive research over the past few decades has explored a wide range of internal and external governance mechanisms and their effects on a broad set of financial and non-financial outcomes (e.g., Abdoush et al., 2022; Ames et al., 2018; Chen et al., 2023; Eastman et al., 2024; Fields et al., 2012; Grace, 2004; Hardwick et al., 2011; Hsu and Petchsakulwong, 2010; Kwon, 2013; Li and Cheng, 2023; Magee et al., 2019; Shaddady, 2021). While this substantial body of research reaffirms various pre-existing themes, the CG literature on the insurance industry presents mixed and often inconclusive results. For instance, Cheng et al. (2011) found institutional ownership reduced insurance firms' risk-taking, whereas Ma and Ren (2021) observed the opposite. Similarly, Alhassan et al. (2020) reported large board size enhanced financial performance, while Hemrit (2020) disagreed. These conflicting findings can impede knowledge advancement and may not provide stakeholders with clear, actionable guidance (Li and Singal, 2021).

Given the importance of industry context in shaping CG, the limitations of prior literature reviews, the growing research interest, and the lack of conclusive findings, an up-to-date systematic literature review (SLR) on the effects of CG in the insurance industry is necessary. Such an SLR would provide a comprehensive analysis of the existing research, offer insights into the current state of knowledge, identify gaps in understanding, and highlight areas requiring further investigation. To the best of the author's knowledge, no SLR has provided a comprehensive view of CG mechanisms' effects on the insurance industry, and this gap serves as a key motivation for the first paper of this thesis (Chapter 2).

Furthermore, while the research background highlights the theoretical and empirical importance of board diversity in CG and documents significant governance failures in the insurance sector (notably AIG and Yamato Life in 2008), our SLR (see Chapter 2) reveals important gaps in understanding how different aspects of diversity collectively influence risk management. Although a considerable body of research has explored board diversity and risk relationships in non-financial contexts (e.g., Poletti-Hughes and Briano-Turrent, 2019; Mohsni et al., 2021; Saeed et al., 2021; Phuong et al., 2022; Chen et al., 2023; Cho et al., 2024) and in banking (e.g., Abou-El-Sood, 2021; Elnahass et al., 2023; Del Prete et al., 2024; Hoang and Wu, 2024; Issa et al., 2024), theoretical understanding remains limited in contexts where risk management is a core business function rather than just a governance concern. This distinction is theoretically significant because it may fundamentally alter how diversity influences

decision-making processes and outcomes, particularly in preventing governance failures such as those observed in the insurance sector.

Consistent with our SLR findings, recent systematic reviews of board diversity literature have identified three critical research needs: (i) examining multiple dimensions of diversity simultaneously (Khatib et al., 2023; Zattoni et al., 2023), (ii) adopting industry-specific approaches to understand contextual effects (Baker et al., 2020; Gardiner, 2022), particularly in financial firms (Khatib et al., 2021), and (iii) conducting cross-country studies to capture institutional variations (Baker et al., 2020; Kagzi and Guha, 2018; Teodósio et al., 2021). These research imperatives align with growing practical demands, evidenced by the global push for diverse boards in the insurance sector (Swiss Re, 2021) and calls from major international insurers (Aviva, 2021; AXA, 2022). However, existing scarce studies in the insurance literature have limited their examination to a single aspect of diversity, covered relatively short timeframes and focused on limited geographical contexts—mainly European countries (Adams and Baker, 2021; Jouber, 2024). This narrow scope constrains our understanding of how different types of board diversity might collectively influence risk-taking and relatively limits finding generalisability across varying institutional and regulatory contexts.

The insurance industry, where risk assessment and management are fundamental to operations, presents an ideal context to address these research gaps identified in our SLR. Given recent global progress toward diverse boards, systematic reviews' calls for comprehensive diversity studies, and increased expectations for boards' risk management roles in insurance firms, examining how multiple aspects of board diversity influence risk-taking becomes particularly crucial. To date, to the best of the author's knowledge, no study has investigated how multiple facets of board diversity (gender, nationality, tenure, and age) collectively affect risk-taking among insurance firms at the international level.

The relevance of addressing these research gaps in the insurance industry is underscored by recent regulatory developments, particularly legislation mandating gender diversity quotas for corporate boards, as discussed earlier in the research background (Section 1.2), yet their effectiveness on corporate outcomes remains unclear (Alkhawaja et al., 2023). In the insurance sector, while progress is evident—with women's representation reaching 14% and 20% on insurance and reinsurance boards, respectively (Swiss Re, 2021)—the effectiveness of these regulatory interventions remains unexplored. The impact of such quotas on risk-taking is

particularly relevant in the insurance industry, where risk decisions have broader economic implications.

In addition to examining the direct relationship between board diversity and risk-taking, insurance firms warrant investigation through multiple lenses. First, given the industry's highly regulated and risk-sensitive nature, understanding the mechanisms through which board diversity affects risk is crucial for long-term stability and regulatory compliance (Chen and Wong, 2004). Second, while this study emphasises risk management, it is equally important to consider the relationship between board diversity and financial performance, especially in an industry where balancing risk and returns is a persistent challenge (Adams et al., 2024). This dual focus on risk and performance provides insights into whether diverse boards can effectively manage the risk-return trade-off inherent in insurance operations. Accordingly, the second paper of this thesis (Chapter 3) addresses these identified gaps through a comprehensive analysis of board diversity and risk-taking in the insurance industry.

Building on the comprehensive insights from our SLR (Chapter 2) and the direct examination of board diversity's influence on risk-taking (Chapter 3), the third paper delves deeper into understanding why these relationships might vary across different institutional contexts. The relationship between board diversity and risk-taking remains a relatively underexplored issue, and existing empirical findings are generally inconclusive (e.g., Khatib et al., 2023; Baker et al., 2020; Berger et al., 2014; Nguyen et al., 2020; Ozdemir et al., 2021; Sila et al., 2016; Teodósio et al., 2021; Zattoni et al., 2023). This inconclusiveness may be attributed, in part, to variations across different institutional contexts (Oliver, 1997). Institutional theory suggests that both formal and informal institutional factors can influence CG practices and outcomes (Hall and Soskice, 2003). Specifically, the effectiveness of diverse boards in managing risk can be shaped by broader institutional factors, such as national governance quality and cultural norms. These factors can help clarify the often ambiguous findings regarding board effectiveness (Mohsni et al., 2021), as research suggests that national governance and culture can influence corporate financial decisions and offer insights beyond traditional CG frameworks when applied to board dynamics (e.g., Carter et al., 2003; Filatotchev et al., 2013; Haniffa and Cooke, 2005; Minichilli et al., 2012). Yet, the extent to which these institutional factors moderate the relationship between board diversity and risk-taking remains unclear.

Given these institutional considerations, the insurance industry, with its global operations and complex risk management requirements, provides an ideal setting for examining these

institutional moderating effects (Magee et al., 2019). Insurance firms operate across diverse regulatory environments and cultural contexts, making them particularly susceptible to institutional influences on governance effectiveness. Moreover, given insurers' role in managing systemic risks, understanding how institutional factors moderate board diversity's effectiveness becomes crucial for both firm-level governance and broader financial stability (Mühlnickel and Weiß, 2015).

National governance quality, representing formal institutional factors, can influence the effectiveness of CG mechanisms, including board diversity, by shaping how a country's regulatory frameworks, institutional transparency, and enforcement mechanisms work (Filatotchev et al., 2013). These institutions establish the boundaries within which boards operate, influencing how diversity-related dynamics unfold in corporate decision-making (Fields et al., 2012). Despite this theoretical importance, existing research has only examined the moderating effect of national governance quality on isolated aspects of board diversity, such as gender (Nguyen et al., 2021) or tenure (Phuong et al., 2022) on firm performance. This narrow focus neglects how national governance quality might interact with multiple dimensions of board diversity simultaneously in influencing risk-taking decisions, particularly critical in the insurance industry, where strong governance frameworks are essential for mitigating systemic risks.

Similarly, national culture, as an informal institutional factor, can shape the perceptions, preferences, and behaviours of financial decision-makers, including boards of directors, thereby influencing their decision-making outcomes (Ji et al., 2021). Cultural values and norms create an invisible but powerful framework that affects how diverse board members interact, share information, and make collective decisions (Mohsni et al., 2021). Drawing on Hofstede's (1980) cultural dimensions, research has shown that cultural characteristics influence firms' overall risk profiles (Gaganis et al., 2019; Kreiser et al., 2010). However, studies examining culture's moderating effect on board diversity have typically focused on single aspects like gender (Mohsni et al., 2021) or tenure (Ji et al., 2021) on firm performance. This approach fails to capture how cultural dimensions might interact with multiple aspects of board diversity in shaping risk-taking, particularly in the insurance industry, where risk decisions are central to operations.

Accordingly, the third paper of this thesis (Chapter 4) examines how both national governance quality and cultural dimensions moderate the relationship between multiple aspects of board

diversity and risk-taking in insurance firms. This investigation extends our understanding from the previous chapters by showing how the effectiveness of board diversity in risk management may vary across different institutional contexts. Understanding these moderating effects is crucial for developing more nuanced governance frameworks that account for institutional variations in an increasingly global insurance industry.

Overall, these identified research gaps motivated the three papers of this thesis, forming a cohesive investigation into the role of CG within the insurance industry. This progression begins with an overarching SLR, followed by focused empirical analyses of board diversity and its effects and concludes with an exploration of institutional influences on governance effectiveness.

1.3 Research aim and objectives

The overarching aim of this thesis is to provide a comprehensive understanding of CG within the insurance industry, with particular focus on how board diversity influences risk-taking across different institutional contexts. This thesis addresses critical gaps in the existing literature by providing a systematic and multidisciplinary evaluation of governance mechanisms and their institutional influences in the insurance sector from a global perspective.

To achieve this overarching aim, the thesis pursues three main objectives:

1. To systematically evaluate and synthesise the current state of knowledge about internal and external governance mechanisms and their effects in the insurance industry.
2. To empirically examine how multiple aspects of board diversity (gender, nationality, tenure, and age) influence risk-taking within insurance firms globally.
3. To investigate how institutional factors (national governance quality and national culture) moderate the relationship between board diversity and risk-taking.

These three objectives are addressed through interconnected research papers presented in Chapters 2, 3, and 4 respectively.

1.4 Thesis findings and contribution

1.4.1 Thesis findings

This thesis, through its three interconnected studies, yields significant findings about CG in the insurance industry.

The first paper (Chapter 2) conducts a systematic review of 130 peer-reviewed articles from 63 journals across more than 10 disciplines spanning over 40 years (1980 to 2021). This comprehensive analysis reveals several critical limitations in existing research. Theoretically, while agency theory dominates the literature, there is limited application of multi-theoretical frameworks and often insufficient clarity in theoretical underpinnings. Empirically, the review identifies significant gaps in the investigation of certain internal governance mechanisms, including state ownership, family ownership, foreign ownership, board diversity, finance and Shariah committees, and debt-based compensation. Similarly, external governance mechanisms, particularly Shariah law and external actuary oversight, have received limited attention. Methodologically, the review highlights substantial limitations in research approaches, including a scarcity of qualitative studies, inconsistent variable measurements, and limited cross-country studies and comparative analyses between conventional and Islamic insurers. These findings provide clear directions for future research opportunities in the field.

Building on the insights from the systematic review, the second paper (Chapter 3) examines the influence of board diversity on risk-taking within the insurance industry using an international dataset of 3,333 firm-years from publicly traded insurers across 44 countries over 2003–2019. The findings reveal that board diversity in terms of gender, nationality, and age demonstrates significant negative associations with both insurer insolvency and underwriting risk. However, the relationship between board tenure diversity and risk-taking shows mixed effects, with a significant negative association with insolvency risk but a significant positive association with underwriting risk. Further analysis uncovers the mechanisms through which diverse boards influence risk management, demonstrating that they tend to adopt more conservative investment and financial policies. Yet importantly, this conservative approach does not compromise financial returns. The robustness of these findings is supported by various checks, including alternative risk measures, model specifications addressing endogeneity, and analyses of gender quotas, tokenism, and critical mass theories. While these findings establish the importance of board diversity in insurer risk management, they also raise questions about how institutional contexts might affect this relationship.

The third paper (Chapter 4) extends these insights by examining how institutional factors moderate the relationship between board diversity and risk-taking. Using a global dataset of 3,187 firm-year observations from publicly listed insurers over a 17-year period and a composite board diversity index (encompassing gender, nationality, tenure, and age), the findings reveal that increased board diversity is associated with reduced insolvency and underwriting risk among insurance firms. The study further reveals significant moderating effects of institutional factors on this relationship. Specifically, strong national governance quality amplifies the risk-mitigating benefits of board diversity. Moreover, drawing on Hofstede's (1980) cultural dimensions, the study demonstrates that societies with high uncertainty avoidance strengthen the risk-reducing effects of board diversity, while cultures characterised by high individualism, power distance, and masculinity attenuate these benefits. These findings remain robust even when different measures and econometric models are employed to address potential issues. Additional analyses focused on the global financial crisis (2007-2009) reveal that the effectiveness of diverse boards in mitigating risk is especially pronounced during periods of economic stress.

Collectively, the findings of these three papers provide a comprehensive systematic review of the current state of CG research, demonstrate that board diversity plays a crucial role in insurer risk management, and reveal how this relationship is significantly shaped by institutional factors.

1.4.2 Thesis contributions

This thesis makes several contributions to the CG literature, extending beyond established findings and offering new insights into governance mechanisms within the insurance industry. Through three interconnected studies, it addresses critical gaps in theory, empirical research, and methodology, providing a more nuanced understanding of CG in this highly regulated and risk-sensitive sector.

The first paper (Chapter 2) contributes by presenting a comprehensive SLR of 130 peer-reviewed articles across multiple disciplines, offering a holistic examination of both internal and external governance mechanisms in the insurance industry. Unlike previous industry CG reviews that focused on specific governance aspects such as ownership and board structure (e.g., Boubakri, 2011), this SLR integrates a broader range of mechanisms, including managerial incentives, board committees, external audits, and the legal environment. It extends beyond typical mechanisms analysed in general CG reviews (e.g., Khatib et al., 2021; Yousaf

et al., 2024) by examining industry-specific tools such as actuarial functions, reinsurer oversight, Shariah compliance and regulatory capital requirements, contributing to a more nuanced understanding of how governance operates in specialised industry contexts.

Additionally, while earlier reviews in the insurance industry primarily concentrated on financial outcomes (e.g., O'Sullivan, 1998; Boubakri, 2011), this SLR synthesises research on a broader set of financial and non-financial outcomes, including earnings management, CSR, sustainability, and disclosure practices. This expanded perspective aligns with contemporary CG research trends (e.g., Eccles et al., 2014), addressing a critical gap in understanding governance mechanisms' influence on both firm operations and broader societal impacts.

The SLR also challenges the dominance of agency theory in governance research by incorporating multi-theoretical perspectives from economics, sociology, and psychology (e.g., Adams and Baker, 2021; Shaddady, 2021). In particular, it highlights the dual principal-agent relationship between shareholders, managers, and policyholders, a unique governance dynamic in the insurance industry that has been largely overlooked in traditional CG research. This interdisciplinary approach contributes to broadening the theoretical foundations of governance studies and responds to calls for context-sensitive governance frameworks (see Yousaf et al., 2024; Zattoni et al., 2023).

Furthermore, the SLR takes a global and cross-sectoral approach, examining both conventional and Islamic (takaful) insurance markets in both developed and developing countries. It addresses the limitations of previous reviews, which often focused on single countries and shorter timeframes (e.g., O'Sullivan, 1998; Boubakri, 2011; Schiehll and Martins, 2016). Spanning over four decades (1980–2021), this comprehensive review tracks the evolution of governance mechanisms, provides historical context for reforms, and identifies emerging trends while outlining future research directions. By incorporating Islamic insurance markets, the review brings attention to previously understudied Shariah governance mechanisms, extending its relevance to emerging markets and alternative financial systems (see Rubio-Misas, 2020).

Finally, unlike many CG reviews that primarily emphasise quantitative studies (e.g., Ballester et al., 2020; Daiser et al., 2017), this SLR adopts a pluralistic approach, advocating for the integration of diverse research methodologies (i.e., quantitative, qualitative, and mixed methods). This methodological inclusivity provides deeper insights into complex governance dynamics that may be difficult to capture through quantitative analysis alone.

The second paper (Chapter 3) significantly advances board diversity literature by addressing crucial gaps in industry-specific governance research. Moving beyond previous studies examining board diversity and risk-taking in non-financial firms, this paper provides novel insights into its role within the insurance sector. Responding to recent calls for sector-specific research on board diversity (e.g., Baker et al., 2020; Gardiner, 2022; Teodósio et al., 2021), particularly in financial institutions (e.g., Khatib et al., 2023; Khatib et al., 2021), the paper demonstrates that gender, nationality, and age diversity are consistently associated with lower insolvency and underwriting risks in insurance firms. These findings emphasise the importance of diverse boards in strengthening risk oversight, particularly in a highly regulated industry where risk management is fundamental to business operations.

The paper also presents a nuanced finding on tenure diversity, showing that while tenure-diverse boards reduce insolvency risk, they increase underwriting risk. This distinction suggests that tenure-diverse boards align on regulatory solvency requirements but exhibit different levels of risk tolerance in core business decisions. This finding contrasts with previous research in other industries, where tenure diversity has been generally linked to lower overall risk-taking (e.g., Ji et al., 2021; Mollah et al., 2021), highlighting how industry context shapes governance outcomes.

Additionally, this paper offers a fresh perspective by investigating how board diversity influences insurance-specific policies and performance measures. The findings indicate that diverse boards adopt more conservative investment and financial policies while maintaining profitability. This insight is particularly valuable for the insurance sector, where balancing risk management with returns is crucial. It extends prior research that has focused on general risk measures without exploring industry-specific mechanisms through which board diversity affects risk-taking (e.g., Adams and Baker, 2021; Jouber, 2024).

Furthermore, the paper contributes to CG reform discussions by examining mandatory gender quota regulations' impact on risk-taking in insurance firms (e.g., Ferrari et al., 2022; Eckbo et al., 2022). The finding that such quotas lead to reduced risk-taking provides novel evidence on diversity-focused policy interventions' effectiveness in financial industries, extending beyond prior work primarily assessing quotas' effects in other sectors and corporate outcomes (e.g., Alkhawaja et al., 2023; Yang et al., 2019). The study also explores tokenism versus critical mass effects, demonstrating that while a single female director helps reduce risk, the impact

strengthens significantly with three or more female directors, offering practical insights into optimal board composition for insurance firms.

Finally, while existing literature often examines board diversity and risk-taking within a single country (e.g., Abou-El-Sood, 2021; Bernile et al., 2018) or region (e.g., Arnaboldi et al., 2020; Farag and Mallin, 2017), this paper addresses calls for cross-country board diversity research (e.g., Baker et al., 2020; Teodósio et al., 2021). Using an international sample spanning 44 countries over 17 years, it provides unique evidence on how board diversity's impact on risk-taking varies across regulatory environments and market conditions. The persistence of diversity's risk-mitigating effects across institutional contexts underscores its importance for global insurers navigating complex regulatory landscapes.

The third paper (Chapter 4) contributes to the literature by exploring how institutional factors moderate board diversity and risk-taking relationships. The study advances measurement approaches in governance research by developing a composite board diversity index that integrates multiple dimensions—gender, nationality, tenure, and age (see Bernile et al., 2018). This holistic framework moves beyond traditional single-dimension analyses, providing deeper insights into the collective impact of diversity on governance outcomes. The findings reveal that the combined effects of multiple diversity dimensions surpass their individual impacts, highlighting the complementary nature of diverse board characteristics.

The study further enriches the understanding of how institutional environments influence the effectiveness of board diversity in risk management. Drawing on institutional theory, which posits that national governance quality shapes firm operations (Filatotchev et al., 2013), the findings demonstrate that governance quality moderates the relationship between board diversity and risk-taking. Specifically, strong governance environments amplify board diversity's benefits by fostering accountability, transparency, and independent decision-making, enhancing boards' ability to access risk-relevant information and exercise oversight. These findings extend prior research on governance variations across institutional settings (e.g., Aguilera and Jackson, 2010; Jackson, 2010; García-Meca et al., 2015), reinforcing that CG cannot follow a "one-size-fits-all" approach internationally (Nguyen et al., 2021). Instead, the study emphasises that board diversity's risk-mitigating effectiveness depends on governance quality, highlighting the need for tailored governance practices aligned with institutional environments.

Extending this perspective further, the study provides novel insights into the role of cultural dimensions in moderating board diversity's effectiveness in risk-taking. The findings reveal distinct patterns in how national culture shapes boardroom dynamics and risk management. High uncertainty avoidance enhances board diversity's risk-mitigating effects by promoting structured decision-making and comprehensive risk assessments. In contrast, individualism, power distance, and masculinity weaken these effects, as they can hinder collaborative oversight. These insights expand the literature on cultural influences in CG by detailing how informal institutions shape board effectiveness (e.g., Gaganis et al., 2019; Eljilany et al., 2023). The study underscores the importance of considering cultural context in governance practices, particularly for multinational firms aiming to optimise risk management across diverse environments.

Collectively, this thesis advances the CG field by bridging theoretical, empirical, and methodological gaps in the insurance industry and beyond. Its contributions offer a comprehensive and nuanced understanding of governance mechanisms, emphasising the critical role of board diversity and institutional contexts in shaping corporate outcomes. These findings offer valuable guidance for future research, policy development, and governance practices in the insurance sector and other highly regulated industries.

1.5 Thesis Structure

This thesis is organised into five chapters, starting with an introductory chapter (Chapter One), followed by three self-contained papers in Chapters Two, Three and Four, and concluding with a final chapter (Chapter Five) (see Figure 1.1).

Chapter One sets the stage for this thesis by introducing the research background and providing a comprehensive overview of its main content. It explains the rationale behind investigating the influence of CG, including board diversity and institutional factors in the insurance industry. The chapter also outlines the primary aims and objectives of the research, summarises the key findings, and discusses the contributions of the three included papers. Finally, it offers a detailed roadmap of the thesis structure, guiding readers through the organisation of the subsequent chapters.

Chapter Two is a systematic literature review paper. This chapter systematically reviews the theoretical perspectives and empirical evidence that investigate the impact of internal and

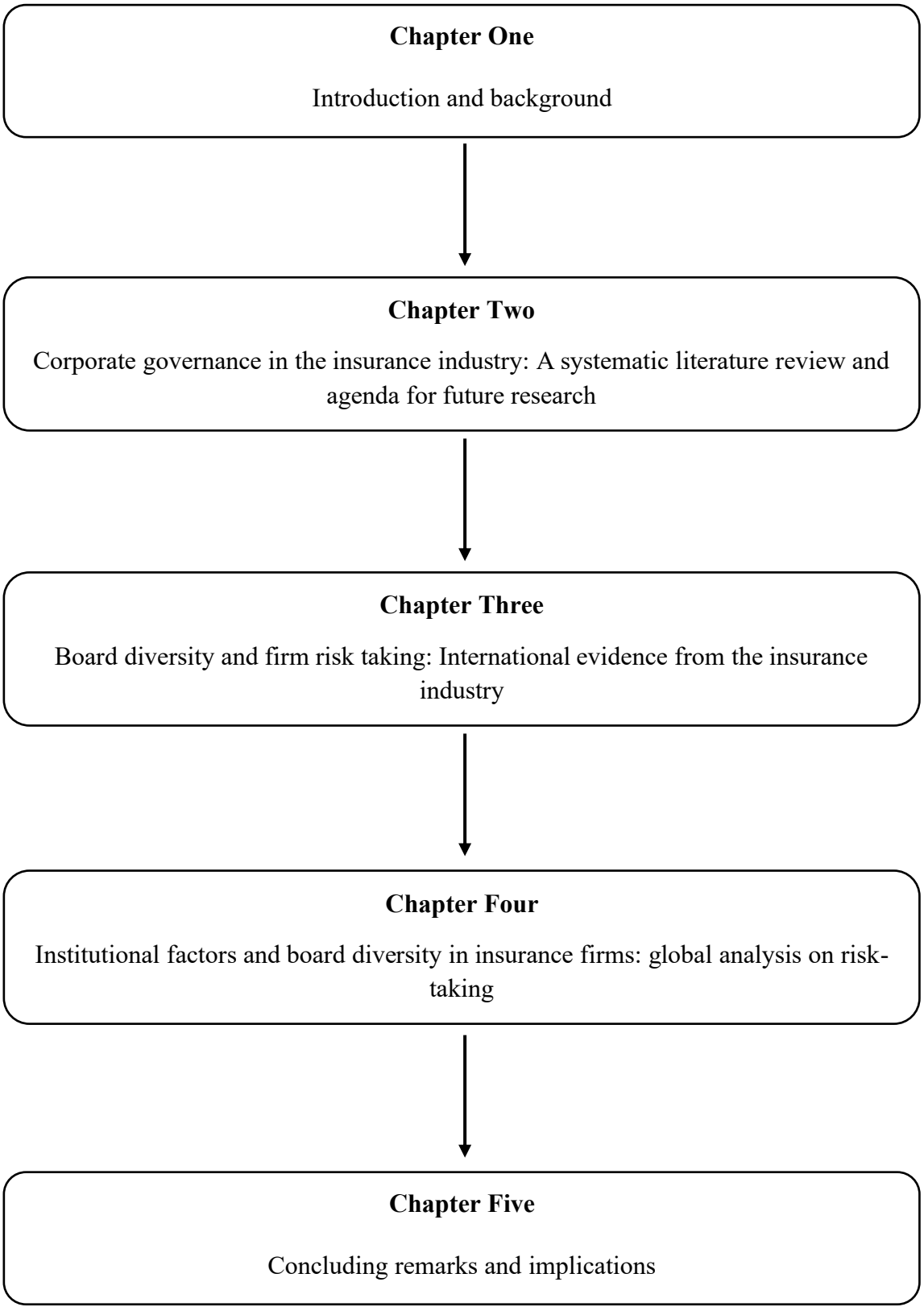
external CG mechanisms on a wide range of insurance firms' financial and non-financial outcomes. It also proposes various recommendations and avenues for future research to bridge the existing gaps in the current literature, thereby advancing our knowledge and understanding of the influence of CG in the insurance industry.

Chapter Three is the first empirical paper. This chapter investigates how multiple facets of board diversity (i.e., gender, nationality, tenure and age) influence two critical aspects of risk-taking in insurance firms: insolvency risk (i.e., financial risk) and underwriting risk (i.e., operational risk) on a global scale. Additionally, it examines the effectiveness of gender quota regulations in shaping risk-taking, analyses the mechanisms through which board diversity affects risk management, and assesses the implications for financial performance, based on a global dataset.

Chapter Four is the second empirical paper. This chapter completes the picture of how board diversity affects risk-taking by examining institutional moderating effects and considering board diversity collectively. Rather than examining separate aspects of diversity as in Chapter Three, this chapter constructs a composite board diversity index encompassing gender, nationality, tenure, and age. Through this integrated approach, it examines how national governance quality and national culture moderate the relationship between composite board diversity and risk-taking across different institutional contexts. This chapter further deepens the understanding of how board diversity operates within varying governance environments.

Chapter Five concludes the thesis by providing a comprehensive summary of findings and synthesising the insights gained from the three papers. It discusses the broader implications of the thesis for theory, practice, and policy, while highlighting its significance to CG research, particularly within the insurance industry. Additionally, the chapter acknowledges the limitations of the thesis and proposes potential avenues for future research to broaden our understanding and expand the existing body of knowledge within this area.

Figure 1.1 Thesis structure



Chapter 2: Corporate governance in the insurance industry: A systematic literature review and agenda for future research

Abstract

This paper provides a comprehensive review of the existing literature on the effects of corporate governance (CG) in the insurance industry. More precisely, it appraises, synthesises, and extends the current base of knowledge on the theoretical perspectives and empirical evidence pertaining to internal and external governance mechanisms and their effects on a broad set of outcomes of financial and non-financial insurance firms. A systematic literature review method was adopted to review 130 articles that were published in 63 journals in over 10 disciplines (e.g., finance, accounting, management, and economics) from January 1980 to October 2021. This paper finds that (a) the agency theory is the most widely applied theory in the reviewed CG literature in the insurance industry and that there is a lack of application of a multi-theoretical framework; and (b) a certain set of internal governance mechanisms have rarely been investigated in the literature: state, family, foreign ownership, board demographics and human capital characteristics, finance and Shariah committees, and debt-based compensation. Similarly, external governance mechanisms, Shariah law, and external actuary have received limited attention, (c) cross-country studies have been rare; and (d) methodological limitations in relation to the scarcity of qualitative studies, inconsistency and a lack of precision in certain variable measurements were identified. Finally, several opportunities for future research are outlined.

Keywords: Corporate governance, insurance industry, governance mechanisms, corporate outcomes, systematic literature review.

2.1 Introduction

2.1.1 The increasing awareness and importance of CG

Recent decades have witnessed a significant increase in CG research in the business and management fields (Farah et al., 2021). Public outrage over executive greed (Dorff, 2014), high-profile corporate scandals (Brown et al., 2011), the 2008 global financial crisis (Yousaf et al., 2024), and increasing concerns about sustainability (Kavadis et al., 2023) have underscored the importance of CG practices in both academic discourse and real-world application. The rapid evolution of global markets, technological advances, and shifting societal expectations have further heightened the relevance of CG across industries (Li and Singal, 2021; Post et al., 2020). As corporations face growing scrutiny from diverse stakeholders, including investors, regulators, and the public, effective governance has become crucial for balancing financial performance with ethical standards and sustainable practices (Aguilera et al., 2015; Ullah et al., 2022). Consequently, CG is increasingly recognised as essential for preserving stakeholder confidence and securing the long-term success of organisations (Claessens and Yurtoglu, 2013; Pandey et al., 2023).

This evolving focus on CG has led to the development of regulatory frameworks aimed at enhancing global business practices and governance structures (Wang and Hussainey, 2013). A landmark moment in this regard was the 1992 publication of the UK's Cadbury Code, which set the foundation for a global proliferation of CG codes and regulations (Cuomo et al., 2016). Among its key recommendations was the separation of the CEO and chairperson roles, emphasising balanced governance structures and reducing power concentration within corporate boards (Cadbury, 1992). Following major corporate scandals such as Barings Bank, BCCI, WorldCom, Enron, Parmalat and Polly Peck, there was a notable acceleration in the development of CG frameworks (Mardjono, 2005). The Sarbanes-Oxley Act of 2002 in the US serves as a prime example, introducing strict regulations on publicly listed companies regarding audit independence, internal controls and financial transparency to protect investors and enhance CG systems (Sarbanes, 2002). Similarly, the 2008 global financial crisis triggered another surge of CG reforms, targeting deficiencies revealed by the crisis (Boubakri, 2011). Researchers have since extensively investigated the impact of governance mechanisms on financial and non-financial performance, underscoring the complexity of CG issues and the ongoing need for regulation and academic inquiry (e.g., Agyei-Boapeah et al., 2019; Erhardt et al., 2003; Katmon et al., 2019; Phuong et al., 2022).

2.1.2 Recent developments in CG research

The concept of CG has evolved significantly over time, with scholars offering diverse perspectives on its fundamental nature. Shleifer and Vishny (1997, p. 737) provide a foundational definition, describing CG as the means by which "suppliers of finance to corporations assure themselves of getting a return on their investment." Expanding on this view, Denis (2001, p. 192) defines CG as "the set of institutional and market mechanisms that induce self-interested managers (the controllers) to maximise the value of the residual cash flows of the firm on behalf of its shareholders (the owners)." John and Senbet (1998, p. 372) further broaden the scope by emphasising the protection of all stakeholders, describing CG as the mechanisms through which "stakeholders of a corporation exercise control over corporate insiders and management such that their interests are protected."

Encompassing most definitions, governance mechanisms are typically classified into two categories: internal mechanisms, which operate within the firm, and external mechanisms, which influence governance dynamics from outside the firm (Brown et al., 2011). Internal mechanisms are designed to promote shareholder interests through active executive oversight and to align managerial and shareholder objectives (Walsh and Seward, 1990). A central internal mechanism is the ownership structure, which determines the extent of shareholder control over a corporation (Demsetz and Lehn, 1985). For instance, large shareholders, such as institutional investors or family owners, often have greater incentives and capabilities to monitor management compared to dispersed smaller shareholders (Cheng et al., 2017; Ma and Ren, 2021). However, recent research has expanded beyond traditional principal-agent conflicts to examine tensions between controlling and minority shareholders, reflecting increasingly complex ownership structures (Aguilera et al., 2016).

At the core of internal governance lies the board of directors, elected by shareholders to oversee management on their behalf. The board holds the authority, capability, and expertise to monitor and advise top management, making pivotal decisions regarding hiring, firing, and executive compensation (Fama and Jensen, 1983). Research has explored various aspects of board effectiveness, such as structure and composition, to assess the board’s ability to fulfil its responsibilities and foster robust governance practices (Akbar et al., 2017; Lu and Boateng, 2018). Supporting the board’s activities, specialised committees enhance oversight by focusing on key areas of governance. The audit committee ensures financial reporting integrity (Hsu et al., 2019), while the compensation committee designs incentive systems that align executive actions with shareholder objectives (Kallamu and Saat, 2015). Risk and nomination

committees provide additional oversight, promoting effective risk management and adherence to regulatory requirements (Ng et al., 2013; Alhossini et al., 2021).

Executive compensation policies, set by the board, represent another vital internal mechanism aimed at aligning management interests with those of shareholders (Eckles et al., 2011). Research generally focuses on outcome-based compensation, where managers are rewarded for achieving performance targets that benefit both shareholders and the firm (Chiu et al., 2016). Equity-based incentives, in particular, establish a direct link between managerial wealth and shareholder value (Grace, 2004). However, poorly designed compensation schemes may encourage excessive risk-taking (Boubakri, 2011) or lead to financial malfeasance (Prechel and Zheng, 2016).

On the other hand, external governance mechanisms function beyond the direct control of shareholders and boards but complement or substitute for internal mechanisms (Gillan, 2006). The legal and regulatory environment constitutes the foundation of these mechanisms, providing essential protections for shareholders and creditors while establishing enforceable frameworks to uphold these rights (La Porta et al., 2000). For instance, changes in state laws that permit firms to adopt antitakeover provisions have been shown to significantly affect shareholder wealth and takeover probabilities (Denis, 2001). Furthermore, variations in institutional contexts across nations profoundly influence governance practices, shaping ownership structures, stakeholder protections, and the overall effectiveness of governance mechanisms (Aguilera et al., 2015).

Stakeholder activism also serves as another crucial external mechanism. While the term ‘stakeholder activism’ has a broad definition, it generally refers to the external pressure that is exerted on companies by influential stakeholders intending to change the policies and practices of firms even if they have no ownership stake (Cole et al., 2011; De Bakker et al., 2013). Such activism has addressed issues ranging from executive compensation to environmental sustainability (Aguilera et al., 2015). Similarly, external auditors provide independent verification of financial statements and internal controls, serving as crucial external monitors (O’Sullivan and Diacon, 1999). Their role in enhancing the credibility of corporate disclosure and identifying governance weaknesses makes them essential to the overall governance framework. Researchers generally believe that auditor quality is linked to enhancing the quality of information disclosure. That big audit firms (as quality auditors) are likely to provide more stringent monitoring (Gaver and Paterson, 2001), and push companies to disclose more

information to reduce their legal liability and protect their reputation (Zureigat, 2011; DeAngelo, 1981).

The market for corporate control acts as a disciplinary mechanism by enabling takeovers of underperforming firms (Brown et al., 2011). This mechanism activates when firms' assets are undervalued due to poor management decisions, making them susceptible to acquisition by efficient buyers who aim to improve performance and asset productivity (Jensen, 1984; Cummins and Xie, 2009). Rating organisations complete the external governance framework by assessing firms' financial health and risk profiles. These assessments reduce information asymmetry between insiders and external stakeholders, influencing market perceptions and exerting pressure on management to maintain robust governance practices (Miao et al., 2014; Halek and Eckles, 2010). Ratings affect firms' access to capital and borrowing costs, further incentivising effective governance (Epermanis and Harrington, 2006). Together, these internal and external mechanisms create a comprehensive governance system, though their effectiveness depends on organisational, industry, and institutional contexts. Understanding their interplay is essential for implementing effective corporate oversight and ensuring responsible management.

The literature has employed various theoretical perspectives to examine how CG affects corporate performance. Agency theory, as a prominent framework, emphasises how CG aligns firm operations with shareholder interests, focusing on accountability mechanisms that reduce risks while empowering management to pursue value-maximising opportunities (Fama and Jensen, 1983; Lu and Boateng, 2018). However, this shareholder-centric view has been criticised for its narrow focus on shareholder interests, often neglecting other stakeholders' concerns (Daily et al., 2003). In response, alternative frameworks such as stakeholder and stewardship theories have broadened the scope and challenged some of agency theory's restrictive assumptions (Davis et al., 1997; Donaldson and Preston, 1995). Nonetheless, these alternatives lack a comprehensive framework that connects CG with the wider context of diverse organisational environments (Filatotchev and Boyd, 2009). For instance, while stakeholder theory offers valuable insights, it often struggles to reconcile competing priorities, such as balancing profitability with social responsibility (Mitchell et al., 1997). Reflecting this complexity, perspectives such as institutional theory have been applied, examining how external pressures—regulatory, normative, and cultural—shape governance practices and corporate legitimacy (North, 1990). Building on this, recent research has also expanded to include psychological and behavioural perspectives, focusing on how cognitive biases and

group dynamics influence decision-making (Hambrick et al.,1996; Harjoto et al., 2018). Overall, CG research has evolved from a narrow focus on agency theory to a more integrated, multi-theoretical approach, reflecting the complexity of governance and its impact on both financial and non-financial outcomes.

Empirical evidence supports this multi-faceted view of CG effectiveness. Research demonstrates that well-designed governance practices can enhance investor confidence (Fields et al., 2012), reduce agency costs (Jia, 2019), and improve financial performance (Sarhan et al., 2019). Adams and Jiang (2016) argue that effective CG fosters better decision-making and strategic alignment, ultimately leading to improved financial outcomes. For instance, board independence and diversity can strengthen oversight and risk management, promoting cost efficiency (Wang et al., 2007) and reducing the likelihood of financial distress (Ali et al., 2022). Beyond financial outcomes, there is growing recognition of the importance of non-financial factors in evaluating CG effectiveness. Recent studies show that sound governance promotes transparency (Han et al., 2018), ethical conduct (Kavadis et al., 2023), social responsibility (Katmon et al., 2019), and environmental sustainability (Ullah et al., 2022). These findings suggest that strong CG may not only enhance firms' financial performance by ensuring effective management and oversight, but it can also improve non-financial outcomes by strengthening stakeholder relationships and enhancing firm reputation.

Given the broader theoretical and empirical context of CG research, several themes have emerged over time. Building on the foundational perspective of agency theory, the field has significantly expanded and diversified. The initial shareholder-centric view, which focused on internal governance mechanisms such as ownership concentration, board structure, and managerial incentives, has gradually broadened to encompass a more comprehensive understanding of governance dynamics. As the field progressed, scholars began to explore a wider array of both internal and external governance mechanisms, enriching our understanding of CG. Internally, mechanisms now encompass aspects such as board diversity, committee structures, and risk management processes (e.g., Adams and Ferreira, 2009; Ames et al., 2018; Eckles et al., 2014). At the same time, attention has increased toward external mechanisms that enhance or replace internal governance, including regulatory requirements (Gaganis et al., 2015), external actuaries (Gaver and Paterson, 2001), and social movements (Aguilera et al., 2015). This evolution reflects a growing recognition of the complex interplay between various governance mechanisms and the need for a more holistic approach to understanding CG

effectiveness across different institutional contexts (Aguilera et al., 2008; Filatotchev et al., 2013).

2.1.3 Why the insurance industry matters

The insurance industry stands as a cornerstone of the global financial system, serving as a provider of risk management solutions and a major institutional investor that drives economic stability and growth (Eling and Jia, 2018). Insurance companies manage trillions of dollars in assets globally, investing across diverse markets and playing a crucial role in financing government projects, corporate expansions, and infrastructure developments (Apergis and Poufinas, 2020; Financial Stability Board, 2023). This extensive investment capability allows insurers to promote economic resilience and innovation, while their risk-bearing function enables businesses and individuals to pursue ventures that would otherwise be considered too risky (The Geneva Association, 2022; Liedtke, 2007).

This vast economic influence, inherent complexity and risk-intensive nature of the insurance sector amplifies the need for a robust CG system. Insurers manage highly technical risks, such as pricing future liabilities and assessing long-term risk exposures, creating information asymmetry, where management holds critical knowledge that external stakeholders—such as policyholders and regulators—may lack (Ma and Ren, 2021; Uyar et al., 2022). In this context, strong governance is essential for ensuring transparency, accountability, and alignment between management and stakeholders' interests. Beyond its economic significance and unique risk profile, the industry is subject to strict regulations mandating robust capital reserves, solvency margins, and risk disclosure requirements (Hsu et al., 2019). These regulations are designed to protect stakeholders and preserve financial stability, especially during periods of economic stress. Consequently, governance structures within insurance firms must prioritise not only profitability but also risk management and regulatory compliance.

The governance landscape is further complicated by the diversity of stakeholders involved, including policyholders, shareholders, regulators, and reinsurers, each with distinct and often conflicting objectives (Cole et al., 2011). For instance, while shareholders may push for profitability and high returns, policyholders expect financial security and timely claim payouts (O'Sullivan and Diacon, 2003). Effective CG helps navigate these conflicts by instituting checks and balances that align management decisions with the firm's long-term stability, thus

protecting all stakeholders. Adding to this complexity are the various organisational forms within the industry, such as stock insurers, mutual insurers, and Islamic takaful companies, all of which present unique governance challenges. For example, mutual insurers must reconcile the interests of policyholders, who are also owners, with management decisions, while takaful firms must adhere to Shariah governance principles, adding another layer of oversight (Karbhari et al., 2018; O'Sullivan, 1998). These structural variations necessitate governance frameworks tailored to the specific needs and risks of each type of insurer.

The 2008 global financial crisis exposed the fragility of CG in the insurance industry, with the collapse of major insurers such as AIG in the US and Yamato Life Insurance in Japan, revealing the far-reaching consequences of governance failures for the global financial system (Boubakri, 2011; Eling and Jia, 2018). These collapses were largely attributed to weak governance structures and inadequate oversight, spurring global reforms aimed at improving CG standards in the industry. Notable examples include Solvency II in Europe and the Corporate Governance Annual Disclosure (CGAD) Act in the US, both implemented in 2016 (Caporale et al., 2017; Li and Cheng, 2023). As a result, insurers face growing pressure to foster sound governance practices and efficiently manage corporate risks. Poor governance threatens financial stability, undermines public trust, and increases systemic risk, as witnessed in past crises (García-Meca et al., 2015). Strong CG is, therefore, essential—not only for safeguarding shareholder interests but also for protecting the broader financial system.

In conclusion, the critical role of the insurance industry in the global financial system, coupled with its unique governance challenges, underscores the importance of developing and implementing strong CG practices. As the sector continues to grow and evolve in response to new risks, regulatory changes, and global market dynamics, improving governance structures will be key to ensuring that insurance companies meet their obligations, protect stakeholders, and contribute to the overall stability of the global economy.

2.1.4 Motivation, aim and objectives

Although CG has been extensively explored in academic research, including several literature reviews (e.g., Abbasi et al., 2020; Aguilera et al., 2016; Alhossini et al., 2021; Asad et al., 2023; Barroso et al., 2011; Brown et al., 2011; Chiu et al., 2016; Farah et al., 2021; Kavadis and Thomsen, 2023; Lu et al., 2022; Nguyen et al., 2020; Pandey et al., 2023; Yousaf et al., 2024; Zattoni et al., 2023), significant gaps remain in understanding governance within specific

industries and regulatory frameworks. Industry context is crucial to shaping governance mechanisms, as it is tied to distinctive competitive dynamics, disruption risks, and profitability variations (McGahan and Porter, 1997). Specifically, previous reviews of CG in the insurance industry have been limited in scope, focusing on select governance aspects (e.g., ownership and board structures), a narrow range of outcomes (e.g., risk-taking), and specific countries (e.g., the US and UK) (Boubakri, 2011; O'Sullivan, 1998) or specialised markets (e.g., Islamic insurance) (Khan et al., 2020). Furthermore, these reviews were non-systematic, neglecting various theoretical perspectives and covering only a small set of past research from limited fields over a relatively short period[3]. Such limitations hinder a deeper understanding of CG's role in the insurance industry and its theoretical and empirical progression. While these contributions are valuable, they lack a comprehensive, systematic, and multidisciplinary approach to evaluating CG's effects in the insurance sector.

Additionally, reflecting global developments in the insurance industry, extensive research over the past few decades has explored a wide range of internal and external governance mechanisms and their effects on a broad set of financial and non-financial outcomes (e.g., Abdoush et al., 2022; Ames et al., 2018; Chen et al., 2023; Eastman et al., 2024; Fields et al., 2012; Grace, 2004; Hardwick et al., 2011; Hsu and Petchsakulwong, 2010; Kwon, 2013; Li and Cheng, 2023; Magee et al., 2019; Shaddady, 2021). While this substantial body of research reaffirms various pre-existing themes, the CG literature on the insurance industry presents mixed and often inconclusive results[4]. Given the limitations of prior literature reviews, the growing research interest, and the lack of conclusive findings, an up-to-date systematic literature review (SLR) on the effects of CG in the insurance industry is necessary. Such an SLR would provide a comprehensive analysis of the existing research, offer insights into the current state of knowledge, identify gaps in understanding, and highlight areas necessitating further investigation.

To the best of the author's knowledge, no SLR has provided a comprehensive view of CG mechanisms' effects on the insurance industry, and this gap serves as a key motivation for this study. Therefore, this paper aims to synthesise, appraise and extend the current base of

[3] Non-systematic reviews, unlike SLR, are more susceptible to unintentional bias from researchers and frequently lack the comprehensive scope necessary to accurately interpret and represent study findings, potentially leading to misunderstandings or errors in synthesising the collected research (Roberts et al., 2006).

[4] For example, while Alhassan et al. (2020) found that larger board sizes enhance financial performance, Hemrit (2020) reported contrasting results. These conflicting findings can impede knowledge advancement and may not provide stakeholders with clear, actionable guidance (Li and Singal, 2021).

knowledge about the effect of CG on the financial and non-financial outcomes of insurance firms in a systematic and comprehensive manner. To achieve this aim, this paper seeks to answer the following two research questions:

- **RQ1:** What effect does the CG of firms in the insurance industry have on firms' financial and non-financial outcomes?
- **RQ2:** What theoretical perspectives, trends and themes emerge in this research area?

In addressing these questions, this paper presents several findings. First, a set of internal governance mechanisms – insider, block and institutional ownership, traditional board characteristics, audit and risk committees and cash- and equity-based compensation – has been widely investigated in the literature. By contrast, state, family and foreign ownership, board diversity, other board committees and debt-based compensation remain underexamined. External CG mechanisms – such as regulatory requirements and external audits – have been extensively examined, whereas Shariah law and external actuaries have received limited attention. Second, a group of corporate outcomes – accounting and market-based financial performance (e.g., ROA and abnormal returns), risk-taking (e.g., systemic and idiosyncratic risk) and firm efficiency (i.e., cost efficiency) – has been substantially investigated. Conversely, less attention has been paid to the impact of such CG mechanisms on several other corporate outcomes, such as premium and investment profitability, operational risk, CSR and firm disclosure. Third, agency theory was the most frequently applied theory in the reviewed studies. However, many of the sampled studies lacked clarity with respect to the theoretical framework and application of multi-theoretical perspectives. Fourth, most studies have been conducted in a single country, with the United States being the focus of most research, and cross-country studies being rare. Moreover, few studies have examined CG's effects on conventional and Islamic insurance firms from a comparative perspective. Fifth, predominantly quantitative methods have been used, and only a limited number of the sampled papers employed qualitative methods. Finally, methodological limitations in relation to inconsistency and a lack of precision of some variable measurements were identified.

2.1.5 Contributions

This SLR makes several contributions that address gaps in the insurance industry literature and extend beyond what has been established by reviews outside the insurance industry. First, this SLR provides a holistic examination of both internal and external governance mechanisms in

the insurance industry, addressing a significant gap in the literature by reviewing 130 peer-reviewed articles from 63 journals in more than 10 disciplines (e.g., finance, accounting, management and economics). Unlike previous industry CG reviews that focused on specific governance aspects such as ownership and board structure (e.g., Boubakri, 2011), this SLR integrates a wide range of mechanisms including managerial incentives, board committees, external audits, and the legal environment. This broader scope surpasses what has been covered in the insurance sector and expands the discussion beyond the typical mechanisms analysed in other industries and general CG reviews (e.g., Khatib et al., 2021; Yousaf et al., 2024). For instance, it examines the governance role of actuarial functions, reinsurer oversight, Shariah compliance and regulatory capital requirements. This focus on sector-specific governance tools provides insights that are not captured in broader reviews, contributing to a more nuanced understanding of how governance operates in specialised industry contexts.

Second, while previous reviews in the insurance industry primarily concentrated on financial aspects (e.g., O'Sullivan, 1998; Boubakri, 2011), this SLR synthesises research on a broad spectrum of outcomes. It goes beyond traditional financial performance and risk-taking measures to include diverse financial and non-financial outcomes such as earnings management, CSR, sustainability, cost efficiency and disclosure practices. This expanded perspective aligns with contemporary trends in the wider CG literature, which increasingly emphasises sustainability, stakeholder engagement, and the role of governance in achieving multifaceted corporate objectives (e.g., Eccles et al., 2014). By doing so, this review addresses a critical gap in our understanding of how governance mechanisms influence the full range of insurance firm activities and their broader societal impacts.

Third, this SLR presents a multi-theoretical perspective on CG in the insurance industry, addressing the limitation of over-reliance on agency theory noted in previous studies. It incorporates newer perspectives from a broad range of economics, sociology and psychology, providing a foundation for more nuanced and context-specific theory development (e.g., Adams and Baker, 2021; Shaddady, 2021). This approach broadens the explanatory power of the review and addresses the theoretical narrowness that has constrained previous research. For instance, this review examines the dual principal-agent relationship unique to the insurance sector—between shareholders and managers, and between policyholders and the firm (e.g., O'Sullivan and Diacon, 2003). This dynamic, particularly prominent in mutual and takaful (Islamic) insurers, introduces new perspectives on stakeholder complexity in governance that are not typically addressed in general CG reviews.

Fourth, earlier reviews of CG in insurance have been limited to single-country studies, primarily the US and the UK (e.g., O'Sullivan, 1998; Boubakri, 2011). This SLR, by contrast, takes a global approach, covering studies across both developed and developing countries, as well as conventional insurance sectors alongside Islamic insurance markets (i.e., takaful). This global and cross-sectoral approach addresses a significant gap in the literature by offering insights into how cultural, regulatory, and market differences influence governance outcomes across various geographic and economic settings. Additionally, by including Islamic insurance markets, the review brings attention to Shariah governance mechanisms and their impact, which is a largely neglected area in wider CG literature. This makes the SLR relevant not only to mainstream insurance firms but also to emerging markets and alternative financial systems.

Furthermore, and distinct from prior reviews that have typically covered shorter time periods and fewer studies (e.g., Schiehll and Martins, 2016), this SLR offers a longitudinal perspective, spanning more than four decades (1980–2021). It tracks how governance mechanisms have evolved over the years, allowing the review to capture the dynamic nature of governance issues, provide historical context for governance reforms, identify emerging governance trends, and offer a comprehensive depth that enriches the CG literature..

Fifth, unlike most CG reviews, both within and outside the insurance industry, which primarily focus on quantitative studies (e.g., Ballester et al., 2020; Daiser et al., 2017), this SLR incorporates diverse methodological perspectives. By adopting a pluralistic approach, this review advocates for the use of various methods (i.e., quantitative, qualitative, and mixed methods) to gain deeper insights into complex governance dynamics that are difficult to capture through quantitative analysis alone. This advancement fills a gap in insurance governance and broadly enhances CG studies, promoting more comprehensive and robust findings.

Finally, the findings of this SLR directly motivate the subsequent empirical chapters of this thesis. Specifically, Chapter 3 addresses the identified gap regarding board diversity in insurance firms by examining how board diversity aspects (i.e., gender, nationality, tenure and age) influence insurance firms' risk-taking. This addresses the limited attention paid to board diversity noted in this review and responds to the methodological limitations identified regarding the measurement of board characteristics. Chapter 4 completes the picture of how board diversity affects risk-taking by integrating the potential moderation effect of national governance quality and national culture among insurance firms. This cross-country study addresses the lack of comparative research on how institutional contexts shape governance

effectiveness in the insurance industry. Together, these empirical chapters contribute to a more comprehensive understanding of how board diversity mechanisms operate within the unique context of insurance firms while accounting for the broader institutional environment in which these firms operate.

The remainder of this paper proceeds as follows. It begins with a methodology section, followed by descriptive findings. It then features a review of the theoretical perspectives and empirical evidence and concludes with a discussion of research limitations and avenues for future research.

2.2 Methodology

This paper applies a systematic literature review (SLR) as a methodological approach to answer the research questions stated in the introduction section. The adopted SLR approach involved predefined criteria for inclusion, exclusion and justification when appraising and synthesising the literature (Moher et al., 2009). As a result, the risk of introducing the author biases' in sample selection is reduced, and the scientific replicability, transparency and reliability of the research can be ensured (Cook et al., 1997; Higgins et al., 2019). Following the SLR methodology suggested by Tranfield et al. (2003) and as adopted by several previous SLRs (e.g., Farah et al., 2021; Alhossini et al., 2021; Nguyen et al., 2020; Li et al., 2018), **a three-step** approach was conducted: identifying relevant databases and search terms, applying inclusion and exclusion criteria to the search results, and analysing the final sample.

The first step was the selection of databases and search terms. This paper used databases with diverse research coverage in the social sciences, global reach and quality of publications. Specifically, it used three databases: Scopus, Web of Science, and Business Source Premium (EBSCO). These databases have been commonly employed in previous SLR of CG (e.g., Farah et al., 2021; Alhossini et al., 2021; Nguyen et al., 2020; Li et al., 2018; McNulty et al., 2013). The identification of search terms relating to CG involved the preliminary review and evaluation of a wide range of publications on the topic. This assessment required surveying previous reviews on CG and the relevant articles cited therein, including those on the insurance industry (Boubakri, 2011; Khan et al., 2020; O'Sullivan, 1998), on CG in general (e.g., Bebchuk and Weisbach, 2010; Brennan and Solomon, 2008; Bushman and Smith, 2001; Denis, 2001; Shleifer and Vishny, 1997) and on internal and external CG mechanisms (e.g., Aguilera

et al., 2015; Brown et al., 2011; Gillan, 2006). It also incorporated stand-alone studies on CG in the insurance industry published in highly ranked and well-cited journals (e.g., Eling and Marek, 2014; Beasley and Petroni, 2001; Boubakri et al., 2008; O'Sullivan and Diacon, 2003; Ho et al., 2013; O'Sullivan and Diacon, 1999; Cole et al. 2011). This procedure for selecting search terms has been applied in previous SLRs on CG (e.g., Farah et al., 2021; Aguilera et al., 2019; Khatib et al., 2021).

Therefore, a set of keywords related to CG that appeared most frequent in the literature along with terms related to the insurance industry were added to the search strings. However, terms related to financial and non-financial outcomes were not included to minimise the possibility of losing key studies that examine less common outcomes. **Appendix 2.1** details the search terms (governance mechanisms and insurance industry) and justifications. **Table 2.1** presents the search terms included in the search strings.

Table 2.1 Search strings used in this paper.

Governance Mechanisms	**Keywords and Search Strings**
Corporate Governance	("Corporate governance") OR ("Governance mechanism*") OR ("Governance practice*") AND ("Insurance") OR ("Insurer*") OR ("Takaful")
Ownership Structure	("Institution* ownership") OR ("Ownership concentration*") OR ("Shareholder* Ownership") OR ("Foreign* ownership") OR ("Insider* ownership") OR ("Managerial ownership") OR ("Stock* ownership") AND ("Insurance") OR ("Insurer*") OR ("Takaful")
Board of Directors	("Board* of director*") OR ("Board* structure*") OR ("Board* characteristic*") OR ("Board* composition*") OR ("Boardroom*") OR ("Supervisor* board*") OR ("Board* diversity") OR ("Board* size*") OR ("Board* independ*") OR ("Outside* director*") OR ("CEO* duality") AND ("Insurance") OR ("Insurer*") OR ("Takaful")
Board Committees	("Audit* committee*") OR ("Compensation* committee*") OR ("Remuneration* committee*") OR ("Nomination* committee*") OR ("Risk committee*") OR ("Risk management committee*") OR ("Risk-management committee*") OR ("Finance committee*") OR ("Internal control*") AND ("Insurance") OR ("Insurer*") OR ("Takaful")
Managerial Incentives	("Managerial incentive*") OR ("Executive* compensation*") OR ("Managerial compensation*") OR ("Executive* remuneration*") OR ("Managerial remuneration*") OR ("CEO* compensation*") OR ("CEO* remuneration*") OR ("CEO* pay*") OR ("CEO* bonus") OR ("CEO* salar*") OR ("Stock* option*") AND ("Insurance") OR ("Insurer*") OR ("Takaful")
Legal Environment	("Investor* protection*") OR ("Investor* right*") OR ("Shareholder* protection*") OR ("Shareholder* right*") AND ("Insurance") OR ("Insurer*") OR ("Takaful")
Market for Corporate Control	("Corporate control") OR ("Takeover*") AND ("Insurance") OR ("Insurer*") OR ("Takaful")

External Audit	("External audit*") OR ("Audit* independence") OR ("Audit* quality") AND ("Insurance") OR ("Insurer*") OR ("Takaful")
Stakeholder Activism	("Stakeholder* activism") OR ("External monitor*") AND ("Insurance") OR ("Insurer*") OR ("Takaful")
Rating Organisations	("Rating* organisation*") OR ("Rating* agenc*") OR ("Financial analyst*") OR ("Stock analyst*") AND ("Insurance") OR ("Insurer*") OR ("Takaful")

The second step was the application of inclusion and exclusion criteria to the body of articles resulting from these search strings, a process involving five stages. First, the search was limited to those articles published in peer-reviewed journals, as such articles are regarded as reliable sources of knowledge with impactful contributions (Podsakoff et al., 2005). The publication date range spanned from January 1980, when articles on this topic regularly started appearing in the literature, to October 2021. Only articles written in English and containing the search terms in their title, abstract or keywords were included. Having applied these inclusion criteria, **2,419** articles were returned from the search. Second, to remove duplicates, the articles were exported to Endnote software for processing, resulting in a sample of **1,758** articles. Some duplicate articles were not recognised by Endnote because their titles differed slightly between databases. Therefore, further processing was conducted to remove duplicates, resulting in a sample of **1,544** articles.

Following previous review papers on CG (Farah et al., 2021; Alhossini et al., 2021; Ibrahim et al., 2021), and to ensure that high-quality articles were reviewed, this paper included articles from journals listed in the Association of Business Schools (ABS) ranking guide (2021). The application of this criterion resulted in a sample of **771** articles. Third, a set of exclusion criteria was developed to be consistent with the aim of the paper, which is to conduct a systematic review of the literature on the effect of CG on firms' financial and non-financial outcomes in the insurance industry. **Table 2.2** presents the inclusion and exclusion criteria applied in selecting the articles included for the SLR in this paper.

Table 2.2 Inclusion and exclusion criteria.

Inclusion Criteria	*Article sampling **included** the following:*
Databases	• All peer-reviewed journal articles. • Articles published from January 1980 to October 2021. • Articles written in English. • Search terms appearing in the title, abstract or keywords.

Quality assessment	• Only peer-reviewed journals in line with the ABS quality ranking.
Cross-referencing identification of articles	• Articles cited in the sampled articles and closely related to the study topic.
Exclusion Criteria	*Article sampling **excluded** the following:*
First Exclusion Criterion	• Articles that examined CG mechanisms in firms whose principal operations are not insurance.
Second Exclusion Criterion	• Articles in the insurance industry that mentioned CG in the implications section without including any hypothesis testing of variables related to CG mechanisms.
Third Exclusion Criterion	• Editorial articles, chapters from edited books, conceptual articles, commentaries, and conference papers.

Fourth, a quick read-through of all **771** selected articles' abstracts was conducted; if necessary, the whole paper (e.g., including the sample section of the paper) was screened to determine which articles to exclude based on the exclusion criteria. For example, articles that examined CG mechanisms without including insurance firms in their examination (e.g., studies that examined CG mechanisms in relation to deposit insurance schemes for the banking sector [e.g., LaFond and You, 2010; Angkinand and Wihlborg, 2010], liability insurance for board of directors (BODs) [e.g., Chang and Chen, 2018; Nwaeze and Kalelkar, 2014] and liability insurance for auditors in other sectors [e.g., Read et al., 2004; Kang et al., 2019]) were excluded. Similarly, articles that examined CG mechanisms but explicitly mentioned that the insurance industry was an exception to the study (e.g., Alhussayen et al., 2020; Alnori, 2020) were excluded. Additionally, articles that examined CG mechanisms in other industries but considered insurance companies to be firms' stakeholders or block holders (e.g., Ali and Hashmi, 2018; Devos et al., 2013) were excluded. After the sample was screened against the exclusion criteria, **126** articles remained.

Finally, during the reading stage, four articles cited in the sampled articles and closely related to the study topic were identified. These four articles were not captured during the article search and inclusion/exclusion stages for various reasons. For example, an article may not have an abstract, or the article does not mention CG words but examined CG variables. As a result, a final sample of **130** articles was exported to Excel and NVivo for coding and sorting into manageable categories. The stages of applying the inclusion and exclusion criteria are outlined in **Figure 2.1**, which lists the number of articles included and excluded before arriving at the final sample.

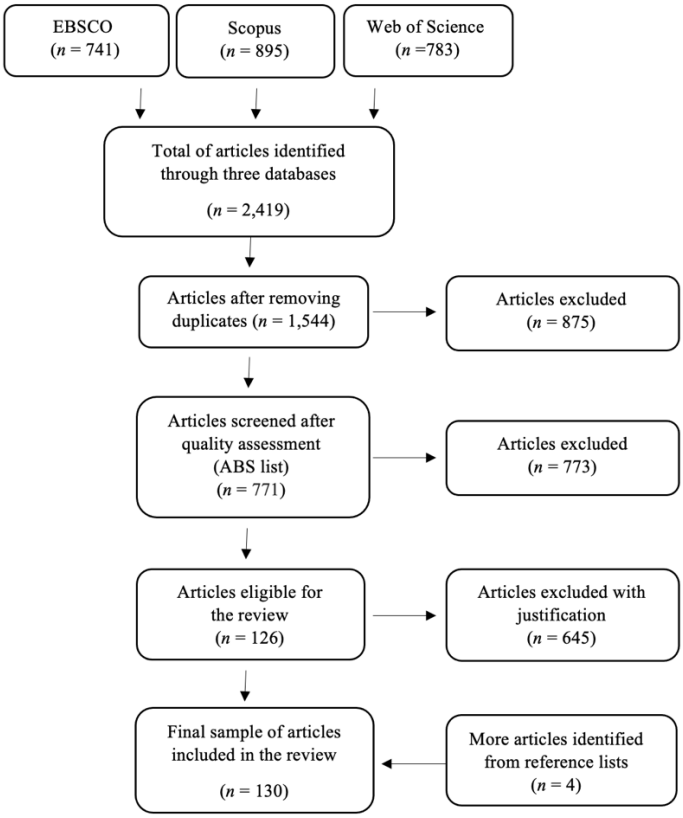


Figure 2.1 Sample selection stages.

The third step is the data analysis, which involved exporting the final sample of articles into Excel for categorisation, coding, and sorting so that content analysis of the collected literature could be conducted. Each article was carefully read, coded, and sorted into categories based on the (a) descriptive information (i.e., year published, author name, research method, country context, theoretical lens, purpose or research question, sample description, key findings, journal name, field, and ranking), (b) governance mechanism examined (e.g., ownership structure, BODs), (c) insurance industry characteristics (i.e., structure examined, market investigated), and (d) whether financial and non-financial corporate outcomes were examined (e.g., risk-taking, CSR). This categorisation provided the foundation for identifying and exploration of the themes in the existing literature on CG within the insurance industry.

As a result of this analysis, three major themes were identified: internal CG mechanisms, external CG mechanisms, and effects of CG on insurance firms' financial and non-financial outcomes. Furthermore, sub-themes were identified based on the characteristics of particular CG mechanisms and the corporate outcomes examined. As many CG mechanisms were

examined in the literature, these sub-themes were further sub-divided into multiple categories. For example, *'insider ownership'* was categorised under the *'ownership structure'*, a sub-theme of the major theme *'internal CG mechanisms'*, and *'Shariah law'* was categorised under the *'legal environment'* sub-theme of the major theme *'external CG mechanisms'*. This categorisation approach was inspired by prior studies in the CG field (e.g., Gillan, 2006; Brown *et al.*, 2011; Aguilera *et al.*, 2015). **Figure 2.2** below shows the framework developed to illustrate the CG mechanisms and their effect on corporate outcomes of insurance firms.

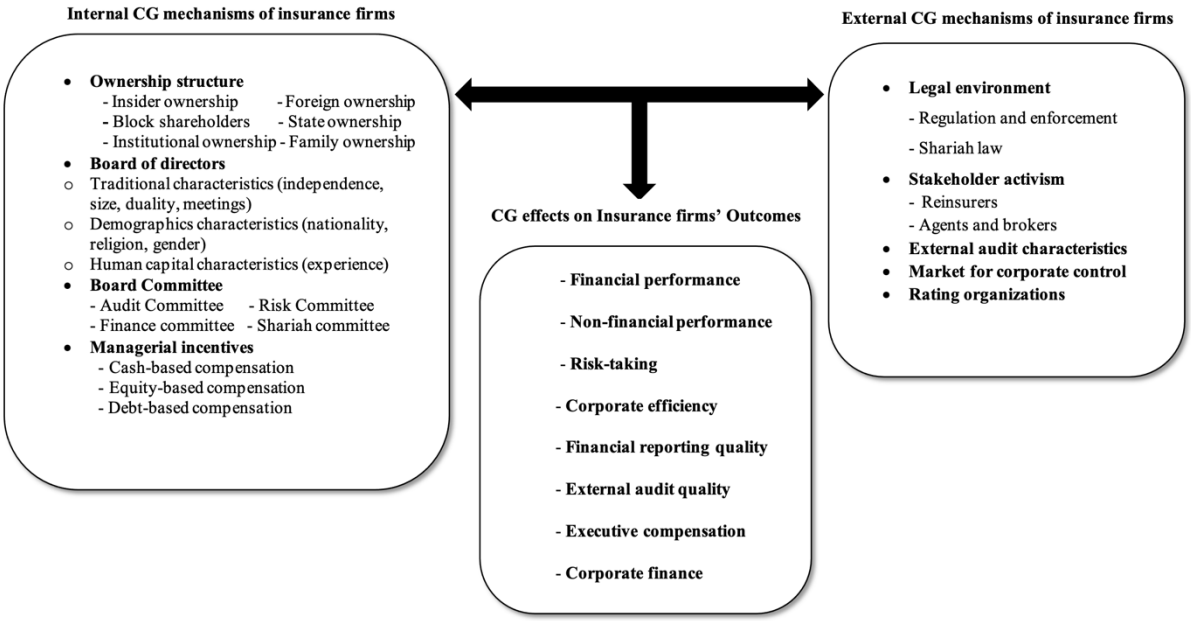


Figure 2.2 Framework illustrating CG mechanisms and effects on insurance firms' outcomes.

Once the articles' categorisation, coding and sorting were completed, themes and sub-themes were analysed to identify trends (e.g., findings regarding CG mechanisms). This process also involved further analysis to identify the limitations of the articles (i.e., theoretical, sample, empirical, methodological) and gaps in the research. This process of content analysis helped the researcher identify the articles' characteristics (i.e., year published, geographical reach, journal rankings, name, field and research approach), as will be shown in the section of descriptive findings in this paper and laid the foundation for discussion of the current literature, including its theories, trends, limitations and gaps.

2.3 Descriptive findings

2.3.1 Number of articles by year of publication

The sample of articles begins in the 1990s and encompasses the first wave of interest in CG in the insurance industry in the late 1990s and early 2000s. The second surge of growth was observed in the period of 2005–2007 after the introduction of the Sarbanes-Oxley Act in the United States and similar regulations worldwide that intended to improve CG practices (Akhigbe and Martin, 2006). The next major peak occurred in 2011 during the aftermath of the 2008 financial crisis. The popularity of CG issues and mechanisms was reignited in 2020–2021 during the COVID-19 pandemic. These trends suggest that the research into CG gains more attention during crises in the insurance industry, as it is more relevant and urgent at these times. **Chart 2.1** below shows the number of articles in the sample by year of publication.

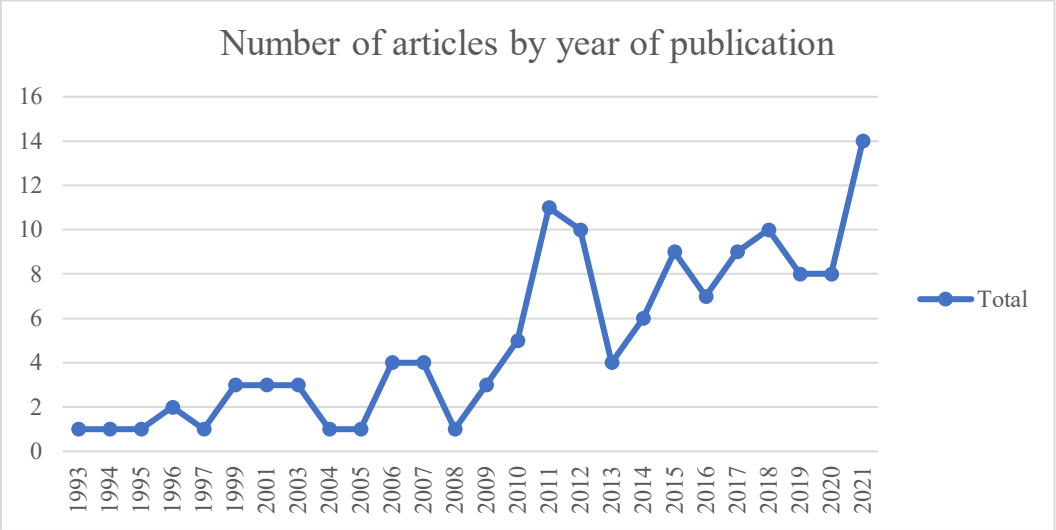


Chart 2.1 Number of articles by year of publication.

2.3.2 Number of articles by journal, field and ranking

The reviewed articles were drawn from 63 journals in 11 disciplines. The majority of the journals were in the field of finance (79 articles), followed by accounting (29 articles). Other subject fields were general management, ethics, gender and social responsibility (7 articles); economics, econometrics and statistics (6 articles); operations and technology management (2 articles); operations research and management science (2 articles); human resource management and employment studies (1 article); innovation (1 article); international business and area studies (1 article); regional studies, planning and environment (1 article); and social

sciences (1 article). The largest number of articles was retrieved from three journals: *the Journal of Risk and Insurance* (28 articles), the *Geneva Papers on Risk and Insurance: Issues and Practice* (11 articles) and the *Journal of Banking and Finance* (10 articles). These journals have an ABS ranking of two or three. Overall, most journals included in the review have an ABS ranking of three (62 articles). There are also 11 articles listed in top rated journals (ranked 4 and 4*). **Table 2.3** below provides a list of journals included in the review, along with their field and ranks based on the ABS guidance. The journals are grouped by area of research.

	Journal Rank (ABS)					
Journal Subject Area and Title	**1**	**2**	**3**	**4**	**4***	**Total**
Accounting	**5**	**8**	**10**	**1**	**5**	**29**
Accounting and Business Research			1			1
Asian Review of Accounting		1				1
Auditing: A Journal of Practice and Theory			3			3
British Accounting Review			1			1
Contemporary Accounting Research				1		1
International Journal of Accounting and Information Management		2				2
International Journal of Accounting, Auditing and Performance Evaluation		1				1
International Journal of Auditing		1				1
Journal of Accounting and Economics					2	2
Journal of Accounting and Organizational Change		1				1
Journal of Accounting and Public Policy			2			2
Journal of Accounting Research					3	3
Journal of Accounting, Auditing and Finance			1			1
Journal of Business Finance and Accounting			1			1
Journal of International Accounting, Auditing and Taxation			1			1
Journal of International Financial Management and Accounting		1				1
Journal of Islamic Accounting and Business Research	4					4
Managerial Auditing Journal		1				1
Pacific Accounting Review	1					1
Economics, Econometrics and Statistics		**5**	**1**			**6**
European Economic Review			1			1
The Geneva Risk and Insurance Review		1				1
International Review of Law and Economics		1				1
North American Journal of Economics and Finance		2				2
Quarterly Review of Economics and Finance		1				1
Finance	**11**	**19**	**47**	**1**	**1**	**79**
Applied Financial Economics		1				1
Corporate Governance (Bingley)		1				1

Corporate Governance: An International Review			1		1
Emerging Markets Finance and Trade		1			1
Finance Research Letters		1			1
Financial Management			1		1
Geneva Papers on Risk and Insurance: Issues and Practice		11			11
International Journal of Banking, Accounting and Finance		1			1
International Journal of Islamic and Middle Eastern Finance and Management	2				2
International Review of Financial Analysis			2		2
Journal of Banking and Finance			10		10
Journal of Finance				1	1
Journal of Financial Reporting and Accounting	3				3
Journal of Financial Services Research			1		1
Journal of Financial Stability			1		1
Journal of International Financial Markets, Institutions and Money			1		1
Journal of Money, Credit and Banking				1	1
Journal of Risk and Insurance			28		28
Journal of Risk Finance	2				2
Journal of Sustainable Finance and Investment	1				1
Managerial Finance	3				3
North American Actuarial Journal		2			2
Pacific-Basin Finance Journal		1			1
Review of Quantitative Finance and Accounting			2		2
General Management, Ethics, Gender and Social Responsibility	**3**		**1**	**3**	**7**
British Journal of Management				2	2
Business Ethics Quarterly				1	1
Cogent Business and Management	1				1
Journal of Business Research			1		1
Journal of Management and Governance	1				1
Vision: The Journal of Business Perspective	1				1
Human Resource Management and Employment Studies	**1**				**1**
International Journal of Learning and Intellectual Capital	1				1
Innovation	**1**				**1**
International Journal of Business Innovation and Research	1				1
International Business and Area Studies	**1**				**1**
International Journal of Emerging Markets	1				1
Operations and Technology Management	**1**	**1**			**2**
International Journal of Engineering Business Management	1				1
Total Quality Management and Business Excellence		1			1
Operations Research and Management Science			**2**		**2**
Journal of the Operational Research Society			1		1
Omega: The International Journal of Management Science			1		1
Regional Studies, Planning and Environment	**1**				**1**

Corporate Social Responsibility and Environmental Management	1					1
Social Sciences			**1**			**1**
British Journal of Sociology			1			1
Total	**24**	**33**	**62**	**5**	**6**	**130**

Table 2.3 Number of articles by journal fields and ranking.

2.3.3 Number of articles by geographical region

Most of the articles covered in this review focused on a single country (109 articles, or 84% of the sample). Among these single-country studies, the majority were conducted in the context of the United States (62 articles, or 48%) and the United Kingdom (15 articles, or 12%). Thus, the most researched geographic region is North America (63 articles, or 48%), followed by Asia and Pacific countries (23 articles, or 18%) and Europe (18 articles, or 14%). Cross-country studies constituted only 16% of the sample (21 articles). **Table 2.4** below provides a breakdown of the studies by geographical region.

Country	Total	No. of Articles	Country	Total	No. of Articles
Single-country studies	**109**				
Asia and Pacific	**23**		**Africa**	**5**	
Bangladesh		1	Kenya		1
China		3	South Africa		3
Jordan		1	Tunisia		1
Malaysia		7			
New Zealand		1	**Europe**	**18**	
Pakistan		1	Croatia		1
Saudi Arabia		3	Germany		1
Syria		1	Netherlands		1
Taiwan		3	UK		15
Thailand		1			
United Arab Emirates		1			
North America	**63**				
Canada		1			
US		62			
Cross-country studies	**21**				

Cross developed & developing countries	8
Cross developed countries	5
Cross developing countries	8
Total	**130**

Table 2.4 Number of articles by geographical region.

2.3.4 Number of articles by research method type

The majority of the 130 reviewed journal articles adopted quantitative research methods. There are 126 articles employing quantitative methods, comprising 97% of the sample, while qualitative studies account for only 3%. The total number of qualitative studies included in the review is four. **Chart 2.2** below provides a breakdown of the reviewed studies by the type of method used.

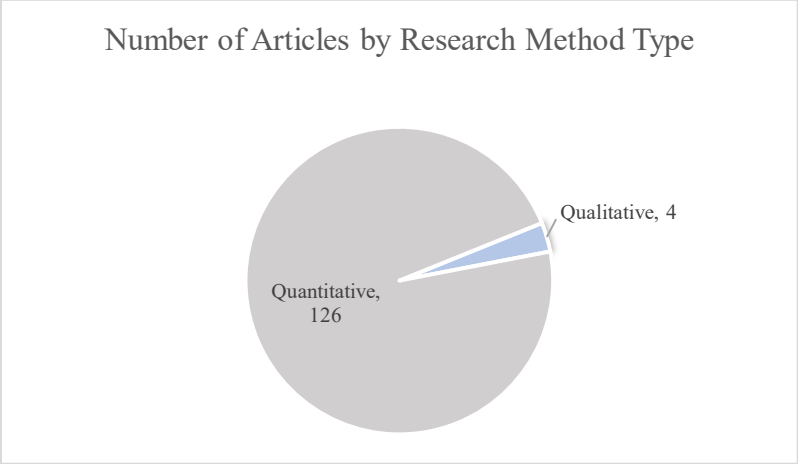


Chart 2.2 Number of articles by research method type.

2.3.5 Number of theories applied in the reviewed articles

In the table below, following the previous SLRs on CG (Alhossini et al., 2021; Nguyen et al., 2020), the theories used in the reviewed studies are classified into two categories—economic or accounting theories and sociological or socio-psychological theories—and ordered according to frequency. The classifications are based on how studies employ a variety of theories to explain the impact of governance mechanisms on firm performance. Specifically,

economic or accounting theories reveal country- and firm-level perspectives, whereas sociological or socio-psychological theories illustrate social- and individual-level viewpoints. Agency theory was the most widely applied theory, appearing in 56 studies, while most other theories appeared between one and three times.

Economic and Accounting Theories	Total	Sociological and Socio-Psychological Theories	Total
Agency theory	56	Resource dependence theory	9
Stakeholder theory	5	Stewardship theory	4
Information asymmetry theory	3	Institutional theory	3
Official supervision theory	3	Human capital theory	2
Optimal contracting theory	3	Executive power (rent capture) theory	1
Signaling theory	2	Critical mass theory	1
Legitimacy theory	2	Managerial talent theory	1
Regulatory capture theory	2	Social network theory	1
Public interest theory	2	Social identity theory	1
Entrenchment theory	2		
Catering theory	1		
Transaction-cost economics theory	1		
Demand following theory	1		
Asset pricing theory	1		
Political economy theory	1		
Tournament theory	1		

Table 2.5 Theories applied in reviewed articles.

In addition, 41% of the studies reviewed did not clarify which theoretical framework they employed, while 42% of the articles used one theory, 12% used two and 5% three or more. **Chart 2.3** below presents the number of theories applied in the articles.

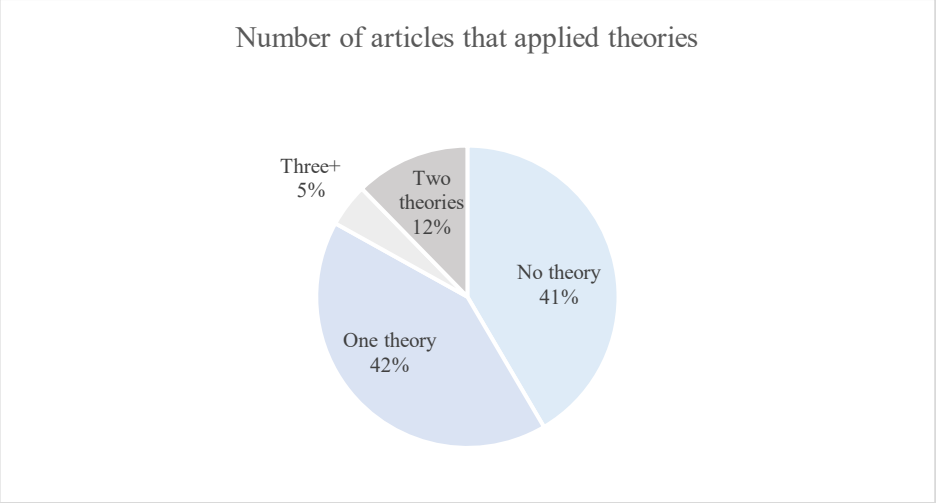


Chart 2.3 Number of articles that applied theories.

2.3.6 Number of articles by insurance firm structure examined

Almost 49% of the reviewed studies examined only stock insurance firms. In contrast, only one study examined mutual firms, while 28% investigated both stock and mutual insurance companies and almost 11% did not clarify what company structure was discussed. A smaller portion of studies (8%) focused on takaful firms[5] (Islamic insurance). Three studies, or 2.3% of the sample, combined takaful and stock insurance firms in their investigation. **Chart 2.4** below presents the number of reviewed articles that covered the various insurance firm structures.

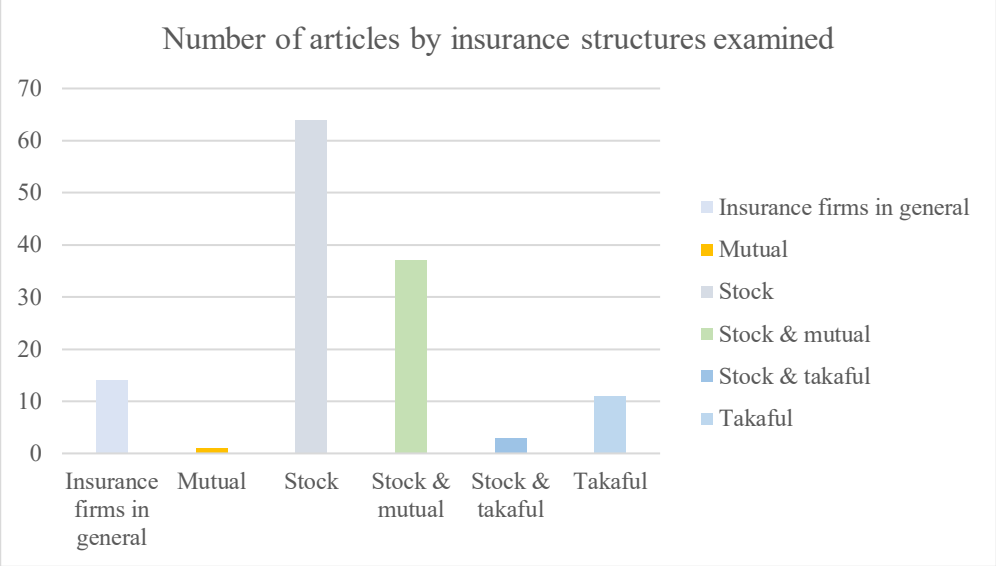


Chart 2.4 Number of articles by insurance structure examined.

[5] Due to takaful firms' compliance with Islamic principles, they were separated here.

2.4 Theoretical perspectives

2.4.1 Economics and accounting theories

2.4.1.1 Agency theory

Agency theory assumes that the different interests of owners (principals) and managers (agents) can be aligned through certain governance mechanisms to reduce the conflict of interest that results from ownership separation (Aguilera et al., 2015). Certain governance mechanisms, such as raising managerial ownership stakes (Chen et al., 2001; Cummins and Sommer, 1996), increasing board independence (Beasley and Petroni, 2001; Kader et al., 2010), and linking pay to performance (Eling and Marek, 2014; Eckles and Halek, 2010), can reduce agency costs, management self-interest, and information asymmetry between principals and agents (Hardwick et al., 2011; Ho et al., 2013). For instance, in the absence of active monitoring mechanisms, managers (agents) may adopt poor strategies, manipulate earnings, expropriate wealth, and resist takeovers (O'Sullivan and Diacon, 2003; Aguilera et al., 2015). Thus, well-defined monitoring mechanisms should be put in place to prevent such opportunistic managerial behaviour from threatening the alignment of interests.

Notably, researchers in the insurance industry argue that agency problems should be handled differently according to the type of insurance structure involved (Ward, 2003; Diacon and O'Sullivan, 1995; Xie et al., 2017). For example, the incidence of agent–principal conflicts may be higher in mutual insurance structures, since ownership is dispersed; in these contexts, managerial entrenchment is easier than in insurance stock structures (Xie et al., 2011; Chen et al. 2021). Overall, many studies in the insurance industry CG literature employ only agency theory to explain the impacts of governance mechanisms on corporate outcomes.

2.4.1.2 Stakeholder theory

Stakeholder theory argues that companies should maximise the value received not only by their shareholders but also by their internal and external stakeholders (Lee et al., 2019), including, for example, their employees, agents, and suppliers. The researchers in the sample studies reviewed in this paper mainly argued that good governance structure is able to significantly improve a company's performance when the company is not limited to maximising the value received by its shareholders (Adams et al., 2017; Lee et al., 2019; Zain, 2021). For example,

Shariah committees[6] in Islamic insurance firms may exert considerable pressure on management to adhere to Shariah law requirements, aiming to win the trust of the firm's external stakeholders (Zain, 2021; Karbhari et al., 2018). However, this theory has been criticised for focusing only on the most powerful stakeholders, such as regulators, rather than on society as a whole, as suggested by legitimacy theory (Ullah et al., 2019). Although stakeholder theory is not commonly used in the literature at present, it has recently become increasingly prominent, as some scholars argue that firms should be driven by the need and desire of different stakeholders to maintain good relationships (Lee et al., 2019).

2.4.1.3 Other economic and accounting theories

Other economic and accounting theoretical perspectives are occasionally used in the insurance industry CG literature. For example, *information asymmetry theory* claims that managers and external stakeholders possess different amounts of information about a given firm (Miao et al., 2014). This theory has been used to explain how some external governance mechanisms, such as rating agencies (Miao et al., 2014; Halek and Eckles, 2010) and financial analysts (Fan et al., 2006), can help reduce information asymmetry. Researchers have argued that the business nature of the insurance industry is opaque and complex to external stakeholders, making it costly to monitor (Miao et al., 2014; Fan et al., 2006). Thus, many industry participants, such as investors, brokers and policyholders, depend on information disclosed by rating originations—particularly information related to the insurer's insolvency risk (Halek and Eckles, 2010; Miao et al., 2014)—to make their decisions.

According to *official supervision theory*, the supervisory authorities of governments have the capacity and experience to incentivise firms to adopt sound governance and prudent behaviour because of their desire to reduce the cost of information and transactions (Gaganis et al., 2015). Scholars have used this theory to explain how the legal environment can affect firm performance. They have argued that supervisory bodies could play an important role in the insurance industry by designing and enforcing regulations that limit managerial incentives in manipulating insurers' loss reserves (Gaganis et al., 2016) and setting standards (e.g., capital,

[6] The Sharia Supervisory Board (SSB) is an independent body that specialises in Islamic Commercial Jurisprudence (Fiqh Al-Mua'malat) (Zain et al., 2021). There are various terms that are commonly suggested to refer to the (SSB), such as the Shariah board or Shariah committee (Zain et al., 2021). The term "Shariah committee" will be used throughout this paper.

risk exposures) that ensure insurers' solvency and performance to protect the interests of investors and policyholders (Pasiouras and Gaganis, 2013; Gaganis et al., 2015).

Optimal contracting theory is closely linked with agency theory and has appeared in insurance studies that explore managerial incentives. This theory argues that insufficient monitoring of management's activities leads shareholders to design a management compensation structure that is more closely aligned with their interests, encouraging managers to be risk averse and to work towards maximising shareholder value (Agyei-Boapeah et al., 2019). Researchers have argued that such compensation arrangements allow insurance firms' managers to be involved in the outcomes of their decisions; thus, their compensation is determined based on their contributions to shareholder value—for example, by avoiding the risk of cross-border acquisitions (Agyei-Boapeah et al., 2019) and improving firm financial performance (Ke et al., 1999; Grace, 2004).

The following theories have been used only twice in the literature. *Signalling theory*, applied by Halek and Eckles (2010) and Hemrit (2018), assumes that in response to information asymmetry in the financial market, firms can send signals to external stakeholders to gain a competitive advantage, such as through voluntary disclosure of risk (Hemrit, 2018). *Legitimacy theory*, closely linked with the institutional theory, employed by Ullah et al. (2019) and Hemrit (2021), situates a firm's actions in societal expectation to justify its continued operation in society (Ullah et al., 2019). *Regulatory capture theory*, used by Gaganis et al. (2016) and Kwon (2013), claims that external pressures, such as lobbying and political campaign promises, may influence regulators to act in favour of industry rather than public interest. Pasiouras and Gaganis (2013) and Kwon (2013) employed *public interest theory*, which suggests that market failures in an industry can be attributed to various factors, such as owner–manager conflicts, moral hazards, and adverse selection, which may rationally justify regulatory intervention. *Entrenchment theory,* closely linked with the agency theory, applied by Miller (2011) and Sallemi et al. (2021), posits that an increase in managerial ownership stake is accompanied by sufficient influence that allows such managers to exclude themselves from scrutiny and monitoring by the current governance system of the firm. Other economic and accounting theories have been used only once in the literature, such as *catering theory* (Ma and Ren, 2012), *transaction cost economics theory* (Baranoff and Sager, 2003), *demand following theory* (Hemrit, 2021), *asset pricing theory* (Shaddady, 2021), *political economy theory* (Pasiouras and Gaganis, 2013), and *tournament theory* (Agyei-Boapeah et al., 2019).

2.4.2 Sociological and socio-psychological theories

2.4.2.1 Resource dependence theory

After agency theory, the second most common theory in the literature on CG in the insurance industry is resource dependence theory. In contrast to agency theory, resource dependence theory views a company's board of directors not only as a control mechanism for managers but also as an external resource for the firm's acquisition of a competitive advantage (Shaddady, 2021). Researchers have generally argued that knowledge plays a crucial role in obtaining business capital, particularly in an industry that is as opaque and heavily regulated as insurance (Adams and Jiang, 2016); improvement in the performance of insurance companies is thus generally attributed to differences in the experiences, perspectives, and insights of their boards of directors and its committees (Alhassan et al., 2021; Shaddady, 2021; Ng et al., 2013). Resource dependence theory has been applied to different insurance firm structures, such as conventional insurance (Ng et al., 2013; Wu et al., 2016; Alhassan et al., 2021; Shaddady, 2021; Kiptoo et al., 2021; Cheng et al., 2021) and Islamic insurance (Zain et al., 2021; Karbhari et al., 2018; Hemrit, 2020). Additionally, researchers' arguments may vary depending on such structures. For example, while Alhassan et al. (2021) argued that a director's knowledge of the industry is a resource in conventional insurance, Zain et al. (2021) claimed that a director's knowledge of Shariah law is a resource in Islamic insurance. Although each of these perspectives refers to a different kind of knowledge, they agreed that the knowledge held by members of the board and its committees is an external resource that may eventually improve the firm's performance.

2.4.2.2 Stewardship theory

Stewardship theory proposes that a firm's insiders care about the owners' interests and the firm's overall performance; this proposition contradicts agency theory, wherein agents are seen as individualistic and self-centred (Kallamu and Saat, 2015). The theory suggests that insiders will work hard to achieve the owners' goals (Kiptoo et al., 2021). Researchers have mostly invoked stewardship theory to compare it with, or to contradict, agency theory's perspective on the independence of the board and its committees, and the results of their studies have varied. For example, in line with stewardship theory, a high number of non-executive directors on the board have been found to be negatively related to a firm's technical efficiency (Alhassan and Boakye, 2020) and financial performance (Kiptoo et al., 2021), since they are less engaged in the industry than insiders. In contrast, Kallamu and Saat (2015), keeping with agency theory,

found that a high proportion of external directors in the audit committee of a firm's board improved performance. Overall, it is notably still unclear what the ideal number of executive directors is, as argued by Kiptoo et al. (2021).

2.4.2.3 Institutional theory

Institutional theory posits that a firm reflects the prevailing regulatory and normative influences legitimised by its social environment (Agyei-Boapeah et al., 2019; Kasim, 2012). Researchers have argued that insurance firms are subject to stringent regulations, which may put pressure on them to form risk committees (Ames et al., 2018), comply with disclosure requirements (Kasim, 2012) and limit compensation packages (Agyei-Boapeah et al., 2019). For instance, Kasim (2012) claimed that firms may adhere to information disclosure requirements to minimise the threat of the withdrawal of their licence to operate in the market. Therefore, by adopting such practices, firms can secure legitimacy and resources and avert negative responses from external stakeholders (Ames et al., 2018).

2.4.2.4 Other sociological and socio-psychological theories

There are some sociological and socio-psychological perspectives that are used a few times in the literature. For example, *human capital theory*, closely linked with the resource dependence theory, was used in two studies (Adams and Baker, 2021; Sallemi et al., 2021) to explore how board directors with accumulative, human-specific skill sets (e.g., education, experience, and talent) acquired from different institutional environments can affect firms' strategic decisions and, therefore, corporate outcomes. *Executive power (rent capture) theory* was used in one study (Agyei-Boapeah et al., 2019) to suggest that, while the agency model is largely based on the assumption that the contract between managers and shareholders is based on an "arms-length" relationship, the social forces in the boardroom must also be considered because they often give top executives an upper hand in negotiations (Agyei-Boapeah et al., 2019). According to *critical mass theory*, which was used in one study (Ullah et al., 2019), a minority of directors with specific attributes, such as experience, nationality, gender, and ethnicity, will significantly contribute to the board, especially after a given threshold is reached (Kanter, 1977). *Managerial talent theory*, applied by one study (Agyei-Boapeah et al., 2019), has a more positive perspective on senior management teams, positing that high remuneration for top executives may reflect the limited number of individuals who have sufficient knowledge to successfully manage a complex organisation. Wu et al. (2016) presented *social network theory*

as an extension of resource dependence theory, focusing on how social networks explain the composition and formation of the board. According to *social identity theory*, certain attributes, such as gender, age, nationality, and experience, can be a means of defining and classifying individuals' membership in a group (Tajfel, 1982). Such classification may prevent participation in the group for individuals who do not belong. This theory was used in one study (Shaddady, 2021) to explain the role of gender in the board of directors. Overall, there has been a notable increase lately in the number of studies on CG in the insurance sector that use sociological and socio-psychological perspectives.

2.5 Empirical evidence: The impact of corporate governance

2.5.1 Internal governance mechanisms of insurance firms

2.5.1.1 Ownership structure and corporate outcomes

Insider Ownership. A large number of studies illustrate the importance of managerial ownership and its effect on a variety of insurance firms' outcomes. The existing literature typically presents two conflicting theoretical perspectives. First, Cummins and Sommer (1996) argued that managerial ownership within companies tends to lead to a reduction in agency problems because the interests of the companies' shareholders and the interests of the managers are aligned. However, Boubakri et al. (2008) claimed that insider ownership in companies in which managers retain sufficient ownership results in an increase in internal agency problems; this is because the managers in these companies have become more entrenched. These perspectives are applied by researchers to examine the impact of insider ownership on financial performance (Afifa et al., 2021; Miller, 2011; Boubakri et al., 2008; Cummins and Xie, 2009), risk-taking (Chen et al., 2001; Cummins and Sommer, 1996; Downs and Sommer, 1999; Bhagat et al., 2015), firm efficiency (Wang et al., 2007), earnings management (Mardnly et al., 2021), dividend policy (Puleo et al., 2009; Akhigbe and Whyte, 2012), IPO underpricing (Wang and Ligon, 2009) and corporate social responsibility (CSR) (Adams et al., 2017; Ullah et al., 2019).

Consistent with both views, the effects of managerial ownership on financial outcomes generally vary. For instance, while some researchers have found that managerial ownership has positive impacts on total risk taking (e.g., Chen, et al., 2001; Downs and Sommer, 1999) and cost efficiency (Wang et al., 2007), others have shown negative impacts on financial performance (i.e., buy and hold returns and net premiums written; Boubakri et al., 2008; Miller,

2011) and dividend payout (Akhigbe and Whyte, 2012). However, linking insiders' ownership with non-financial outcomes, such as firm donations (Adams et al., 2017) and CSR disclosure (Ullah et al., 2019), has resulted in a negative impact. This suggests that insurance companies with high managerial ownership tend to engage less in social activities because the cost of such engagement may exceed managers' personal interests and gains. Overall, the majority of researchers agreed that managerial entrenchment in the insurance sector occurs at a certain degree of insiders' ownership.

Block Shareholders. Many studies have been conducted to explore the effect of block ownership on different measures of insurance firms' outcomes. Eling and Marek (2014) argued that large shareholders may have significant influence on corporate strategic decisions considering the fact that they awarded more voting rights than smaller shareholders in the company. Supporting this perspective, researchers have investigated the effect of block ownership on financial performance (Sallemi et al., 2021; Lambalk and de Graaf, 2017; Gupta et al., 2012), risk-taking (Becker and Ivashina, 2015; Eling and Marek, 2014; Rubio-Misas, 2020; Eling and Marek, 2012), firm efficiency (Li et al., 2021; Karbhari et al., 2018; Huang et al., 2011), audit fees (O'Sullivan and Diacon, 1999), executive pay (Ke et al., 1999), dividend policy (Xie et al., 2017) and enterprise risk management (ERM) adoption (Dupire and Slagmulder, 2019).

Earlier studies related to developed countries show that the presence of block shareholders is associated with a negative impact on insurance firms' credit risk (Becker and Ivashina, 2015), audit fees (O'Sullivan and Diacon, 1999) and cost efficiency (Huang et al., 2011). In a more recent study, Sallemi et al. (2021) conducted a study of 21 takaful operators (i.e., Islamic insurance companies) across developing countries. They found that the presence of block shareholders had a positive impact on market performance. This positive relationship was also supported by Li et al. (2021) regarding firms' technical efficiency in China. Combined, these observations indicate that insurance companies with block shareholders are subject to more scrutiny and monitoring compared with peers with more dispersed ownership, such as mutual firms (O'Sullivan and Diacon, 1999).

Institutional Ownership. Several authors have examined the impact of institutional investors on insurance corporate outcomes. Akhigbe and Martin (2006) claimed that institutional ownership in a company tends to lower agency problems related to dispersed ownership and increase scrutiny and monitoring of management's actions. Researchers have explored the

impact of institutional ownership on financial performance (Akhigbe and Martin, 2006; Chen et al., 2020), risk-taking (Cheng et al., 2011; Ma and Ren, 2021), firm efficiency (Karbhari et al., 2018), tax reporting (Hong et al., 2019) and mergers and acquisitions (M&As) (Lin et al., 2016). For example, Cheng et al. (2011) examined institutional investors' ownership and its potential impact on risk taking. Cheng et al. (2011) observed that institutional owners contribute significantly towards reducing investment risk, underwriting risk and market risk in insurance companies operating within the life-health industry. This suggests that institutional investors tend to be more likely to apply pressure on the company's management team to appropriately manage the company's risks to protect the interests of shareholders and address regulators' concerns.

Conversely, a recent study by Ma and Ren (2021) found a positive relationship between institutional ownership and risk taking among non-life insurance companies. The study mainly covered the recent financial crisis period (before and during the crisis), and the authors found that the relationship was positive throughout this period. However, Ma and Ren (2021) indicated that this relationship was generally reversed after the financial crisis, becoming negative. This indicates that the shift in this relationship may have been caused by institutional investors altering their holdings in the insurance companies in which they invested during the aftermath of the financial crisis. This suggests that institutional investors post-crisis adopted a longer-term and activist investment approach, and they are more engaged in monitoring in the areas of risk management. Furthermore, Hong et al. (2019) discovered that firms with more powerful and prominent institutional investors, who have lengthy investment horizons, saw a greater increase in tax avoidance. Taken together, these findings suggest that institutional owners' incentives may determine the effectiveness of the monitoring role that institutional ownership plays in the insurance industry.

Foreign Ownership, State Ownership, Family Ownership. A number of studies have focused on the relationship between these forms of ownership and their effect on corporate outcomes. Among these studies, Alhassan and Biekpe (2018) examined the relationship of foreign ownership and risk-taking in South Africa, and Liu and Hsu (2014) examined the impact of state ownership on financial performance (i.e., return on assets (ROA) and return on equity (ROE)) in Taiwan. Regarding family ownership studies, the studies focused on financial performance (i.e., the sensitivity of CEO turnover to performance (Cheng et al., 2017; 2021) and firm efficiency (Shaddady, 2021). Researchers generally believe that family-owned firms are often of significant importance to the family owner's well-being; hence, family ownership

of these companies is most likely to result in fewer conflicts of interest between the owners and the managers, and strict supervision of activities and decisions. In this context, based on a sample of mutual insurance companies, Cheng et al. (2021) found that firms that are family owned are associated with low sensitivity levels towards CEO turnover to firm performance, compared with other ownership types, such as block ownership.

In contrast, an earlier study conducted by Cheng et al. (2017) found that CEO dismissal was lower for public firms that are not family-owned; further, CEOs that registered poor performance in family-owned firms (especially if the CEO is a family member) were the most difficult to dismiss. Therefore, it is possible that monitoring by stock market will be more effective than monitoring by family owners in terms of management discipline. Based on a sample of family-owned businesses in developing countries, Shaddady (2021) found that family-controlled insurers might put negative pressure on the business environment of the insurance industry, reducing firms' efficiency. Although family ownership may negatively affect insurance firms' outcomes, the findings from prior studies remain relatively inconclusive.

In general, the literature shows that ownership structure impacts insurance firm performance, but this impact may vary according to, for example, ownership type, country context and firm performance measures. It should also be noted that financial performance, risk-taking and firm efficiency are the corporate outcomes most commonly examined by ownership structure studies, while earnings management, dividend policy, financial disclosure, CSR and M&As remain underexplored.

2.5.1.2 Board of directors and corporate outcomes

Traditional Characteristics (board independence). In the literature, board independence generally has a positive impact on insurance firms' outcomes, but its nature differs depending on the theoretical lens applied. From an agency theory perspective, Zain et al. (2021) argue that corporate boards should consist of outside directors to reduce agency costs and increase the effective monitoring of management's actions and decisions. A corporate board that consists of non-executive directors is in a better position to protect and maximise shareholder interests while also ensuring that the company's reputation and public image are protected (Adams and Jiang, 2016). Supporting this view, many studies have explored the impact of outside directors on a wide range of corporate outcomes, such as financial performance (Diacon and O'Sullivan, 1995; He and Sommer, 2011; Jia and Tang, 2018; Adams and Jiang, 2016), risk taking (Ho et

al., 2021), firm efficiency (Kader et al., 2010; 2014), voluntary disclosure (Zain et al., 2021), external audit quality (Beasley and Petroni, 2001), external actuary (Kamiya and Milidonis, 2018), executive pay (Mayers and Smith, 2010), cash holdings (Hsu et al., 2015), ERM adoption (Beasley et al., 2005) and CSR disclosure (Ullah et al., 2019). For example, based on a sample of 681 property-liability insurers, Beasley and Petroni (2001) found that board independence increases a firm's chance of selecting a reputable auditor who specialises in the insurance industry. Similarly, evidence in developing countries relating to takaful insurers has shown that the presence of independent directors on boards improves firm cost efficiency (Kader et al., 2014).

On the other hand, from a stewardship theory perspective, Alhassan and Boakye (2020) studied the impact of board independence on firms' technical efficiency of insurers operating in the South Africa. They found a negative relationship, concluding that a high percentage of outside directors on the board with no considerable experience in the industry may affect board decision-making and firm performance. This relationship was supported by two other studies that examined market performance, more precisely, premium growth (O'Sullivan and Diacon, 2003) and abnormal returns (Boubakri et al., 2008). In general, previous studies suggest that board independence as a potential governance mechanism may work effectively among companies operating in the insurance industry, especially among the structures of mutual insurance firms where there is an absence of market discipline (O'Sullivan and Diacon, 2003).

Traditional Characteristics (board size). The effect of board size on corporate outcomes has received a lot of attention in the literature. In line with the assumptions of the agency theory, Akbar et al. (2017) argue that board size is related to the quality of decisions made by the board. Furthermore, smaller corporate boards tend to generally be perceived as productive and efficient since they are associated with less coordination issues (Jensen, 1993; Lipton and Lorsch, 1992). However, empirical evidence in the literature is mixed. Scholars in the insurance industry have provided evidence that board size has a positive effect on premium growth (Hemrit, 2021; Miller, 2011), firm cost efficiency (Huang et al., 2011), risk-taking (Ho et al., 2013), IPO demutualisation (Xie et al., 2011), negative effects on return on assets (ROA) (Kiptoo et al., 2021), and firm technical efficiency (Wang et al., 2007), but no impact on idiosyncratic risk (Akbar et al., 2017).

In general, the results from prior studies appear to suggest that agency theory on its own is not sufficient in explaining the impact of board size on a company. Therefore, many studies in the

existing literature employ other theories in their quest to understand the underlying relationship between the size of the board and firm outcomes. For instance, a study conducted by Alhassan et al. (2020) adopted the resource dependence theory in their study, where they found that large corporate boards are associated with improved accounting firm performance among companies operating within the life insurance industry. Similarly, based on a sample of non-life insurance firms, Cheng et al. (2021) found that large board sizes are significantly associated with more accounting conservatism regarding loss reserves. However, Karbhari et al. (2018) and Hemrit (2020) showed a negative impact of board size on firm scale efficiency and premium growth, respectively, in the takaful operators market. Overall, the existing literature suggests that each theory can explain the potential impact of board size on insurance firms' outcomes.

Traditional Characteristics (CEO duality[7]). Power concentration in one individual where the CEO is also the board chairman may allocate considerable authority to one individual, destroying shareholder interests since the CEO's decisions are not scrutinised, as Jensen (1993) argued. However, it is also argued that the separation of the CEO and board chair roles can impair the decision-making process, especially when two individuals are unable to agree on a firm's strategy (Karbhari et al., 2018). Therefore, prior studies provide relatively conflicting conclusions in regard to the impact of CEO duality on insurance firm outcomes. For instance, examining a U.S. property-casualty insurance industry sample between 1996 and 2007, Ho et al. (2013) observed that CEO duality is positively related to a firm's high leverage risk, thus suggesting that an individual taking on both roles has significant powers to accumulate debt in order to meet personal interest, but to the detriment of shareholder value. Similarly, other researchers have also supported this relationship by examining the effect of CEO duality on market performance (Sallemi et al., 2021), technical and scale firm efficiencies (Karbhari et al., 2018), and executive pay (Bhuyan et al., 2020).

On the other hand, a negative effect of CEO duality was found on net premiums written (O'Sullivan and Diacon, 2003), reinsurance purchases (Ho et al., 2021), risk-taking (Akbar et al., 2017), and cost efficiency (Kader et al., 2010; Wang et al., 2007). Finally, no impact was found on financial performance (i.e., return on equity (ROE), Adams and Jiang, 2017; the sensitivity of CEO turnover to performance, He and Sommer, 2011), profit efficiency (Hardwick et al., 2011), and audit fees (O'Sullivan and Diacon, 1994). Therefore, the impact of CEO duality on a firm's outcomes in insurance companies varies based on the results

[7] Refers to a situation where the roles of the board chair and company CEO are taken up by one individual.

presented in prior studies. This might be due to variations in corporate outcomes measures or other research design discrepancies.

Traditional Characteristics (board meeting). A limited number of studies in the insurance sector have investigated the effects of board meetings on corporate outcomes. Conger et al. (1998) indicate that the frequency of board meetings within a firm shows that the board is effective in its monitoring role. Increasing the frequency of board meetings, for example, has been shown in studies to increase firms' efficiency performance in Thai non-life insurance companies (Hsu and Petchsakulwong, 2010), increase the firm's transparency regarding reserve management (Han et al., 2018), lower assets risk-taking (Eling and Marek, 2014), and increased risk information disclosure (Hemrit, 2018). However, frequent board meetings may also increase an insurance company's systematic risk, as Eling and Marek (2012) found. This suggests that an unusually high number of board meetings could signal that the company is experiencing numerous problems that may warrant more frequent meetings. Despite the limited number of studies, board meetings may play an effective monitoring role on corporate outcomes in the insurance industry.

Demographics Characteristics (nationality, religion, gender). A number of emerging studies have started to investigate the effects of board demographic characteristics on corporate outcomes in the insurance industry. Most authors in previous studies assume that demographic characteristics (e.g., nationality, religion, and gender) tend to impact the decision-making, behaviours and cognition of company directors, and they eventually affect the firm's outcomes (Forbes and Milliken, 1999). For instance, Adams and Baker (2021) used panel data to explore the overall impact of boardroom nationality on a firm's solvency risk and profitability among insurance companies in the United Kingdom. Adams and Baker (2021) discovered that boardroom nationality influences the firm's overall financial performance. For example, directors from North America were found to be associated with better profitability performance, while directors from Europe were found to be associated with a better firm solvency position (Adams and Baker, 2021). This generally reflects the underlying differences between shareholder value maximisation cultural approaches between Europe and North America. While European directors focus on the stakeholders' wealth preservation, North American directors focus on profitability and shareholder wealth.

Another point of view is expressed by Lee et al. (2019), who investigated the effects of the number of Muslim directors on cost efficiency in Malaysian takaful insurance firms and

discovered no effect. On the other hand, other studies examined the role of women in corporate outcomes. For instance, while Ullah et al. (2019) found the proportion of female directors on insurance boards is positively associated with the extent of CSR disclosures in Bangladesh, Pavić Kramarić et al. (2018) and Adams et al. (2017) showed negative evidence on return on assets (ROA) in Croatia and firm donations in the UK, respectively. Generally, the review of the existing literature indicates that some recent studies have begun to carry out investigations on the effects of the characteristics of board demographics in the insurance sector.

Human Capital Characteristics (financial expertise). A number of scholars in the insurance sector have mainly focused on the financial expertise of board members and its effect on insurance firm outcomes. Adams and Jiang (2016) claim that the financial expertise of board members is of significant importance to companies operating within the insurance industry, as insurance companies play both the roles of capital recipients and key institutional investors. In addition, insurance companies also operate within a highly regulated business environment (Adams and Jiang, 2016). In the light of this, actuarial expertise at the board level, for example, plays an essential role in helping the board make strategic decisions such as solvency maintenance, investment planning, financing, risk management, and dividend policy, thus impacting business efficacy and the firm's CG effectiveness (Hardwick al., 2011).

The results presented in the prior studies about the impact of board-level financial expertise shows a beneficial influence on insurance firms' outcomes, such as several measures of financial performance (Adams and Jiang, 2016; 2017; 2020), and firm profit efficiency (Hardwick et al., 2011). Moreover, some of the studies that examined financial expertise defined members' expertise generally (e.g., accounting, finance) without considering which type of expertise have more impact (e.g., Adams and Jiang, 2016). Others classify financial expertise into the insurance industry, actuarial expertise, and insurance underwriters' expertise to explain which have the most impact on corporate outcomes (Adams and Jiang, 2017; Adams and Jiang, 2020; Hardwick et al., 2011). Although few studies investigated board members' financial expertise, results may promote the functional importance of board experience in insurance firms where the intensive knowledge of risk management and the sensitivity of financial information may be of vital importance.

Overall, research on the influence of board characteristics on insurance firm performance has yielded mixed findings that do not always support the predictions of agency theory. Consequently, future research should apply alternate theories to interpret some of these

complex phenomena. Future research should also explore the less examined outcomes of board characteristics studies, such as earnings management, CSR and tax avoidance.

2.5.1.3 Board committees and corporate outcomes

Audit committee. Several researchers have examined the impact of audit committees on insurance corporate outcomes. Kallamu and Saat (2015) argue that audit committees can increase firms' efficiencies and help managers to realise, among other things, risk matter problems, poor operating practices and internal audit weakness. Supporting this perspective, researchers have investigated the effect of audit committees on financial performance (Kallamu and Saat, 2015; Alhassan et al., 2020), firm efficiency (Hsu and Petchsakulwong, 2010; Hardwick et al., 2011; Huang et al., 2011; Karbhari et al., 2018; Alhassan and Boakye, 2020), earnings management (Sun et al., 2012; Hsu et al., 2019), voluntary disclosure (Zain et al., 2021), and audit fees (O'Sullivan and Diacon, 2002; Bailey et al., 2018).

Indeed, the majority of the studies' results in the sample indicate that audit committees' characteristics such as presence, independence, size, and financial expertise improve the effectiveness of firms' outcomes in the insurance industry. For example, based on samples of property-liability insurers in the US, Hsu et al. (2019) and Sun et al. (2012) provide evidence that insurers with more accounting expertise members in the audit committee are more conservative regarding estimating insurers' loss reserves (Hsu et al., 2019; Sun et al., 2012). This suggests that the accounting experts in the audit committee can provide better monitoring to prevent issues such as financial scandals. In addition, the evidence in developing countries shows a positive relationship between audit committee independence and profitability (Kallamu and Saat, 2015; Alhassan et al., 2020). However, fewer studies report that the size of the audit committee had a negative impact on audit fees (Bailey et al., 2018) and cost efficiency (Hsu and Petchsakulwong, 2010). This suggest that increasing committee size may decreases a firm's efficiency.

Risk committee. Regarding the relationship between risk committees' characteristics and corporate outcomes, the results generally conclude a beneficial influence. Under institutional theory, some researchers question whether insurance firms utilise specific governance mechanisms, such as risk committees, to substantively monitor certain activities or to only establish symbolic legitimacy with various stakeholders. In this respect, researchers found the presence of a risk committee increased firm value (Grace et al., 2015), reported higher financial

strength ratings (Ames et al., 2018), and reduced firms' risk-taking (Magee et al., 2019; Dupire et al., 2021).

On the other hand, other researchers focused on the size concept under the resource dependence theory. They argue that a relatively large committee is in a better position to provide more resources to address problems and issues that may arise in monitoring process (Pierce and Zahra, 1992). In the same vein, researchers found that the size of the risk committee improved efficiency performance (Kweh et al., 2015; Wu et al., 2016) and reduced underwriting risk (Ng et al., 2013). However, Wu et al. (2016) adopted social network theory to ask whether the notion of prestige titled directors, as measured by the number of directors carry honorary titles, moderates the role monitoring of risk committees in managing corporate performance and found a significant positive relationship related to firm profit efficiency in Malaysia. Overall, although researchers show different theoretical perspectives, the effects of risk committees generally indicate a beneficial influence on insurance firms.

Finance committee, Shariah committee (SC). A number of studies have focused on the relationship between other board committees and their effect on corporate outcomes. Among these studies, Hsu et al. (2015) investigated the effect of finance committee independence on cash holdings in the United States and discovered that the independence of the members is positively related to an insurer's growth when it has excess cash in the previous period. On the other hand, other studies focused on the Shariah committees' role in Islamic insurance firms. Shariah committees are responsible for certifying that management is doing its job following a Sharia-compliant process (Archer et al., 1998). Consequently, Shariah committees can be considered as a governance mechanism that enhances public confidence and legitimises business operations in Islamic insurance (Mollah and Zaman, 2015; Karbhari et al., 2018). However, the results of the effects of Shariah committees on corporate outcomes are mixed. For example, while some researchers discovered that SC size has a positive impact on net premium written (Hemrit, 2020), firm scale efficiency (Karbhari et al., 2018), and market performance (Sallemi al., 2021), others discovered no impact on voluntary disclosure (Zain et al., 2021), cost efficiency (Kader et al., 2014), or insurance demand (Hemrit, 2021). This suggests that SC may not be as involved as the other CG mechanisms (e.g., audit committees) in firm activities (e.g., reviewing financial reports). Overall, the studies are still inconclusive.

To summarise, research on board committees indicates that stronger audit and risk committees can enhance insurance firms' performance. It should also be noted that board committee studies

have most commonly examined firm efficiency and financial performance as corporat outcomes, while dividend policy, earnings management, risk-taking and financial disclosure remain largely underexplored; future research should thus consider these less emphasised outcomes.

2.5.1.4 Managerial incentives and corporate outcomes

Cash-based Compensation. Several studies have examined the influence of managerial incentives on corporate outcomes in the insurance industry. Researchers in prior studies argue that shareholders' and corporate leaders' interests can be aligned through compensation linked by firm performance, as suggested by agency theory (Jensen and Meckling, 1976). However, there are variations in the findings. For example, based on a sample in the US, Prechel and Zheng, (2016) discovered that top executives' salaries and bonuses are associated positively with a firm's odds of financial malfeasance. This suggests that pressure from large shareholders to increase dividend payouts and executives' incentives to increase their compensation may create incentives to engage in financial malfeasance. Similarly, higher levels of compensation found associated positively with systematic risk (Eling and Marek, 2012) and corporate philanthropy (Adams et al., 2017). By contrast, a negative effect of the board and executive compensation on asset risk-taking (Eling and Marek, 2014) and no impact on audit fees (Adams et al., 1997).

Equity-based Compensation. Research in this area also illustrates inconclusive evidence on the effects of managerial incentives on corporate outcomes such as premium growth (Ma and Ren 2012), risk-taking (Grace, 2004; Milidonis and Stathopoulos, 2011), and earnings management (Eckles and Halek, 2010; Eckles et al., 2011; Berry-Stolzle et al., 2018). Milidonis and Stathopoulos (2011) argue that the introduction of strong incentives such as option compensation raises future firm default since managers who maximise utility do so at the expense of firm risk, suggesting that managers can overcome their risk aversion when they face the lure of options payoffs. Similarly, incurred losses during the year tend to be underestimated when managers hold restricted stock to maximise their compensation in the short term (one to two years) (Eckles and Halek, 2010). On the other hand, researchers found that equity compensation negatively impacts earnings management (e.g., Berry-Stolzle et al., 2018) and has no impact on firm risk (e.g., Grace, 2004).

However, while previous research in managerial incentives has focused primarily on cash and equity compensation, a recent study by Milidonis et al. (2019) examined the effect of debt-

based compensation on risk-taking. Moreover, a limited number of studies have examined executive compensation in relation to audit fees and financial performance; therefore, future research should consider these less emphasised outcomes.

2.5.2 External governance mechanisms of insurance firms

2.5.2.1 Legal environment and corporate outcomes

Regulation and Enforcement. Several studies have investigated the effects of regulations on corporate outcomes in insurance companies. The legal environment, according to Aguilera et al. (2015), refers to a specified set of processes and structures applied to interpret and enforce laws. It generally governs how companies operate and conduct business as well as protecting property rights under the oversight of regulatory institutions (Aguilera et al., 2015). In this respect, most of the studies used an index to measure the impact of regulations on firms' outcomes. The index includes, for example, investor protection, contract enforcement, capital and reporting requirements, and CG requirements. Surprisingly, based on cross-country samples, CG requirements have no significant impact on financial performance (Gaganis et al., 2015), risk-taking (Pasiouras and Gaganis, 2013), and earnings management (Gaganis et al., 2015), but have a harmful influence on insurance consumption (Kwon, 2013). Furthermore, Fields et al. (2012) used a set of indexes (i.e., contract enforcement, government quality, and investor protection) to reveal how these factors impact insurance firms' performance and financial stability across countries. They found that environmental factors increase insurance financial stability but do not influence firms' performance, suggesting that policyholders and outside stockholders in countries with a strong investor protection environment may benefit from restrictions on corporate insiders.

In a similar vein, other studies used dummy variables to proxy regulations. For example, Gardner and Grace (1993) examined the cost efficiency of firms that undergo a more stringent environment with respect to capital requirements as an external monitoring mechanism and found that firms become more efficient when they experience strict standards. Similarly, Brenner (2011) documented that the prohibition law on insider trading decreases CEO pay in insurance firms in Germany. On the other hand, examining firms' compliance with CG codes shows fewer disclosures regarding information about internal and external auditing and non-audit services (Hassan, 2012; Akhter and Hussain, 2012). Taking a different tack, Beare et al. (2014) conducted interviews with experts from 35 different companies in Canada and found

that the impact of public policies of sustainability on reporting disclosure was limited. The overall evidence suggest that each regulation can have its own effect on corporate outcomes.

Shariah Law. A number of studies have started to investigate the effects of Shariah law on Islamic insurance corporate outcomes. Islamic and conventional insurers generally share the primary function of protecting policyholders from the burden of unexpected financial losses (Shaddady, 2021). They even share similar operational activities. However, in Islamic insurance firms, all operational activities must comply with Shariah law, such as restrictions on investment and segregation of ownership funds for policyholders and shareholders (Shaddady, 2021; Hemrit, 2020). In this context, Shariah law was found to increase disclosure quality (Alkhan and Hassan, 2020; Kasim, 2012), but decreased firm profit efficiency (Shaddady, 2021). This suggests that the principles of Shariah law such as the prohibition of companies from offering interest-bearing financial products may essentially impact the firm's returns and investments. However, the Shariah law impact still needs more investigation.

2.5.2.2 Stakeholder activism and corporate outcomes

Reinsurers, brokers, agents[8]. Very few studies have examined the effect of stakeholder activism on corporate outcomes. While the term 'stakeholder activism' has a broad definition, it generally refers to the external pressure that is exerted on companies by influential stakeholders intending to change the policies and practices of firms even if they have no ownership stake (De Bakker et al., 2013; Aguilera et al., 2015). In the insurance industry, various parties of financial intermediaries tend to take on this role, such as reinsurers, agents and brokers (Eling and Marek, 2014). For example, reinsurers engaging in business with insurers have the motivation to keep an eye on the behaviour of ceding insurers. Agents and brokers also have the motivation to monitor to protect policyholders (Cole et al., 2011).

However, findings generally indicate a beneficial influence of stakeholders' groups on corporate outcomes. For instance, reinsurers and agents (Cole et al., 2011), and brokers (Baranoff and Sager, 2003) were found to reduce overall firm's risk taking in the US. This suggests that reinsurers may play an oversight role over insurers to ensure the solvency of ceding insurers. Furthermore, agents and brokers may play the same role since their wealth and

[8] From an essential legal perspective, an agent represents the insurer while a broker represents the insured. However, it is worth noting that this distinction is not often clear as some insurance companies are required to appoint brokers as agents to conduct business. So, it depends on the legal system of the country (Baranoff and Sager, 2003).

income are often tied to the insurer's profitability, and if the insurer stops doing business or faces bankruptcy, they are at risk. Further evidence from the UK by Ward (2003), who found that independent agents reduce free cash flow and shareholder dividends for poorly performing insurance companies in the market by moving new businesses to better-performing companies, suggesting that they can act as effective external monitors of managerial action. However, it is obvious there is a lack of research in this area. Therefore, future research may address this issue, for example, in less developed countries.

2.5.2.3 External audit and corporate outcomes

Audit Quality. Several studies have examined the impact of an external audit on corporate outcomes. Researchers generally believe that auditor quality is linked to enhancing the quality of information disclosure. That big audit firms (as quality auditors) are likely to provide more stringent monitoring (Gaver and Paterson, 2001), and push companies to disclose more information to reduce their legal liability and protect their reputation (Zureigat, 2011; DeAngelo, 1981). However, empirical evidence regarding the effect of audit quality is mixed. In the earnings management context, for example, the impact of big audit firms on the accuracy or bias in estimates of claim loss reserves (Petroni and Beasley, 1996; Gaver and Paterson, 2007) and discretionary accruals (Mardnly et al., 2021) was not found to be significant. In contrast, (Gaver and Paterson, 2014) found a higher level of loss reserve bias within the annual reports of the property-casualty insurance companies when one large audit firm provides both audit and actuarial services simultaneously. Furthermore, Gaver and Paterson (2001) found that loss reserve manipulation by poor-performing insurers is eliminated when the Big Six accounting firms conduct the audit and actuarial services. In other contexts, however, audit quality was found to be associated with higher International Financial Reporting Standards (IFRS) compliance (Zureigat, 2011) and lower reinsurance purchases (Ho et al., 2021) but had no impact on yield spreads and credit ratings (Fortin and Pittman, 2007).

2.5.2.4 The market for corporate control and corporate outcomes

Merger and Acquisition. A number of sample studies have examined the impact of mergers and acquisitions on corporate outcomes. The concept known as "the market for corporate control" holds that the equity market can partly act as a disciplinary tool for corporate directors (Aguilera et al., 2015). This external CG mechanism is activated when a firm's assets become undervalued due to poor strategic managerial decisions (Aguilera et al., 2015). When stock

prices decline due to devalued corporate assets, firms are more susceptible to takeovers (Aguilera et al., 2015; Hawley and Williams, 2000). In this situation, outside bidders may target the firm's control rights through a takeover in order to increase its value and stock price in the market (Bebchuk and Fried, 2006). In theory, efficient buyers can enhance the combined firms' efficiency and improve their performance by reallocating their assets more productively in the market (Cummins and Xie, 2009; Jensen, 1984).

Most of the previous studies in the literature focused on whether mergers and acquisitions create value for both bidders and targets. For example, based on a sample of 177 transactions between 1995 and 2000 among property liability insurers, Boubakri et al. (2008) demonstrated that shareholders' received value increased in the long term. Similarly, Cummins and Xie (2009) found that the shareholders of both acquiring and target firms registered positive gains around merger and acquisition announcement dates. Fields et al. (2007) and Elyasiani et al. (2016) likewise illustrated that acquirers in the insurance industry maintain their idiosyncratic risk following a merger deal. Taking a different tack, Agyei-Boapeah et al. (2019) found that powerful leaders' compensation increased during mergers and acquisitions in financial institutions (including insurance firms), especially for CEOs, as the top beneficiaries. This suggests M&As are a mean that corporate leaders may exploit to increase their pay. Overall, evidence from prior studies in the sample suggests that M&As create value for both acquiring and target firms.

2.5.2.5 Rating organisations and corporate outcomes

Rating Agencies, Financial Analyst. A number of studies have examined the impact of rating agencies and financial analyst on corporate outcomes. Rating organisations can act as external monitors and reduce information asymmetry between firms' insiders and outside stakeholders (Miao et al., 2014; Halek and Eckles, 2010). As such, rating announcements, especially downgrade, regarding firm performance and financial strength should be reflected in the market and exert some pressure on the management team (Epermanis and Harrington, 2006; Aguilera et al., 2015). However, studies generally indicate that downgrade announcements by rating agencies negatively impact firms' outcomes, while financial analysts positively impact earnings announcements (Fan et al., 2006). For example, based on a sample of 9,446 firm-year observations during 1992–99 in the US, Epermanis and Harrington (2006) document that premium growth declined following rating downgrades. Similarly, a negative impact was found on abnormal returns (Miao et al., 2014; Milidonis, 2013; Chen and Pottier, 2017). This

suggest that the response of investors is most sensitive to bad news. However, all the studies in the sample regarding the impact of rating organisations were conducted in the US, and future research could compare this with data from other countries.

To summarise, research on external governance mechanisms, such as stakeholder activism, generally indicates that external stakeholders (e.g., reinsurers, brokers, agents) induce a beneficial effect on insurance firms' performance, whereas research on the legal environment suggests that each legal system can affect insurance firms' performance differently due to, for example, variations in regulations among countries. Furthermore, evidence from research on the corporate control market indicates that M&As create value for both acquiring and target firms in the insurance industry, whereas evidence from research on external auditors indicates that auditor independence matters for insurance firm performance. However, the impact of external auditors may vary due to, for example, regulatory differences, firm performance measures and other research design discrepancies. Additionally, research on rating organisations shows that downgrade announcements—particularly those from rating agencies—affect insurance firms' outcomes. However, it should also be noted that, the corporate outcomes most commonly examined by external governance studies are financial disclosure, risk-taking, and earnings management, while firm efficiency, dividend policy, and sustainability reporting have been less explored. Future research should thus consider these less emphasised outcomes.

2.6 Discussion of research limitations

2.6.1 Theoretical limitations

2.6.1.1 Lack clarification of theoretical perspective

In line with the findings of Farah et al. (2021) and Alhossini et al. (2021), 41% of the articles reviewed failed to clearly specify the theoretical framework they used. This specification is important because these theories derive from different disciplines, so their application to other fields may present challenges related to understanding. Theoretical frameworks underlie the investigation of any study, clarifying the approach used to understand complex concepts and make assumptions, distinguishing between opinions and beliefs, and setting the scope, validity, and methods for the research (Ravitch and Riggan, 2016). Akbar et al. (2017) stressed the importance of providing a defined theoretical framework when conducting research. For example, they illustrated that under resource dependence theory, a large board size may result

in more resources being provided by directors, while agency theory holds that it entails less coordination among them.

As such, in specifying the theories that underpin an investigation, the researcher can arrive at more reliable and valid findings because their reproducibility, consistency, and transparency are enhanced (Shepherd and Suddaby, 2017). A theoretical framework thus provides the blueprint for conducting high-quality research. Moreover, the theoretical framework, not only stimulating the investigation at hand but also establishing a foundation upon which the existing body of knowledge can be expanded (Ravitch and Riggan, 2016). Therefore, future researchers can enhance the quality of their work if they link their research questions and hypotheses to a clear theoretical framework.

2.6.1.2 Lack of application of a multi-theoretical framework

The present review shows that agency theory forms the basis of much of the literature on CG in the insurance industry. This phenomenon is broadly linked to the belief that most CG mechanisms are designed and regulated according to the need to address the agency issues that emerge in corporations with dispersed ownership (Aguilera et al., 2015). However, despite the dominant role of agency theory, it does not sufficiently explain all CG issues (Daily et al., 2003). One of the limitations of this theory is its focus on the relationship between owners (principals) and managers (agents) (Kallamu and Saat, 2015). However, the insurance industry, like other modern industries and businesses, is becoming increasingly complex, with multiple stakeholders and governance influences (Cole et al., 2011). As a result, it may be challenging to gain a full appreciation of changes in the business environment over time and governance differences between industries by using a single perspective. For example, technological advancement and globalisation have tremendous potential to influence managerial phenomena (Post et al., 2020). Therefore, despite the dominance of agency theory in the literature, it may face difficulties in explaining all aspects of CG alone.

Several scholars have begun applying multi-theoretical frameworks in exploring the broad concept of CG (e.g., Agyei-Boapeah et al., 2019; Kiptoo et al., 2021; Wu et al., 2016) as a means of overcoming the limitations of individual perspectives. For example, the integration of both agency and stewardship theories when examining different countries has highlighted the limitations associated with reliance on a single perspective. While the presence of more external members on the board, for example, has been shown to improve insurance firm efficiency (Kader et al., 2014), other studies have yielded contradictory findings for highly

competitive markets which require a more profound comprehension of the firm's and industry's operations, which are owned by the internal managers (executives) (Alhassan and Boakye, 2020). Thus, a single theory's shortcomings may be addressed by combining multiple theories, which in turn can yield more comprehensive insights into the subject under investigation.

Given the insurance industry's unique nature, scholars may consider either developing new theoretical frameworks and concepts tailored to this environment or improving existing theories to address the mixed results. For example, institutional theory has not attracted the attention of CG research in the insurance context, as the sampled articles reveal. Since the insurance industry is not immune to changes in environmental factors (e.g., intense competition, economic recession, and regulatory changes) and is closely monitored by various stakeholders (e.g., agents, reinsurers, policyholders, and brokers), researchers can benefit from institutional theory as an additional means to better understand the different aspects of CG practices in the industry. Emerging theoretical perspectives (e.g., legitimacy theory, stakeholder theory, human capital theory and social network theory) have notably attracted the attention of researchers in this field in recent years. Future studies should thus apply multiple theoretical lenses to better understand and clarify the effects of CG on the insurance industry.

2.6.2 Empirical limitations

2.6.2.1 Less emphasis on specific internal CG mechanisms

Most studies on internal CG have focused on specific mechanisms and explored their effects on corporate outcomes in the insurance industry. For example, 88% of ownership structure studies (i.e., 37 articles) have been heavily focused on managerial, block and institutional ownership, whereas only 12% (or five studies) examined foreign (Alhassan and Biekpe, 2018), state (Liu and Hsu, 2014) and family ownership (Cheng et al., 2017; 2021; Shaddady, 2021) despite the pervasiveness of family ownership in, for example, mutual insurance companies (Cheng et al., 2021); thus, the effects of these forms of ownership requires further investigation.

Similarly, the insurance board characteristics that have been the subject of most research are size, independence and CEO duality, accounting for 84% (i.e., 48 articles) of board studies. However, research on board demographics and human capital characteristics, such as directors' expertise, nationality and gender, remains limited (16% or 9 articles): for example, only one study in the sample explored the role of the board member nationality (Adams and Baker, 2021)

and religion (Lee et al., 2019), and three studies focused mainly on board expertise (Adams and Jiang, 2016; 2017; 2020).

Such investigation of other board characteristics can enhance our understanding of which attributes are important for board members to have to effectively advise and monitor insurance companies. Adams and Jiang (2020) highlighted the role of expertise, for example, in boards of directors, demonstrating that board members with an actuarial background can drive insurance firms to achieve superior performance. As such, insurance firms' risk management effectiveness may rely heavily on their board members' sound professional judgement, which is based on their technical knowledge, relevant training and sufficient risk management expertise (Adams and Jiang, 2016; 2017).

Furthermore, 73% of studies examining board committees have focused primarily on audit and risk committees, while other committees, including finance and Shariah committees, remain insufficiently investigated (26%). For example, only one study (Hsu et al., 2015) examined finance committees in the US, while only six studies Shariah committees (Hemrit, 2020; 2021; Karbhari et al., 2018; Sallemi al., 2021; Zain et al., 2021; Kader et al., 2014). Islamic insurance companies, for instance, must have a Shariah committee in addition to a board of directors (Hemrit, 2020). However, the effect of these Shariah committees on corporate outcomes is as yet unclear, and further research is warranted.

While 92% of the research on managerial compensation in the sampled studies broadly investigated the impact of cash- and equity-based compensation on corporate outcomes, only one study (Milidonis et al., 2019) examined debt-based compensation. Milidonis et al. (2019) demonstrated that CEOs with large pensions and deferred compensation are less inclined to take risks. As such, the examination of different aspects of compensation packages has the potential to expand our knowledge of managerial incentive effects, particularly on insurance firms' outcomes, in light of the fact that the recent financial crisis is frequently cited as an example of executive compensation greed in financial institutions (Boubakri, 2011).

2.6.2.2 Less emphasis on specific external CG mechanisms

The existing literature examining external CG mechanisms in the insurance industry has concentrated on the effects of specific aspects of external monitoring on corporate outcomes. For example, 75% of studies regarding the legal environment have focused primarily on the effects that regulatory requirements have on insurance firms (e.g., capital and disclosure). Only

three studies in the sample addressed Shariah law (Alkhan and Hassan, 2020; Kasim, 2012; Shaddady, 2021). Given the inconclusivity of the existing studies' findings, further investigation is required to verify the impact of Shariah compliance on insurance company outcomes.

Furthermore, while 75% of audit studies have examined the monitoring role of external auditors, less emphasis has been placed on the role of an external actuary (25%). Along with auditor firms, actuaries play a key role in monitoring insurance firms' loss reserves. For example, the National Association of Insurance Commissioners in the US requires that insurance firms include in their annual reports a Statement of Actuarial Opinion certifying the financial adequacy of the firm's reserves (Gaver and Paterson, 2001). Further investigation is thus required to elucidate the underrepresented role that actuaries play in the insurance industry.

2.6.2.3 Marginal attention to specific corporate outcomes

Many of the sample studies focused on specific effects of CG mechanisms on corporate outcomes. For example, 62% (or 80 articles) of the reviewed studies focused on insurance firm financial performance (e.g., accounting-based, such as ROA, and market-based, such as abnormal returns), risk taking (especially market risk measures, such as systemic risk and idiosyncratic risk) and insurance firm efficiency (i.e., cost efficiency). Less attention was paid to the impact of such CG mechanisms on several other corporate outcomes, such as premium and investment profitability, operational risk, audit fees, dividend policies, M&As and firm disclosure. For instance, only three studies in the sample addressed sustainability and CSR (Adams et al., 2017; Ullah et al., 2019; Beare et al., 2014).

With respect to social performance, life insurance firms, for example, play a critical role in promoting the development of human, social and environmental activities by providing medium- and long-term products (Atchinson, 2004; Ullah et al., 2019). Therefore, expanding the examination of the effect of CG mechanisms on a broader range of corporate outcomes will help us further broaden our understanding of the impact of CG mechanisms on firms operating in the insurance industry.

This section of the present paper does not, however, promote the examination of specific governance mechanisms or performance measures to the exclusion of others. Rather, it draws

researchers' attention to promising areas in which there are currently gaps. Future research avenues will be elaborated later in the paper.

2.6.3 Sample limitations

2.6.3.1 Inadequate examination of emerging economies and cross-country studies

Although this paper covers a large number of studies, the majority were based on evidence from a single country, as the US has been the focus of most research (48% of the sampled articles). Few of the sampled studies on the insurance industry's CG practices were conducted with cross-country samples (16%), despite the fact that it is a global industry in which many firms operate internationally. Also, there was a lack of studies conducted in single countries, especially those with emerging economies. For instance, in Africa, only five studies were conducted. Similarly, in Asia and the Pacific, most of the studies concentrated on Malaysia, and other countries have not received much attention.

In fact, the reviewed study results often differed depending on the national context. For example, while Ho et al. (2013) found that CEO duality is positively related to risk taking in the US, Akbar et al. (2017) identified a negative relationship in the UK. Similarly, while Hsu and Petchsakulwong (2010) demonstrated that board independence increases firm efficiency in Thailand, Alhassan et al. (2020) proved that it decreases firm efficiency in South Africa. This discrepancy is possibly due to differences in financial systems, ownership structures and legal frameworks for governance. However, this paper does not recommend simply replicating previous research and comparing differences between countries. Instead, researchers can explore countries' unique institutional features, such as their legal systems and cultural values, to extend the present understanding of CG practices in the insurance industry.

2.6.3.2 Conventional insurance versus Islamic insurance

While the reviewed literature broadly examined both stock and general mutual firms, there was a lack of studies in the sample comparing conventional and Islamic insurance, despite the fact that there has been a growing literature on CG in Islamic insurance in the last decade (Hemrit, 2020; Khan et al., 2020). In this review, only three articles combined both forms (Shaddady, 2021; Kallamu and Saat, 2015; Rubio-Misas, 2020). Rubio-Misas (2020), for example, mainly focused on drawing a comparison between the effect that large shareholders have on the risk-taking of conventional insurers and takaful firms respectively, finding no significant difference in financial stability. Future researchers are encouraged to fill this gap by exploring the

differences in the effects of CG practices between conventional and Islamic insurance firms, since the recent financial crisis has destabilised confidence in the effectiveness of conventional financial institutions, drawing attention instead to alternative forms (Rubio-Misas, 2020).

2.6.4 Methodological limitations

2.6.4.1 Absence of qualitative studies

Most of the reviewed studies used mainly secondary rather than primary data. Only four studies in the sample were conducted using qualitative methods, drawing from interviews in Canada (Beare et al., 2014), China (Chong, 2015), Malaysia (Kasim, 2012), Bahrain and Saudi Arabia (Alkhan and Hassan, 2020). However, recent studies that used the qualitative approach have improved our comprehension of some issues that secondary data sometimes cannot answer. For example, Chong (2015) asked audit practitioners in the insurance industry to explain audit procedures that posed obstacles to insurance auditors, and the practitioners concluded that audit risk level can be reduced through a strategy planned by the audit committee.

McNulty et al. (2013, p. 183) argued that "qualitative research can assist policy-makers and practitioners to develop more efficient governance mechanisms by shedding light on the efficacy of policy prescription." This concept, in turn, can be used to challenge the dominant assumptions around governance from the prescriptive quantitative literature and to highlight how governance actually functions in a given context. Although qualitative research can thus enhance our understanding, there is an obvious gap in the literature on qualitative factors related to CG in the insurance sector. In addition, most of the sample studies that used a qualitative approach focused on disclosure practices. Therefore, more studies with this method are needed on other aspects of CG, and future studies could focus on, for example, collecting insights from industry insiders and external stakeholders regarding complex questions.

2.6.4.2 Measurement inconsistency of some variables used in the literature

When consistent measurements are used, knowledge can be easily compared and accumulated (Flynn et al., 1990; Edmondson and McManus, 2007). Although different complex constructs and methodological approaches demand different measurements, knowledge aggregation and result comparisons are limited when variables are measured differently across studies (Edmondson and McManus, 2007). This assertion does not mean that a particular measure or method is better or more desirable, nor that studies should not measure certain variables using a variety of methods. Rather, this study advocates for the consistent use of a set of common

measurements for the same variable. In the sampled studies, there was little commonality in the measurement of specific variables, but there were still opportunities to find a convergence among the measurements. Several of the sample studies on ownership structures, for example, measured institutional ownership differently. Some researchers used only the ratio of shares (Ullah et al., 2019; Chen et al., 2020) or the duration of shareholdings (Hong et al., 2019), while others tried to overcome this limitation by using a narrow definition of institutional ownership that considered the aforementioned measures and included the number of institutional investors, the type of institutional investor, and the percentage of ownership in the institutional investor's portfolio (e.g., Cheng et al., 2011; Ma and Ren, 2021). Therefore, future studies that use this approach are encouraged.

2.6.4.3 Less precise measures of variables

Several of the sample studies that examined the role of rating agencies focused only on the general impact of downgrade announcements and did not consider the disclosed causes of the downgrade, which had different impacts on the firms' outcomes. For example, it was not investigated whether the downgrade announcements were based on the rating agencies' private information (e.g., the firm performance, earnings, and financial prospects) or private opinion (e.g., the firm's leverage score, new products, and managerial decisions). Chen and Pottier (2017) distinguished between disclosed causes of downgrades and found that the private information of rating agencies more significantly affects the abnormal return of a firm than does the private opinion of the rating agencies. Such accuracy in the measures used for examination is central to understanding the impact of rating agencies on the outcomes of insurance firms, which may reflect how outsider stakeholders differ in their reactions to different types of downgrade announcements.

2.7 Future research avenues

2.7.1 Effects of specific ownership forms (foreign, state and family)

As illustrated before, 12% of the studies that examined ownership structures in the reviewed sample focused on foreign, state and family ownership. For example, only one study by Alhassan and Biekpe (2018) examined the relationship between foreign ownership and risk-taking in South Africa, and a study by Liu and Hsu (2014) investigated the impact of state ownership on financial performance (i.e., return on assets [ROA] and return on equity [ROE])

in Taiwan. Therefore, future researchers can look into how these foreign and/or state levels of ownership concentration affect CG in insurance firms and their impact on other corporate outcomes, such as financial disclosure, earnings management and dividend policies, especially where these corporate outcomes are rarely investigated in studies that investigate ownership structures in the reviewed sample. Additionally, scholars can explore how different or similar these foreign and/or state levels of ownership concentration are in insurance firms in developed countries to those in developing countries. Similarly, regarding family ownership studies, Cheng et al. (2021) examined family ownership in mutual insurance firms, and Cheng et al. (2017) and Shaddady (2021) examined family ownership in stock insurance firms; thus, it would be interesting to expand the examination, for example, to compare family-controlled versus non-family-controlled mutuals and stocks. Moreover, while previous family ownership studies were conducted in the US (Cheng et al., 2017; 2021) and cross-developing countries (Shaddady, 2021), future research can seek to investigate the effect of family ownership on insurance firms in MENA and Asian countries where this form of ownership is prevalent (Farah et al., 2021; Dinh and Calabro, 2019), and these countries are also less examined in the reviewed sample.

2.7.2 Directors' insurance expertise

Adams and Jiang (2020) and Sundaramurthy et al. (2014) argued that outside directors with specific industry knowledge could provide specialist advice and supervisory control that enhance and protect policyholders and shareholders' financial interests. A high-risk and complex industry such as insurance necessitates that directors have adequate insurance-specific knowledge to access the relevant information and ask senior management teams critical questions to carry out CG tasks effectively. Recent studies by Adams and Jiang (2016; 2017; 2020) investigated the relationship between outside directors and CEOs with insurance expertise and financial performance. Hardwick et al. (2011) and Sun et al. (2012) examined the relationship with firm profit efficiency and earnings management, respectively. These studies are the only ones in the sample articles that explored the impact of directors' insurance expertise on insurance firms' outcomes, and they have all been conducted in the UK and the US. Future research, therefore, can expand this rarely examined area by, for example, investigating the impact of directors with insurance expertise on non-financial outcomes, such as CSR and sustainability reporting, or by assessing whether the tenure of insurance expertise matters.

2.7.3 The effects of board-level diversity

According to Farah et al. (2021), one of the most important CG objectives of contemporary organisations worldwide is to promote diversity on corporate boards. Indeed, recent research (e.g., Anderson et al., 2011; Farag and Mallin, 2017) indicates that technically complex companies (like insurance companies) have a particular need for diverse boards, as directors with diverse perspectives provide valuable advice when making complex strategic decisions. However, of the studies in the reviewed sample, only three addressed effects of board gender diversity. Specifically, Pavić Kramarić et al. (2018) examined its effect on financial performance in Croatia, and Ullah et al. (2019) and Adams et al. (2017) investigated its impact on CSR in Bangladesh and the UK, respectively. Similarly, only one study – Adams and Baker (2021) – examined nationality diversity, investigating its effects on solvency and profitability in the UK.

Thus, although studies have started to address board diversity in the insurance industry, this topic has ample unexplored areas and requires further research. For instance, research is needed to resolve contradictory findings about the impact of board gender diversity on insurer performance (e.g., Pavić Kramarić et al., 2018; Ullah et al., 2019) and to extend this examination to other countries and other corporate outcomes, such as risk-taking. There are also critical gaps regarding other forms of diversity, such as ethnicity, tenure, age and education. Therefore, future research should consider these variables when investigating the effect of board diversity on insurance firm outcomes. Such research could help us understand diversity's role in improving the performance of boards of directors and insurance firm outcomes.

2.7.4 Executive compensation in emerging economies

While articles in the sample reviewed addressed managerial incentives that were conducted in developed countries, with 67% in the US, executive compensation in the insurance industry in emerging economies remains insufficiently covered, signalling the need for further research. Future researchers are encouraged to expand this promising area by considering, for example, executive perquisites, which has been overlooked in previous studies (e.g., Milidonis and Stathopoulos, 2011; Eckles et al., 2011). Additionally, scholars are encouraged to conduct comparative studies on executive compensation in emerging economies and developed countries. For example, Eling and Marek (2014) were able to provide evidence regarding the impact of different CG factors (including board and executive compensation) on the risk-taking

behaviour of insurance firms in two developed countries: the U.K., which has a market-based CG environment, and Germany, where a control-based system is prevalent. The study found that German insurance companies did not take as many risks as those in the United Kingdom. As such, comparative studies among insurance markets can help us better understand how managerial incentives affect firms' decision-making in different CG environments. Future research can also examine other less examined outcomes for insurance firms in the field of managerial incentives, such as financial malfeasance (Prechel and Zheng, 2016) and audit fees (Adams et al., 1997).

2.7.5 Islamic insurance and CG (Shariah committee, Shariah law and executive compensation)

The Shariah committee plays a crucial role in defining the risk-taking behaviour of Islamic financial institutions (Mollah and Zaman, 2015). Several studies have examined how the Shariah committee affects Islamic banks' risk-taking and performance (e.g., Mollah et al., 2017; Safiullah and Shamsuddin, 2018); however, further research is needed to assess whether this additional CG layer matters or not for Islamic insurance firms. Future research should also consider a comparative evaluation with the conventional insurance industry to assess if the Shariah committee improves profitability and efficiency, since prior studies have shown inconclusive results (e.g., Hemrit, 2020; Kader et al., 2014). Concerning Shariah law, future researchers could also explore the impact of international challenges that arise from the pressure of globalisation on takaful operators' compliance degree with Sharia regulations and their effects on, for example, efficiency indicators and insurance products. Similarly, so far, no studies have explored compensation structures in Islamic insurance firms in the sample articles. Therefore, future researchers may investigate this promising area, for example, the impact of executive compensation on the risk-taking behaviour or the financial performance of Islamic insurance firms. Such investigations may provide valuable evidence regarding this alternative insurance market's effectiveness and level of progress.

2.7.6 Rating organisation and CEO turnover

Prior studies addressing rating organisations in the sample articles focused mostly (67%) on the relationship with abnormal returns (e.g., Chen and Pottier, 2017; Miao et al., 2014; Milidonis, 2013). Future research should explore the relationship between rating organisations and different types of insurance firms' outcomes, especially those that have not received much

attention in the reviewed literature. For example, Aguilera et al. (2015) argued that external monitoring activities, such as rating organisations' forecasts and downgrade announcements, can be considered certifications of CEO competency and assessments of their company strategies. Such pressure may act as a strong incentive for CEOs to work hard to meet the expectations of these rating organisations (Aguilera et al., 2015). Therefore, future studies may investigate how rating organisations affect CEO turnover in the insurance industry and assess whether a downgrade announcement matters. This can also be extended to other corporate outcomes that are less examined among rating organisation studies, such as premium growth (Epermanis and Harrington, 2006) and earnings announcements (Fan et al., 2006).

2.7.7 Integration of internal and external governance mechanisms

A handful of studies from the sampled literature combined internal and external governance mechanisms in their investigations (e.g., Huang et al., 2011; O'Sullivan and Diacon, 1999; Shaddady, 2021). Future research could explore the potential interactions among these mechanisms. For example, the European Union (EU) introduced the Solvency II regulation in 2016 to guarantee the acceptability of insurance companies' governance structures and risk management practices (Caporale et al., 2017; Boubakri, 2011; Gaganis et al., 2015). However, a limited number of studies from the sampled articles investigated Solvency II after its implementation (e.g., Magee et al., 2019). Aguilera et al. (2015) claimed that the legal environment strongly influences internal governance mechanisms and serves as a powerful complementary mechanism for determining how owners, boards and compensation structures can operate. Future research may explore, for example, the relationship between executive compensation and insurance firms' outcomes, such as financial performance or risk-taking, and the moderating impact of Solvency II after implementation. Furthermore, future studies may investigate how insurance regulation interacts with ownership forms (e.g., those rarely examined foreign, state and family) to determine insurance firm performance.

Research has also shown that external auditors serve as an alternative to effective boards when these boards lack the ability or incentive to supervise management (Desender et al., 2013). Thus, future research may investigate potential interactions between boards of directors and external auditors to determine, for example, the quality of financial reporting. Such investigations that combine internal and external mechanisms may shed light on how external governance mechanisms could help improve internal mechanisms' effectiveness or how external mechanisms might substitute for or complement internal mechanisms.

2.8 Conclusion

The aim of this study was to present a systematic literature review of the effect of CG on the insurance industry. This study comprehensively explored the theoretical perspective and empirical evidence pertaining to a wide range of internal and external governance mechanisms and their effects on a broad set of outcomes for financial and non-financial insurance firms. Specifically, the study covered 130 peer-reviewed articles from 63 journals in more than 10 disciplines (e.g., finance, accounting, management and economics), published during the last 41 years from January 1980 to October 2021. This process followed a scientific, transparent and replicable method that adhered to clearly predefined eligible criteria for inclusion, exclusion and justification to avoid potential bias in selecting the sample.

Findings indicate that internal governance mechanisms, such as ownership forms (i.e., managerial, block, institutional), traditional board attributes, board committees (i.e., audit and risk) and equity-based compensations, have been extensively studied in the literature. On the other hand, limited attention has been given to state, family and foreign ownership, board demographics and human capital characteristics, as well as other board committees and debt-based compensation. External CG mechanisms, such as regulatory requirements and external audits, have been examined extensively, whereas Shariah law and external actuaries have received limited attention. Such less investigated governance mechanisms have shown their significance in affecting various insurance firm outcomes. However, this study does not promote the examination of specific governance mechanisms or performance measures to the exclusion of others. Rather, it draws researchers' attention to promising areas that future research may explore. It should also be noted that there was a lack of studies that conducted cross-country and emerging economies samples, investigated the effects of CG on the Islamic insurance market compared to the conventional market and used qualitative methods.

Although this study offers several perspectives on the current knowledge and provides future CG research directions in the insurance industry, it also, like all research, has some limitations. First, this SLR is restricted to peer-reviewed articles; as a result, it does not include, for example, conference papers and chapters from edited books. Such a review criterion may appear stringent but is crucial in ensuring the quality of the research reviewed (Podsakoff et al., 2005; Ibrahim et al., 2021). Second, the SLR exclusively considers articles listed in the ABS ranking guide, potentially limiting the representation of CG knowledge in the insurance industry. Thus, future research could enhance understanding by directly evaluating the quality

of the existing literature instead of relying on journal rankings such as ABS. Moreover, future research could expand the scope of the review by comparing CG practices in the insurance industry with those in other financial institutions. This could be achieved by including multiple databases in addition to those used in this review and considering the inclusion of emerging keywords relevant to the topic. Such an approach would offer a more holistic view of CG practices across the financial sector and help identify industry-specific challenges and best practices.

Chapter 3: Board diversity and firm risk taking: International evidence from the insurance industry

Abstract

This study investigates the influence of board diversity on firm risk-taking in the insurance industry. Specifically, using an international sample comprising 3,333 firm-years of publicly listed life and non-life insurance firms operating in 44 countries over an extended period (17 years), it examines the impact of multiple diversity facets (gender, nationality, tenure and age) on two critical aspects of risk-taking in insurance firms: insolvency risk (financial risk) and underwriting risk (operational risk). The findings indicate that board diversity in terms of gender, nationality and age is significantly and negatively associated with insurer insolvency and underwriting risk. However, the relationship between board tenure diversity and risk-taking is mixed, demonstrating a significant negative association with insolvency risk but a significant positive association with underwriting risk. These findings remain robust across multiple robustness checks, including alternative risk measures, varied model specifications to address potential endogeneity, sample sensitivity tests, mandatory female board quotas considerations, and evaluations of tokenism and critical mass theories. The study further explores the channels through which insurer risk is influenced, demonstrating that these diversity facets tend to adopt less risky investment and financial policies. Additionally, it assesses the impact on financial performance, finding that the more conservative risk approach does not compromise financial returns. Overall, these findings have important implications for insurers and policymakers, and add value to regulatory discussions and initiatives that aim to improve CG practices through board diversity.

Keywords: Board diversity, gender diversity, nationality diversity, tenure diversity, age diversity, corporate governance, gender quotas, insurer policies, financial performance, risk-taking, insurance industry

3.1 Introduction

This study seeks to contribute to the literature on board diversity and risk-taking by examining the influence of various board diversity aspects (i.e., gender, nationality, tenure and age) on firm risk-taking in the insurance industry. There has been widespread agreement in the literature on some of the main causes of the recent global financial crisis (mid-2007 to early 2009), including inadequate risk evaluation on the part of corporate boards of directors, their poor assessment of firms' sensitivity to economic shocks and their failure to act prudently (e.g., Abou-El-Sood, 2021; Akbar et al., 2017; De Andres et al., 2008; Erkens et al., 2012; García-Sánchez et al., 2017; Mohsni et al., 2021; Zhou et al., 2019). Thus, regulators in various countries remain focused on improving the quality of firms' risk management practices and disclosure (Akbar et al., 2017; Lu and Boateng, 2018), and boards of directors are currently confronting rising expectations with respect to their role in efficiently managing corporate risk (Abou-El-Sood, 2021; Nadeem et al., 2019).

In recent decades, board diversity has received significant legislative, academic and media attention at both international and national levels (Bhat et al., 2019; Cordeiro et al., 2020; Khatib et al., 2021). For example, several countries have adopted compulsory or voluntary quotas to promote gender diversity on corporate boards[9] (Bernile et al., 2018). Furthermore, the Australian Securities Exchange requires listed firms to disclose their diversity policies (Janahi et al., 2022), while the U.S. Securities and Exchange Commission (SEC) requires listed firms to declare their diversity strategies (Ali et al., 2014; Harjoto et al., 2018). Recently, the Bank for International Settlements (BIS) has stressed the significance of board diversity in financial firms, and considers boardroom diversity an efficient medium by which to enhance oversight quality and, ultimately, preclude scandals across the financial services sector (such as those involving Merrill Lynch, Citigroup, AIG, and Wells Fargo) (Fan et al., 2019; García-Sánchez et al., 2017). Obviously, the trend towards a more diverse corporate boardroom is motivated not only by social, ethical and moral fairness perspectives but also by the economic benefits of distinct abilities, talents and experiences that the presence of diverse directors offers in such positions (Bernile et al., 2018; Carter et al., 2003; 2010; Sarhan et al., 2019).

[9] For instance, France, Norway and Spain require a compulsory board representation of 40% for females, with sanctions imposed on non-compliance, such as the adverse impact on state contract awards and delisting from the stock exchange (Terjesen et al., 2015; Terjesen and Sealy, 2016). In states that follow a voluntary approach (comply or explain principle), such as the United States, the United Kingdom and Australia, companies are required to adopt and publish their gender diversity policies or present an explanation in case of non-compliance (Abbasi et al., 2020; Nekhili et al., 2020).

The growing focus on board diversity has generated numerous empirical studies on its relationship to corporate outcomes (Baker et al., 2020; Ben-Amar et al., 2013; Kagzi and Guha, 2018; Khatib et al., 2021). This nexus is thought to exist based on the assumption (e.g., as drawn from agency and resource dependence theories) that diverse directors on a board can provide a broad set of skills, experiences and knowledge bases that improve corporate governance (Ararat et al., 2015; Sarhan et al., 2019; Walt and Ingley, 2003). Increased diversity improves innovation and creativity in a board (Galia and Zenou, 2012; Hillman et al., 2007), generates multiple perspectives for decision making (Gul et al., 2011) and renders problem solving more effective (Horwitz and Horwitz, 2007). Along with the individual attributes of directors and the dynamics within a group, variety in directors' functional characteristics (e.g., work experience) provides opportunities to connect with external environments and secure valuable resources (Ozdemir et al., 2021; Talavera et al., 2018).

Accordingly, scholars have claimed that establishing boards that feature directors who are diverse in terms of gender, nationality, tenure and age is an effective governance tool by which to improve the scrutiny of managerial decisions, given that diverse boardrooms capitalise on extensive perspectives, backgrounds and experiences (e.g. Bernile et al., 2018; Harjoto et al., 2018; Phuong et al., 2022; Miller and Triana, 2009; Sarhan et al., 2019). For example, gender-diverse boards enhance monitoring effectiveness, improve governance quality and effectively manage corporate risk activities (Adams and Ferreira, 2009; Gul et al., 2011; Jia, 2019; Mohsni et al., 2021). Similarly, foreign participation on boards establishes a creative environment by advancing the sharing of cross-national information, skills and expertise, thereby elevating decision making on corporate risk management (Adams and Baker, 2021; Zaid et al., 2020). Meanwhile, diversity in tenure and age affords companies access to the knowledge and rich business experience essential to formulating corporate risk policies and strategies (Bernile et al., 2018; Janahi et al., 2022; Ji et al., 2021). On these bases, board diversity is thought to drive enriched group thinking and reduce idiosyncratic decisions (Ararat et al., 2015; Baker et al., 2020; Li and Wahid, 2018). The board of directors is responsible for supervising the risk-taking activities of firms, such as evaluating and scrutinising a firm's strategies, operations and investment plans, as well as overseeing the firm's investment-related risks (Ozdemir, 2021). Thus, the advantages deriving from diverse boards are in fact significant and may assist in strengthening board supervision of corporate operational and investment decisions and minimising the volatility of financial outcomes, hence reducing corporate risk.

A considerable body of academic research has focused on board diversity and risk-taking in the non-financial context (e.g., Bhat et al., 2019; Bernile et al., 2018; Jebran et al., 2020; Harjoto et al., 2018; Khidmat and Awan, 2021; Mohsni et al., 2021; Ozdemir, 2021; Poletti-Hughes and Briano-Turrent, 2019; Saeed et al., 2021; Phuong et al., 2022), and the limited attention otherwise devoted to financial firms tends to focus on the banking sector (e.g., Abou-El-Sood, 2021; Berger et al., 2014; Kinateder et al., 2021; Lu and Boateng, 2018; Janahi et al., 2022). However, knowledge about the effect of board diversity in the insurance industry is very scarce (e.g., Adams and Baker, 2021; Jouber, 2024). Thus, the current study extends these scarce studies in the insurance industry and distinguishes itself in three key aspects. First, it moves beyond investigating a single diversity aspect, such as gender (Jouber, 2024) or nationality (Adams and Baker, 2021), by analysing multiple other facets of board diversity (i.e., gender, nationality, tenure and age). This comprehensive examination enhances our understanding of how various aspects of board diversity influence insurers' risk-taking proclivities. Second, since the insurance sector is a global industry and many companies operate internationally, the current study investigates the effect of board diversity on risk-taking at an international level. Such a global examination can aid in the generalisability of the study's findings on the insurance industry. Finally, the current study provides new evidence regarding the impact of gender quota implementation and how the examined diversity facets influence insurer policies and financial performance. In this sense, the current study fills a critical gap in the literature by investigating the effect of different aspects of board diversity (i.e., gender, nationality, tenure and age) on risk-taking in both life and non-life insurance firms worldwide.

The insurance industry provides an appropriate research setting in which to test the effects of board diversity on risk-taking. Among insurance firms, essential and critical aspects of a board's strategic objectives are the assurance of 'added value' (e.g., via continuous profits) and the maintenance of solvency (e.g., through reinsurers) (Adiel, 1996). These strategic objectives are important not only to internal stakeholders (e.g., share/policyholders and managers) but also to external counterparts, including policymakers, regulators, and rating agencies (Adams and Jiang, 2020). However, achieving these strategic objectives among insurers is contingent upon leveraging the diverse experiences, insights and perspectives that a gender diverse board can provide (Hardwick et al., 2011; Farag and Mallin, 2017). In addition, for the insurance industry, the board strategic decisions of insurers are further complicated by heavy regulation (e.g., capital requirements, transparent disclosure and solvency maintenance), thus giving rise

to the need for distinct knowledge bases and experience that can inform decision-making (Adams and Jiang, 2016, 2017). In this respect, foreign directors can bring to insurers additional experiences, cultural values, skills and business networks from a variety of institutional environments (Carter et al., 2010; Miletkov et al., 2017; Sarhan et al., 2019).

Furthermore, the operational activities of insurance firms depend on highly specialised and complex techniques (e.g., risk selection and pricing) to safeguard policyholders against unforeseen financial losses through efficient diversification of invested assets and assumed risks (Hsu et al., 2015; Knights and Vurdubakis, 1993). For example, policyholders' regular premiums to insurers create explicit contingent liabilities arising from insurance contracts (Boubakri et al., 2008; Petroni and Beasley, 1996). These contingent liabilities require a fair actuarial estimation of future claims (i.e., loss reserves) (Adams and Jiang, 2020; Gaver and Paterson, 2001). Consequently, inaccurate reserve estimation may subject insurance firms to the possibility of lacking funds to settle claims and thus bankruptcy risk (Alhassan and Biekpe, 2018; Gaganis et al., 2016). Additionally, because insurance companies are purchasing risks from customers, business expansion not only delivers more revenue, but also increases risk exposure, indicating the need for insurers' directors to consider the risk associated with firm growth when making strategic decisions (Ma and Ren, 2012). Taken together, the joint characteristics of complexity and opaqueness in operational activities render risk assessment and risk-taking crucial industry requirements. Amid this backdrop, tenure- and age-diverse boards have extensive experience in understanding firm activities and industry regulations (Katmon et al., 2019), and they can execute the superior monitoring of considerably complex tasks like risk-related activities (Backes and Veen, 2013; Janahi et al., 2022). Therefore, such boards can effectively balance insurer risk with regulatory constraints, and direct resources towards maintaining insurer solvency. To these ends, director diversity is additionally important for insurance businesses, as a diverse board translates into a variety of viewpoints, skills and industrial experiences.

The movement towards a more diverse boardroom has been seen in all sectors, including the insurance industry. For example, according to the Swiss Re Institute, over the last decade there has been a significant increase in the presence of women on the boards of insurance and reinsurance firms globally, of 14% and 20%, respectively[10] (Swiss Re, 2021). Given recent efforts and related progress towards diverse boardrooms as well as increased expectations for

[10] These numbers are based on a global sample of 170 firms in the insurance industry.

the board's role in effectively managing risks in financial firms, it is worth examining the impact of board diversity on risk-taking among insurance firms. Therefore, the current study complements studies in the literature and aims to provide a fresh perspective by examining the effect of various facets of board diversity on two critical aspects of risk-taking in insurance firms: insolvency risk (i.e., financial risk) and underwriting risk (i.e., operational risk). To do so, the current study seeks to achieve the following research objectives.

- **RO1:** To investigate the effect of board gender diversity on insurance firms' risk-taking.
- **RO2:** To investigate the effect of board nationality diversity on insurance firms' risk-taking.
- **RO3:** To investigate the effect of board tenure diversity on insurance firms' risk-taking.
- **RO4:** To investigate the effect of board age diversity on insurance firms' risk-taking.

To accomplish these objectives, the current study examines an international data sample comprising 3,333 firm-years of publicly traded life and non-life insurance firms across 44 countries, covering a 17-year period (2003–2019). The empirical findings reveal that board diversity in terms of gender, nationality and age is significantly and negatively associated with insurer insolvency and underwriting risk. However, there are mixed findings regarding the relationship between board tenure diversity and risk-taking, depending on the investigated risk aspect. While diversity in directors' tenure has a significantly negative association with insurer insolvency risk, it also has a significantly positive association with underwriting risk. These findings are robust to various robustness checks, including alternative risk measures, different model specifications to address potential endogeneity, sample sensitivity tests, assessments of mandatory female board quotas, and examinations of tokenism and critical mass theories. The study further explores how these diversity facets influence insurer risk, revealing that diverse boards tend to adopt less risky investment and financial policies. Additionally, it assesses the impact on financial performance, finding that the more conservative risk approach does not compromise financial returns.

This study makes several contributions to the board diversity knowledge base. First, unlike earlier studies that mostly explore the relationship between board diversity and risk-taking in non-financial firms, this study offers novel insights into the role of diversity in the insurance industry. Specifically, given the various and unique characteristics of industries, recent systematic reviews have explicitly called for industry-specific board diversity studies (e.g., Baker et al., 2020; Gardiner, 2022; Teodósio et al., 2021), particularly in financial institutions (e.g., Khatib et al., 2023; Khatib et al., 2021). Responding to these calls, this study addresses a

critical literature gap by demonstrating that gender, nationality, and age diversity are consistently associated with lower insolvency and underwriting risks in insurance firms. These findings underscore the value of diverse boards in enhancing risk oversight in a highly regulated industry where risk management is central to business operations.

Second, the study's findings of mixed effects for tenure diversity, showing that it reduces insolvency risk but increases underwriting risk, provide an important nuance not captured in prior research. This divergent impact suggests that while tenure-diverse boards may agree on maintaining regulatory solvency requirements, they likely differ in their risk appetites for core business operations. This finding contrasts with prior studies in other industries, which generally report negative effects of tenure diversity on risk-taking (e.g., Ji et al., 2021; Mollah et al., 2021), highlighting how industry context shapes the relationship between board composition and risk management approaches.

Third, this study provides a fresh perspective by examining how board diversity aspects influence insurance-specific policies and performance measures. The findings demonstrate that diverse boards tend to adopt more conservative investment and financial policies without compromising profitability, a particularly important insight for the insurance sector where balancing risk management with returns is crucial. This extends prior work that has mainly focused on general risk measures without examining industry-specific mechanisms through which board diversity affects risk-taking (e.g., Adams and Baker, 2021; Jouber, 2024).

Fourth, this study contributes to ongoing discussions about CG reforms by examining how mandatory gender quota regulations affect risk-taking in insurance firms (e.g., Ferrari et al., 2022; Eckbo et al., 2022). The finding that such quotas led to reduced risk-taking provides new evidence about the effectiveness of diversity-focused policy interventions in highly regulated financial industries, extending prior work that has mainly examined quotas' effects in other sectors and corporate outcomes (e.g., Alkhawaja et al., 2023; Yang et al., 2019). Furthermore, this study sheds light on the dynamics of tokenism versus critical mass effects, revealing that while the presence of even one female director helps reduce risk, the impact strengthens significantly with three or more female directors. This finding offers practical insights into optimal board composition, particularly for insurance firms.

Finally, existing literature often examines the relationship between board diversity and risk-taking within the context of a single country (e.g., Abou-El-Sood, 2021; Bernile et al., 2018; Wang and Hsu, 2013) or region (e.g., Arnaboldi et al., 2020; Farag and Mallin, 2017; Poletti

and Briano, 2019). Responding to recent calls for cross-country board diversity studies (e.g., Baker et al., 2020; Kagzi and Guha, 2018; Teodósio et al., 2021), this study employs an international sample spanning 44 countries over 17 years. It provides unique evidence on how board diversity's impact on risk-taking varies across regulatory environments and market conditions. The persistence of diversity's risk-mitigating effects across institutional contexts highlights its importance for global insurers navigating complex regulatory requirements.

The remainder of the study is structured as follows. Section 3.2 introduces the literature review and hypothesis development, while Section 3.3 discusses the data and methodology. Section 3.4 presents and discusses the empirical results. Finally, Section 4.5 concludes, and suggests avenues for future research.

3.2 Literature review and hypotheses development

3.2.1 Theoretical background

Board diversity can be defined as the variety inherent in the board of directors' composition (Katmon et al., 2019; Kang et al., 2007; Galia and Zenou, 2012). Furthermore, Walt and Ingley (2003) defined diversity on boards as a diverse set of qualities, skills and attributes offered by individual directors on the board concerning board decision-making and procedure. Carter et al. (2010) and Sarhan et al. (2019) argue that a single theory could not adequately explain the relationship between board diversity and corporate performance, since no single theory can account for the nature of such a relationship. In this regard, researchers have employed several theories in the existing literature to study the relationship between board diversity and corporate performance, including agency theory (e.g., Ararat et al., 2015; Ben-Amar et al., 2013; Carter et al., 2010), resource dependence theory (e.g., Farag and Mallin, 2017; Jebran et al., 2020; Talavera et al., 2018) and social identity theory (e.g., Harjoto et al., 2018; Wang and Hsu, 2013; Sarhan et al., 2019).

As per Ararat et al. (2015), two organisational theories, agency and resource dependence theories, can explain how board diversity influences corporate financial performance since they reflect two critical functions of the board, which are to (a) control and monitor managers to ensure rule compliance (i.e., monitoring role) in accordance with the agency viewpoint and (b) bring important resources by connecting the firm to the external environment (i.e., advising role) in accordance with the resource dependence viewpoint (Adams et al., 2010; Monks and Minow, 2011). Therefore, an appropriate combination of multiple theories is more likely to

provide better insight into the board diversity–performance relationship (Carter et al., 2010; Farag and Mallin, 2017). Considering this, the current study draws from multiple theoretical perspectives, employing both agency and resource dependence theories.

Agency theory is derived from the separation of ownership and control, which exists between shareholders (principles) and managers (agents) (Watts and Zimmerman, 1978). Shareholders employ managers to operate the firm and make business decisions on their behalf that are perceived to be in the shareholders' best interests. However, this theory also proposes that managers can be self-interested and behave opportunistically, making decisions against shareholders' interests, ultimately resulting in conflicts of interest between shareholders and managers (Jensen and Meckling, 1976; Marsden and Prevost, 2005; Watts and Zimmerman, 1990). As per agency theory, the board of directors is a critical governance mechanism that plays a vital monitoring role in alleviating agency conflicts between shareholders and managers (Fama and Jensen, 1983). The monitoring role requires the board to scrutinise senior management's operations to minimise opportunistic behaviour, such as risk avoidance or excessive risk-taking by the executive team (Lu and Boateng, 2018, McNulty et al., 2013). Thus, the boards of directors are responsible for ensuring that managers fulfil their duties to maximise shareholder value and manage corporate risk effectively (Jensen and Meckling, 1976; Kirkpatrick, 2009).

From an agency theory perspective, board independence from management is fundamental to effective monitoring and oversight (Carter et al., 2003). Board diversity can enhance this independence by introducing multifaceted perspectives, varied experiences, and diverse professional knowledge into boardroom deliberations (Farag and Mallin, 2017; Walt and Ingley, 2003). The presence of directors with different backgrounds and characteristics can disrupt cognitive homogeneity, mitigate groupthink tendencies, and encourage critical evaluation of management decisions through multiple lenses (Li and Wahid, 2018; Song et al., 2020; Talavera et al., 2018). This cognitive diversity expands the scope of board oversight, creating an environment where directors are more inclined to challenge the status quo, pose unconventional questions to executive teams, and oppose their proposals that homogenous board members may hesitate to confront (Jebran et al., 2020; Ozdemir, 2020). However, it is important to acknowledge that diversity alone does not inherently guarantee independence from management (Carter et al., 2003). Instead, it creates conditions conducive to independent thinking, and when combined with sound governance structures, it can strengthen the board's ability to execute its oversight responsibilities effectively (Mohsni et al., 2021). Empirical

evidence supports the role of diversity in CG. Studies show that board diversity across multiple dimensions—including gender, nationality, tenure, and age—can improve the board's monitoring function, reduce agency costs (Gul et al., 2011; Jia, 2019; Sarhan et al., 2019), enhance corporate financial solvency (Adams and Baker, 2021), and reduce excessive risk-taking (Lu and Boateng, 2018; Bhat et al., 2019; Ozdemir, 2021). In this regard, a diverse board may enable directors to provide objective, high-quality advice and exercise effective control—capabilities particularly crucial for risk management in firms facing substantial exposure, such as insurance companies.

Unlike agency theory, which focuses on the board's oversight role (Jensen and Meckling, 1976), resource dependency theory focuses on the role of boards in ensuring the flow of crucial resources to corporations (Pfeffer and Salancik, 1978). The theory suggests that boards occupy an important role, throughout their connections to the external environment, in guaranteeing access to resources critical to corporate development, such as skills, knowledge, access to suppliers, customers, public policymakers and legitimacy (Hillman et al., 2000; 2003; Pfeffer and Salancik, 1978). Thus, the critical resources brought by the board aid in turn lower the firm's transaction costs, reduce the firm's uncertainty, and decrease the firm's insolvency rate, resulting in an overall improvement in corporate performance (Singh et al., 1986; Pfeffer and Salannik, 1978; Pfeffer, 1972).

Drawing on this theory, corporate board diversity provides different beneficial resources to the company (Carter et al., 2003). Diverse board members will bring valuable resources such as information, expertise and access to critical stakeholders (e.g., suppliers, buyers, policymakers and social groups) (Hillman et al., 2000; Sarhan et al., 2019; Talavera et al., 2018). More diversified boards (through gender, nationality, tenure and age) enable corporations to build extended networks, which may offer chances to acquire unique information and assist them in achieving strategic goals and making better decisions (Elmagrhi et al., 2019; Ji et al., 2021; Sarhan et al., 2019; Williams and O'Reilly, 1998). The theory suggests that the diverse attributes of directors are significant in strengthening and providing critical resources to the risk management of the firm, which includes, among other things, offering counsel and knowledge to the executive team in terms of dealing with firm risks and identifying possible risk opportunities (Hillman et al., 2000; Hillman and Dalziel, 2003; Jia, 2019; Song et al., 2020; Pfefier and Salancik, 1978). Therefore, companies capable of determining, understanding and managing risks have a better chance of surviving, particularly in a high-risk industry such as insurance (Adams and Baker, 2021; Hutchinson et al., 2015).

3.2.2 Board and risk taking in the insurance industry

Given the complexity and opacity of insurance industry operations and activities, the board of directors is accountable for approving and making all critical decisions that have a significant impact on insurers' performance and efficiency (Adams and Jiang, 2016; Akbar et al., 2017; Khatib et al., 2021). Furthermore, in addition to shareholders and industry regulators, the board should align management goals with the interests of various stakeholders with diverse goals and motivations (e.g., reinsurers, agents, brokers and policyholders; Cole et al., 2011; Eling and Marek, 2014; Boubakri, 2011). Although their interests may differ, the board works towards their common objective of guaranteeing insurers' financial stability since their failure is very costly at the micro- and macroeconomic levels (Cole et al., 2011; García-Sánchez et al., 2017; Mühlnickel and Weiß, 2015). Insurance directors therefore face substantial liability risk and, accordingly, play a vital role in providing efficient monitoring of and counsel on strategic plans, prohibiting excessive risk taking, and offering insightful strategic advice (Adams and Baker, 2021; Hardwick et al., 2011).

Given the importance of the board's role in the insurance industry, it has triggered the attention of academic researchers to investigate its effect on risk taking in insurance firms. One group of studies focused on examining board traditional characteristics such as independence, size and CEO duality (e.g., Cole et al., 2011; Elamer et al., 2018; Eling and Marek, 2014; Ho et al., 2021; Ho et al., 2013). For example, Cole et al. (2011), Elamer et al. (2018), Eling and Marek (2014), and Ho et al. (2021) find that increased board independence and size is associated with lower risk taking in the insurance industry. In contrast, Ho et al. (2013) observe that board size and CEO duality positively relate to insurance firms' risk. Another group of studies focused on risk governance (e.g., Dupire et al., 2021; Magee et al., 2019) and risk committee characteristics (Ng et al., 2013). For instance, Magee et al. (2019) indicate that the presence of risk committees and a chief risk officer does not affect insurance firms' risk, while Ng et al. (2013) report that a risk committee's independence and size are negatively associated with insurers' risk. Most recently, Jouber (2024) and Adams and Baker (2021) have shed light on the impact of board diversity on non-life insurance firms in Europe. Specifically, Jouber (2024) focused on board gender diversity and found that the presence of female directors reduces insurer total risk. On the other hand, Adams and Baker (2021) investigated board nationality and discovered that European directors had a more significant positive impact on the solvency position of non-life insurers compared to their North American counterparts. To expand the results of these previous studies and offer additional insights into the board of directors'

influence on risk-taking in the insurance industry, this study aims to contribute to the literature by providing further evidence of the impact of a broader range of board diversity aspects (i.e., gender, nationality, tenure and age) on both life and non-life insurance firms' risk-taking across the world.

3.2.3 Hypotheses development

According to Farag and Mallin (2017) and Lu and Boateng (2018), board diversity and effective board supervision of strategic management decisions will not only result in greater performance but also enhance the management of risk-taking in financial institutions. In the following sections, four main hypotheses are presented for the examined facets of board diversity (i.e., gender, nationality, tenure and age) considering two aspects of risk-taking in insurance firms: insolvency risk (i.e., financial risk) and underwriting risk (i.e., operational risk). These risk aspects are particularly important to regulators, investors and other insurance industry stakeholders (e.g., policyholders), as they represent the insurer's ability to fulfil contractual commitments and the effectiveness of its business operations.

3.2.3.1 Board gender diversity

Gender diversity within corporate boards has attracted considerable attention in CG research, especially in exploring how female directors influence corporate decision-making and firm outcomes (Nguyen et al., 2020). This diversity attribute carries dual significance, offering both strategic advantages for corporate performance and ethical implications for stakeholder representation (Coffey and Wang, 1998; Khan and Vieito, 2013). A growing body of research demonstrates that female board representation enhances multiple facets of CG. Specifically, gender-diverse boards exhibit superior decision-making processes, heightened ethical awareness, and more comprehensive risk management approaches (Fan et al., 2019; Jamali et al., 2007; Lu and Boateng, 2018). They also can offer varied perspectives, improve internal control systems, enhance transparency quality (Gul et al., 2013), and adhere to ethical corporate practices (Gold et al., 2009; Shawver et al., 2006). Within the insurance industry, where board risk oversight and regulatory compliance are critical, gender diversity's influence on governance quality may play a significant role in promoting financial stability and risk management.

Agency theory suggests that the efficiency of board oversight in curbing executive self-serving behaviour is dependent on board independence and diligence (Fan et al., 2019). Through this

theoretical lens, gender diversity can enhance board effectiveness in two crucial ways. First, the presence of female directors likely strengthens board monitoring due to their relative detachment from traditional networks, often termed the "old-boys' club." This positioning aligns them more closely with independent directors (Carter et al., 2003; Gul et al., 2011). Research demonstrates fundamental differences between male and female directors in their core values and risk attitudes, with female directors exhibiting more independent monitoring behaviour in their board roles (Huang and Kisgen, 2013; Huse and Solberg, 2006). These behavioural distinctions suggest that female directors may, to a certain extent, bring an enhanced level of independence to the board.

Second, female directors exhibit higher levels of diligence and dedication in their monitoring duties. They show lower tolerance for opportunistic behaviour (Levi et al., 2014; Liu et al., 2014), higher attendance at board meetings (Adams and Ferreira, 2009), enhanced internal control quality (Chen et al., 2016), and stronger advocacy for external monitoring mechanisms, such as engaging external auditors (Aldamen et al., 2018). By diversifying the board's experience and perspectives, female directors contribute to more effective monitoring, often raising critical questions and demonstrating a strong commitment to protecting shareholders' interests (Adams and Ferreira, 2009; Farag and Mallin, 2017). Although increased gender diversity may initially lead to heightened conflict due to potential trust issues, this dynamic can drive greater scrutiny and accountability within the board (Chattopadhyay et al., 2008). This enhanced monitoring effectiveness is particularly crucial in the insurance industry, where boards with female representation are likely to have more intense boardroom discussions and more stringent evaluations of executive suggestions, such as those related to risk strategies.

Resource dependence theory complements agency theory by highlighting how female directors can enhance a firm's capabilities by providing access to unique resources, perspectives, and networks that support effective decision-making (Uyar et al., 2022). With valuable social capital and diverse viewpoints, female directors can strengthen the board's capacity to oversee complex risk management and guide balanced, informed decisions (Cardillo et al., 2021; Kim and Starks, 2016). For example, female directors may introduce distinct networks and insights that broaden the board's understanding of market dynamics and regulatory environments, enabling decisions that align more closely with stakeholder expectations and societal standards (Elnahass et al., 2023; Shakil et al., 2021). This resource enrichment is particularly valuable in the insurance sector, where diverse perspectives from gender-diverse boards promote more

comprehensive risk assessment and decision-making processes, potentially reducing uncertainty and enhancing operational outcomes.

Psychological and behavioural studies further support these theoretical claims, showing that female directors generally display more conservative risk preferences compared to their male counterparts (Powell and Ansic, 1997; Vandegrift and Brown, 2005). This tendency often results in a greater aversion to challenging investments or high-risk decisions (Jianakoplos and Bernasek, 1998; Loukil and Yousfi, 2016). As a result, female directors can moderate male CEOs' overconfidence by making more cautious choices, adopting less aggressive policies, and helping mitigate financial distress within their firms (Chen et al., 2019). These findings align with research linking female board members to reduced overall company risk (Farrell and Hersch, 2005), lower stock return volatility (Adams and Ferreira, 2009), and decreased insolvency risk (Abinzano et al., 2023). In the post-global financial crisis era, this moderation of risk is especially valuable, as companies that avoid excessive risk-taking are more likely to achieve long-term survival (Hutchinson et al., 2015). Thus, gender diversity in the boardroom enhances decision-making by encouraging balanced, risk-aware strategies shaped by the unique perspectives female directors bring.

While theoretical foundations suggest a positive influence of board gender diversity on governance and risk oversight, empirical evidence regarding its impact on risk-taking remains mixed. Several studies indicate that gender-diverse boards are negatively associated with risk-taking. For example, research by Cardillo et al. (2021), Jia (2019), and Lu and Boateng (2018) reveals that an increased presence of female directors on boards significantly reduces firms' risk-taking. These findings support the view that gender-diverse boards enhance risk management by offering more balanced advice, informed decision-making, and a tendency toward caution, reflective of the generally risk-averse nature attributed to female directors.

However, not all empirical studies align with this view. Research by Berger et al. (2014) and Adams and Funk (2012), for instance, suggests a positive relationship between gender diversity and risk-taking, implying that women on boards may, in certain contexts, promote more aggressive risk management strategies. This may stem from an emphasis on potential rewards tied to higher-risk decisions (Abou-El-Sood, 2021). Furthermore, studies by Sila et al. (2016) and Talavera et al. (2018) find no significant link between board gender diversity and risk-taking, underscoring the complexity of this relationship.

Given these conflicting findings, it is essential to consider the unique context of the insurance industry. Operating in a heavily regulated environment characterised by high complexity and inherent risk, insurance companies prioritise stability, long-term performance, and stakeholders' expectations (Cole et al., 2011). The cautious approach to risk management often associated with female directors may align well with these industry priorities. In this regard, on the basis of agency and resource dependence theories and the above discussions, it is expected that board gender diversity would negatively affect firms' risk-taking in the insurance industry. Thus, the first hypothesis is as follows:

H1: Board gender diversity significantly and negatively affects firm risk taking in the insurance industry.

3.2.3.2 Board nationality diversity

One of the emerging trends in CG is an increased emphasis on nationality diversity on corporate boards, reflecting the growing globalisation of businesses (Van Veen and Marsman, 2008; Oxelheim et al., 2013). Nationality diversity refers to the inclusion of directors from diverse countries, contributing a wider range of cultural perspectives, experiences, and knowledge to board deliberations (Estélyi and Nisar, 2016; Frijns et al., 2016). Over the past two decades, this diversity has gained attention as companies seek to leverage cross-border expertise and networks (Nielsen and Nielsen, 2013). This is particularly relevant in industries such as insurance, where firms often operate internationally and are subject to a range of regulatory requirements.

From an agency theory perspective, the inclusion of foreign directors can enhance the board's ability to monitor management, particularly by offering new perspectives that challenge established viewpoints and reduce the likelihood of groupthink (Masulis et al., 2012; Ruigrok et al., 2007). Foreign directors, by virtue of being from outside the company's traditional network, may bring a greater degree of independence in their decision-making and oversight roles (Carter et al., 2010). Their backgrounds often differ from local directors, which can reduce entrenched relationships within the board and potentially curb management's opportunistic behaviour, especially in risk-taking (Hooghiemstra et al., 2019; Oxelheim and Randøy, 2003). Similar to outside independent directors, foreign directors have a vested interest in maintaining their reputations as diligent monitors (Estélyi and Nisar, 2016). Those from countries with rigorous regulatory standards, in particular, may strive to uphold prudent management practices and robust oversight, avoiding decisions that could compromise

solvency or financial stability (Ararat et al., 2015; Miletkov et al., 2017). In the insurance industry context, foreign directors' diverse regulatory and market experiences can lead to more rigorous oversight of management's strategic decisions, particularly concerning risk management. Drawing on their international exposure, foreign directors can identify unique risk factors that local directors might overlook, enhancing the board's capacity to manage both financial and operational risks (Adams and Baker, 2021).

In addition to improving oversight, resource dependence theory suggests that nationality diversity enhances a board's ability to secure valuable external resources. Directors from various countries bring access to international networks, insights into foreign markets, and connections with global stakeholders, which collectively can enhance a firm's competitive advantage in complex global environments (Garca-Meca et al., 2015; Sarhan et al., 2019). For multinational insurance firms, this international connectivity is vital for managing risks tied to global operations, including reinsurance agreements, compliance with foreign regulations, and market expansion (Elnahass et al., 2023; Magee et al., 2019). Nationality-diverse boards are also better equipped to evaluate international strategies, with directors contributing culturally informed insights that improve decision-making and strategic alignment with foreign markets (Chiu et al., 2016; Zaid et al., 2020). This diversity can help firms navigate the unique risks of operating within varied legal and regulatory frameworks, supporting robust risk management and financial solvency.

Empirical evidence on nationality diversity's impact on risk-taking presents mixed findings. Supportive evidence indicates that board nationality diversity can contribute to better risk management by expanding oversight scope and improving decision quality. Research has demonstrated that foreign directors' diverse perspectives and skills can lead to reduced excessive risk-taking (Ali et al., 2022; Hasan and Xie, 2013; Nainggolan et al., 2022). These findings are especially relevant in industries such as insurance, where companies navigate complex, risk-intensive environments that demand comprehensive oversight and strategic risk management. For instance, Adams and Baker (2021) found that nationality-diverse boards in the UK's insurance industry were more effective in managing solvency risks, as foreign directors provided specialised knowledge of foreign regulatory systems, aiding firms in meeting diverse legal requirements. This aligns with resource dependence theory, wherein directors with varied international backgrounds contribute resources that help reduce uncertainty and navigate complex business landscapes (Hillman et al., 2000).

Contrary evidence, however, suggests potential drawbacks. Studies by Arnaboldi et al. (2020) and Setiyono and Tarazi (2018) found that nationality diversity sometimes correlates with increased corporate risk-taking, particularly when foreign directors lack familiarity with local regulations, business practices, and cultural norms (Guest, 2019). This unfamiliarity may compromise their oversight effectiveness and potentially increase risk exposure. Additionally, some research, such as Dong et al. (2017), finds no significant relationship between nationality diversity and risk-taking, suggesting that nationality diversity benefits may not consistently translate into risk reduction.

Nevertheless, given the high regulatory standards and the imperative for financial stability in the insurance industry—where firms must carefully balance growth with risk management—the diverse experiences of foreign directors, combined with their knowledge of international markets and regulatory frameworks, can significantly enhance oversight effectiveness. Their commitment to reputation as prudent directors, alongside their emphasis on preserving solvency, offers crucial resources for effective risk management. This is especially valuable in trust-based sectors such as insurance, where decision-making must prioritise long-term stability. In this respect, drawing on agency and resource dependence theories, and based on the preceding discussion, it is expected that board nationality diversity negatively affects firms' risk-taking in the insurance industry. Thus, the second hypothesis is as follows:

H2: Board nationality diversity significantly and negatively affects firms' risk taking in the insurance industry.

3.2.3.3 Board tenure diversity

In recent years, board tenure diversity has garnered significant attention among researchers and regulators, especially concerning its potential influence on CG and firm outcomes, such as risk management (Li and Wahid, 2018). Board tenure diversity refers to the variation in the duration of service among board members, creating a blend of both long-tenured and short-tenured directors (Katmon et al., 2019). This diversity can enhance board effectiveness by introducing a range of experiences, levels of firm-specific knowledge, and fresh perspectives, which are crucial for balancing continuity and adaptability in corporate decision-making (Barroso et al., 2011; Ji et al., 2021).

According to agency theory, effective board monitoring is vital to safeguarding shareholder interests by ensuring that management's actions align with those interests (Jensen and Meckling, 1976). Board tenure diversity can support this monitoring role by including directors with varied tenures, each contributing unique strengths to oversight and decision-making (Carter et al., 2003). Specifically, long-tenured directors offer accumulated knowledge of the firm's history, operations, and challenges, which enables them to scrutinise management's actions effectively and provide valuable input during decision-making processes (Huang and Hilary, 2018; Ben-Amar et al., 2013). Their deep familiarity with firm-specific risks ensures continuity of knowledge and helps align management's decisions with shareholders' long-term interests (Jebran et al., 2020). However, there is a potential risk that long-tenured directors may become too aligned with management, thereby reducing their objectivity and oversight effectiveness (James et al., 2021; Patro et al., 2018).

On the other hand, shorter-tenured directors, due to their more recent appointments, are often less entrenched in the firm's established networks, enabling them to offer more independent viewpoints and reduce the risk of groupthink during board discussions (Harjoto et al., 2018; Hosny and Elgharbawy, 2021). Such independence is critical for mitigating agency conflicts and curbing opportunistic behaviours by management (Li and Wahid, 2018; Jebran et al., 2020). Shorter-tenured directors can also introduce new perspectives, innovative ideas, and fresh approaches to governance (Phuong et al., 2022). This is particularly valuable in industries like insurance, where firms must navigate rapidly evolving regulatory environments and emerging risks (Giroud and Mueller, 2010). Thus, tenure diversity creates a balance between knowledge continuity and objectivity: long-tenured directors contribute stability and firm-specific insight, while shorter-tenured directors offer independent viewpoints and fresh insights, enhancing the board's overall monitoring capabilities. This balance is especially beneficial in the insurance sector, where firms must address extensive regulatory requirements while managing risks to maintain competitiveness and financial stability (Cole et al., 2011; Eling and Marek, 2014).

Resource dependence theory further supports the value of board tenure diversity, emphasising how tenure-diverse boards enhance access to a broad range of external resources. Long-tenured directors often develop strong relationships with key stakeholders—including regulators, reinsurers, and policymakers—while leveraging deep firm-specific knowledge that provides essential expertise for navigating complex regulatory landscapes (Baran and Forst, 2015;

Wahab et al., 2018). Complementing these established networks, shorter-tenured directors bring fresh external connections and contemporary insights from diverse industries (Brown et al., 2017), enhancing the board's socio-cognitive abilities and information-processing capabilities through their multi-corporate experiences (Xu et al., 2017). This combination of professional expertise and novel perspectives strengthens the board's capacity to evaluate strategic alternatives (Castro et al., 2009), optimise risk management practices (Phuong et al., 2022), and adapt to developments in competitive business environments (Susi and Lukason, 2019). Given the dynamic nature of the insurance industry, tenure-diverse boards demonstrate superior capabilities in balancing corporate risk-taking with regulatory constraints (Katmon et al., 2019) while strategically directing resources to maintain corporate solvency (Howton, 2006). Therefore, the integration of long-standing institutional knowledge with fresh perspectives positions tenure-diverse boards as critical advisors on strategic risk decisions and long-term organisational sustainability.

Empirical studies on the relationship between board tenure diversity and risk-taking yield a variety of findings. Some evidence suggests that tenure diversity enhances the board's risk management capabilities by balancing the advantages of long-term experience with the innovative perspectives of newer directors. For instance, Ji et al. (2021) and Mollah et al. (2021) found that tenure-diverse boards effectively reduce excessive risk-taking through improved management oversight and informed decision-making. Bhat et al. (2019) similarly reported that tenure-diverse boards lower risk-taking by enhancing corporate transparency and minimising agency costs. However, not all studies are consistent in their findings. Some suggest that tenure diversity can lead to boardroom conflicts and impede decision-making cohesion, particularly when there is a large gap in the tenures of directors (Hagendorff and Keasey, 2012). This disparity may create challenges in reaching consensus, thereby increasing the firm's risk profile, as noted by Hagendorff and Keasey (2012) and Wang and Hsu (2013). Additionally, certain studies, such as Shakil et al. (2021), have found no significant relationship between tenure diversity and risk-taking.

In the context of the insurance industry, where the regulatory landscape and risk management demands are particularly stringent, the board's familiarity with industry-specific dynamics and regulations is vital. Long-tenured directors offer critical firm-specific knowledge and stability that align with the industry's complex regulatory demands and long-term risk considerations. On the other hand, shorter-tenured directors provide fresh perspectives and adaptability

necessary for addressing evolving market conditions and emerging risks. This mix of experience and new insights enhances strategic decision-making and risk oversight, fostering a balanced approach that supports the industry's emphasis on stability and resilience. In this regard, on the basis of agency and resource dependence theories and the above discussions, it is expected that board tenure diversity would negatively affect firms' risk-taking in the insurance industry. Thus, the third hypothesis is as follows:

H3: Board tenure diversity significantly and negatively affects firm risk-taking in the insurance industry.

3.2.3.4 Board age diversity

Board age diversity has emerged as a crucial element of CG in recent years (Janahi et al., 2022). This dimension of diversity refers to the range of ages represented on corporate boards, reflecting varied life experiences, career stages, investment behaviours, and risk attitudes among directors (Hambrick et al., 2015; Serfling, 2014). It also signals the board's overall competence, experience, and ability to guide the corporation effectively (Islam et al., 2022). Directors from different age groups can offer distinct perspectives on governance and strategic decision-making, particularly in the context of managing risk (Gielnik et al., 2017; Mahadeo et al., 2012). Given the evolving nature of industries such as insurance, where firms operate in dynamic and highly regulated environments, age diversity may play an essential role in ensuring a balanced approach to risk management (Bernile et al., 2018; Rivas, 2012).

Through the lens of agency theory, the knowledge and experience of directors are critical for effective board monitoring (García-Sánchez et al., 2017). Age diversity can enhance this function by bringing together a wide range of experiences, perspectives, and skills (Talavera et al., 2018). Older directors typically contribute years of accumulated expertise and a more conservative approach to decision-making, which is crucial for ensuring prudent risk-taking and providing strong oversight (Elmagrhi et al., 2019; Kang et al., 2007). Their deep understanding of industry trends, regulatory requirements, and market challenges strengthens their ability to offer critical scrutiny and steer the board toward cautious, risk-averse strategies (Ararat et al., 2015). In contrast, younger directors often exhibit a propensity for innovation and a willingness to take risks, reflecting their energy and openness to new opportunities (Ali et al., 2014). These directors may offer fresh insights into emerging risks and opportunities, such as technological advancements (Xu et al., 2017). The interplay between the cautious oversight of older directors and the innovative drive of younger ones can create a balanced

approach to board governance (Fernández and Tejerina, 2020). This synergy can foster robust discussions that incorporate both conservative and progressive perspectives on risk-taking, mitigating groupthink, and strengthening the board's overall capacity to monitor management effectively and make well-rounded decisions (Ararat et al., 2015).

From a resource dependence theory perspective, organisations rely on their external environments to secure resources essential for survival and growth (Pfeffer and Salancik, 1978). Board age diversity can function as a valuable resource, providing access to diverse networks, knowledge, and industry-specific expertise (Katmon et al., 2019). Age-diverse boards can enhance market access, regulatory interactions, and engagement with critical external stakeholders by leveraging the networks and experiences of directors from different age groups (Talavera et al., 2018; Mahadeo et al., 2012). For insurance firms operating in dynamic and competitive markets, this diversity can be especially advantageous, enabling boards to better understand client demands, navigate market challenges, and adapt to industry changes (Janahi et al., 2022; Wahab et al., 2018). The deep industry knowledge, regulatory acumen, and accumulated business experience of older directors contribute to sound strategic decisions and effective risk mitigation (Adams and Jiang, 2017). Meanwhile, younger directors may introduce innovative strategies, market expansion initiatives, and a readiness to engage with emerging technologies and business models, enhancing firms' responsiveness to evolving market conditions (Song et al., 2020). The combination of seasoned experience and youthful dynamism can create a synergetic effect, offering management a broader range of resources and insights to support strategic decision-making and effective risk management (Garcia-Sanchez et al., 2017).

Empirical research on the relationship between board age diversity and risk-taking presents mixed findings. The supporting evidence suggests that age-diverse boards enhance risk management outcomes by effectively balancing conservative and innovative perspectives. Bernile et al. (2018) and Bhat et al. (2019) found that greater age diversity correlates with more balanced risk-taking behaviours, as varied age groups contribute complementary approaches to risk evaluation. Janahi et al. (2022) further demonstrated that age-diverse boards enhance risk management practices through robust discussions and critical risk evaluations. However, some studies highlight potential challenges. Research suggests that significant generational differences can impede teamwork, compromise board cohesion, and hamper effective communication, potentially weakening decision-making processes and management oversight

(Arnaboldi et al., 2020). Wang and Hsu (2013) found that board age diversity increased risk exposure, while other studies, such as Talavera et al. (2018), found no significant relationship between age diversity and risk-taking behaviour.

Given these conflicting findings, the unique context of the insurance industry must be considered. Operating in a complex, highly regulated environment with inherent risks, insurance companies must balance stability, solvency, and long-term performance while addressing the interests of multiple stakeholders, including policyholders, regulators, and investors (Cole et al., 2011; Adams and Baker, 2021). In this setting, integrating generational perspectives within the boardroom can be especially valuable. The cautious, experience-driven approach of older directors aligns with the industry's focus on conservative risk management and regulatory compliance, while younger directors' openness to innovation and adaptability to emerging market changes can enhance competitiveness. In this respect, drawing on the theoretical perspectives of agency and resource dependence and based on the above discussions, it is expected that board age diversity would negatively affect firms' risk-taking in the insurance industry. Thus, the fourth hypothesis is as follows:

H4: Board age diversity significantly and negatively affects firms' risk taking in the insurance industry.

3.3 Data and methodology

3.3.1 Data sample

The sample in this study consists of publicly traded life and non-life insurance firms around the world for the years 2003 to 2019. Data availability during the study period was the motivation behind selecting these years. Financial data were obtained from the Worldscope data in Thomson Reuters' Datastream. Board and governance data were obtained from the BoardEx database. Additionally, country-level data were collected from the World Bank and the Worldwide Governance Indicator (WGI) databases. After merging all of the data, the final sample dataset included 3,333 firm-year observations covering a period of 17 years (2003–2019). In line with prior studies on board diversity and risk taking (e.g., Arnaboldi et al., 2020; Ji et al., 2021; Mollah et al., 2021; Sila et al., 2016), all the financial variables are winsorised in the top and bottom 1% to eliminate the influence of outliers.

3.3.2 Dependent variables: Risk-taking

The aim of the study to examine the effect of board diversity on risk taking in the insurance industry. Ho et al. (2013) advise studying different aspects of risk when investigating insurers' risk-taking to better assess their risk. In this respect, insolvency and underwriting risks are significant sources of concern for insurance firms (Adams and Jiang, 2017; Baranoff and Sager, 2003; Ng et al., 2013; Pasiouras and Gaganis, 2013). Regulators, investors and other stakeholders in the insurance industry pay particular attention to these risk aspects, since they reflect the insurer's ability to meet contractual obligations and the efficiency of firm operations (Caporale et al., 2017; Gaganis et al., 2019; Ho et al., 2013). Furthermore, these risk aspects are more likely to be influenced by insurance directors' decisions (Akbar et al., 2017; Ho et al., 2013). Thus, this study considers two important aspects of insurance firms' financial and business risks: insolvency risk and underwriting risk.[11]

To measure insolvency risk, this study employed a well-known accounting measure of distance to default: the Z-score. This measure is widely used in the literature on risk-taking in the insurance industry (e.g., Akbar et al., 2017; Gaganis et al., 2019; Pasiouras and Gaganis, 2013; Shim, 2017; Milidonis et al., 2019; Mühlnickel and Weiß, 2015; Rubio-Misas, 2020). The Z-score measures the degree of solvency, or put another way, it gauges the likelihood of insolvency, which occurs when losses exceed equity (García-Sánchez et al., 2017). Higher Z-scores suggest less risk of insolvency, and vice versa. According to Pasiouras and Gaganis (2013) and Rubio-Misas (2020), the Z-score can be used as an indicator of an insurer's insolvency risk, since the insurer's equity serves as a buffer against unanticipated losses and is essential to the insurer's ability to meet its obligations.

Following prior studies (Akbar et al., 2017; Gaganis et al., 2019; Pasiouras and Gaganis, 2013), the Z-score was calculated as follows:

$$\mathrm{Z-score} = [\mathrm{mean\ (ROA)} + \mathrm{mean\ (EA)}] / \sigma(\mathrm{ROA}) \quad (1)$$

where ROA is the return on assets, EA is the ratio of equity to assets and σ(ROA) indicates the standard deviation of the return on assets. Consistent with the literature (Akbar et al., 2017; Shim, 2017; Pasiouras and Gaganis, 2013), to avoid the effects on Z-score values of sudden changes in ROA or EA, all three components were calculated within a five-year rolling time window[12] to smooth the Z-score values. Furthermore, the natural logarithm was used for this

[11] For the robustness check, alternative measures of insurers' risk were employed and discussed in Section 2.4.4.
[12] This implies that, for example, the Z-score for 2010 is calculated considering the five-year period 2006–2010.

measure since it is highly skewed (Gaganis et al., 2019; García-Sánchez et al., 2017; Laeven, and Levine, 2009). Given that higher Z-score values mean lower solvency risks for an insurer, the natural logarithm of this measure was inverted by multiplying it by minus one to be consistent with the interpretation of this measure as risk, which is similar to previous studies in the literature on risk taking (e.g., Akbar et al., 2017; Gaganis et al., 2019; Pathan, 2009). Thus, increased Z-score values now signify an increased risk and vice versa.

Underwriting risk is the second aspect of insurers' risk taking examined in this study. Underwriting risk occurs when insurers' incurred losses and claimed expenses differ from the predicted values used to set the insurance premium, causing underwriting profits to fluctuate (Mankai and Belgacem, 2016; Zou et al., 2012). Insurers that underwrite new business are typically financially sound (i.e., have rapid growth in their premiums), but there is a possible risk of mispricing (companies offer low premiums to maximise sales without generating adequate money to settle future claims) (Caporale et al., 2017; Lamm-Tennant and Starks, 1993). As a result, an insurer would be at increased risk if the loss ratio increased when settling policyholder claims. According to Ng et al. (2013), the most fundamental risk, one that insurance firms generally strive to monitor and keep continuously low for the sake of solvency, is loss payment. To capture underwriting risk, the standard deviation of the loss ratio is employed. This measure is also widely used in the literature on risk-taking in the insurance industry (e.g., Adams and Buckle, 2003; Chen and Wong, 2004; Eling and Marek, 2014; Ho et al., 2013; Lamm-Tennant and Starks, 1993; Ma and Ren, 2021; Milidonis et al., 2019). The loss ratio is the ratio of incurred losses and loss adjustment expenses to earned premiums. Thus, a high standard deviation of the loss ratio indicates a greater level of underwriting risk. In line with prior studies (e.g., Eling and Marek, 2014; Ho et al., 2013; Shim, 2017), the standard deviation of the loss ratio was calculated for a five-year rolling time window.

3.3.3 Independent variables: Board diversity

Board diversity aspects are the independent variables for this study. Guided by the extant literature (e.g., Adams et al., 2015; Bernile et al., 2018; Kang et al., 2007; Harjoto et al., 2015), board diversity can be measured in different ways (e.g., gender, ethnicity, nationality, age, work experience and education). Thus, the current study examines four aspects of board diversity: gender, nationality, tenure (experience) and age, motivated by two primary considerations. First, these aspects have garnered substantial attention from regulatory bodies, institutional investors and previous research, recognising their potential influence on corporate

performance (Adams and Baker, 2021; Bernile et al., 2018; Kang et al., 2022; Li and Wahid, 2018). Second, prominent international insurance firms have consistently highlighted these aspects of board diversity in their annual reports as crucial for ensuring long-term and sustainable value creation (e.g., Aviva, 2021; AXA, 2022; CLIC, 2020). Furthermore, as these diversity aspects have been extensively examined in the literature (e.g., Gul et al., 2013; Hooghiemstra et al., 2019; Li and Wahid, 2018; Janahi et al., 2022), they will allow us to compare our results with those of prior research.

Following prior studies, each variable was measured as follows: gender diversity is the percentage of women sitting on the board of directors (Farag and Mallin, 2017; Sila et al., 2016). Nationality diversity is the percentage of non-national directors sitting on the board (Adams and Baker, 2021; Sarhan et al., 2019). As tenure and age are continuous variables, the standard deviation is used to capture dispersions of tenure and age between board members (Bernile et al., 2018; Wahab et al., 2018)[13]. Tenure diversity is thus the standard deviation of tenure lengths for directors on a board (Ji et al., 2021; Mollah et al., 2021). Similarly, age diversity is the standard deviation of the ages of the board's directors (Bernile et al., 2018; Talavera et al., 2018).

3.3.4 Control variables

In analysing the relationship between board diversity and risk-taking in the insurance industry, this study controls for three sets of control variables at the board-, firm- and country-level, in line with the literature on risk-taking.

For board-level characteristics, this study controls for board size since decisions made by a large board may result in compromises and, hence, less risky outcomes (Sila et al., 2016). Board size is measured by the total number of directors on the board (Bernile et al., 2018; Mollah et al., 2021). Furthermore, since board independence may improve the monitoring and control activities of a board (Anderson et al., 2011), and makes embracing diversity more likely (Farag and Mallin, 2017), this study included board independence as a control variable measured by the percentage of non-executive directors on the board (Harjoto et al., 2018).

[13] According to Ji et al. (2021), an important aspect of the standard deviation is its ability to determine how dispersed the observations are from the mean, emphasising the representation of both junior and senior members within a boardroom, irrespective of the overall average tenure or age of the board. BoardEx's database provides the standard deviation of the board of directors' tenure and age.

Moreover, because combining the positions of CEO and chairman of the board may be seen as a sign of delegating authority to a single individual and thus resulting in less diversity, CEO duality is also controlled in the analysis (Farag and Mallin, 2017). CEO duality is defined as a dummy variable that takes the value of one when the positions of CEO and board chairman are combined and takes the value of zero otherwise (Talavera et al., 2018). Finally, as the board risk committee is in charge of overseeing and evaluating an insurer's internal control and risk-management procedures (Ng et al., 2013), a dummy variable is included that takes the value of one if the company has a risk committee and zero otherwise (Akbar et al., 2017).

For firm-level characteristics, the study controls for firm size, measured by the natural logarithm of total assets (Cheng et al., 2011). Large insurers have better access to derivative markets for hedging and other risk-taking strategies (Cheng et al., 2011) and have the ability to diversify their portfolios (Eckles et al., 2014). Thus, they are more likely to have a lower risk level than smaller firms. Likewise, since older insurers have greater experience and are likely to face less risk, firm age is also incorporated as a control variable, measured as the natural logarithm of one plus the insurer's age (Faccio et al., 2016; Ozdemir et al., 2021). Furthermore, and following Akbar et al. (2017) and Mohsni et al. (2021), this study includes a variable that measures financial leverage, as companies with higher leverage are more vulnerable to risk; it is calculated as the ratio of total assets to total debt. In addition, the free float percentage is calculated for controlling ownership structure using the proportion of outstanding shares that are available to investors for trading on the stock exchange (Huang and Wang, 2015; Uyar et al., 2022).

To account for long-term fluctuations in the insurance firm's business performance, business volatility is considered, consistent with Eling and Jia (2018) and Eling and Marek (2014). This is measured using the standard deviation of equity returns within a five-year rolling time window to capture the volatility of performance at the aggregate level (Gaganis et al., 2019). Additionally, to control for the global financial crisis, a dummy variable is included that takes the value of one for the time span of 2007–2009 and zero otherwise (Mohsni et al., 2021; Zhou et al., 2019). Finally, life and non-life insurance firms are expected to vary in terms of investments, operations, and vulnerabilities as well as the duration of liabilities and investments (Brockett et al., 1994; Fields et al., 2012). Thus, consistent with prior studies (e.g., Eling and Marek, 2014; Gaganis et al., 2019; Pasiouras and Gaganis, 2013), this study controls for insurers' business activity using a dummy variable equal to zero if the firm is life insurance and one if the firm is non-life insurance.

For country-level factors, and in accordance with the risk taking literature, GDP growth is included in the analysis as a control variable, given that the financial sector issues may emerge when GDP growth is low (Gaganis et al., 2019; Demirgüç-Kunt and Detragiache, 1998). Furthermore, and following Erkens et al. (2012), Beltratti and Stulz (2012) and Magee et al. (2019), this study controls for the quality of legal institutions, as differences in governance practices across countries are commonly assumed to have an influence on risk taking (Magee et al., 2019). This includes an average of six governance indicators for each country collected from the WGI and compiled by Kaufmann et al. (2011). The index assesses the legal institutions' quality with respect to voice and accountability, control of corruption, government effectiveness, political stability, rule of law and regulatory quality. Higher index values indicate a better institutional environment. Finally, consistent with prior studies (e.g., Gaganis et al., 2019; Mühlnickel and Weiß, 2015), a country's inflation rate is also controlled in the study.

3.3.5 Empirical model

To investigate whether board diversity aspects affect insurance firms' risk-taking, the ordinary least square (OLS) with robust standard error is employed as the baseline model to test the four developed hypotheses presented in Section 2.2. The regression model is employed as follows:

$$IR_{ijt}\,\&\,UR_{ijt} = \alpha + \beta 1\, Gender\_D_{ijt} + Nationality\_D_{ijt} + \beta 3\, Tenure\_D_{ijt} + \beta 4\, Age\_D_{ijt} + Board_{ijt}\,\&\,Firm_{ijt}\,\&\,Country_{jt}\; controls + Year.FE + Country.FE + \epsilon_{ijt} \quad (2)$$

where *IR* and *UR* denote the dependent variables used in this study, which are, respectively, insolvency and the underwriting risk of the insurer i in country j at time t. *Gen_Div*, *Nat_Div*, *Ten_Div* and *Age_Div* denote the independent variables of interest, and thus, $\beta 1$, $\beta 2$, $\beta 3$ and $\beta 4$ capture the possible relationship between these variables and an insurer's risk proxies. Board-, firm- and country-level controls are the variables discussed earlier. The year fixed effect and the country fixed effect are two dummies that are included in the model to account for unobservable time-varying factors and unobservable time-invariant country heterogeneity, respectively. Additionally, the regression model with a robust standard error option is used to control for potential heteroskedasticity (Talavera et al., 2018). Table 3.1 summarises the variable names, definitions and measurements used in this study.

Table 3.1: Summary of the variable names, definitions and measurements used in this study

Variable	Symbol	Definition	Measurement and source
Dependent variables			
Insolvency risk	IR	A state in which an insurer's losses exceed equity	The natural logarithm's multiplication of the Z-score by minus one. The Z-score equals [mean (ROA) + mean (EA)] / σ(ROA)] within a five-year rolling time window (Akbar et al., 2017; Gaganis et al., 2019; Pasiouras and Gaganis, 2013; Shim, 2017).
Underwriting risk	UR	A state in which an insurer's incurred losses and claimed expenses deviate from the predicted values that define the insurance premium	The standard deviation of the insurer's loss ratio is calculated as incurred losses and loss adjustment expenses divided by premiums earned within a five-year rolling time window (Eling and Marek, 2014; Ho et al., 2013; Ma and Ren, 2021; Milidonis et al., 2019).
Independent variables			
Gender diversity	Gen_Div	Diversity of genders among directors	The percentage of women sitting on the board of directors (Farag and Mallin, 2017; Sila et al., 2016).
Nationality diversity	Nat_Div	Diversity of nationalities of directors	The percentage of non-national directors sitting on the board (Adams and Baker, 2021; Sarhan et al., 2019).
Tenure diversity	Ten_Div	Diversity of lengths of tenure for directors	The standard deviation of tenure lengths for directors sitting on the board (Ji et al., 2021; Mollah et al., 2021).
Age diversity	Age_Div	Diversity of directors' ages	The standard deviation of ages for directors sitting on the board (Bernile et al., 2018; Talavera et al., 2018).
Control variables			
Board size	B_Size	Number of directors	The total number of directors sitting on the board (Bernile et al., 2018; Mollah et al., 2021).
Board independence	B_Indep	Presence of non-executive directors on the board	The percentage of non-executive directors sitting on the board of directors (Harjoto et al., 2018; Ji et al., 2021).
CEO duality	CEO_Dul	CEO who is also the board chairperson	A dummy variable that takes the value of one when the positions of CEO and board chairman are combined and takes the value of zero otherwise (Farag and Mallin, 2017; Talavera et al., 2018).
Risk committee	Risk_Comm	Presence of risk committee	A dummy variable that takes the value one if the insurer has a risk committee and zero otherwise (Akbar et al., 2017; Magee et al., 2019).
Firm size	F_Size	Insurers' size	The natural logarithm of total assets (Cheng et al., 2011; Eckles et al., 2014).

Variable	Symbol	Definition	Measurement and source
Firm age	F_Age	Insurers' age	The natural logarithm of one plus the age of the insurance firm (Ozdemir et al., 2021; Faccio et al., 2016).
Financial leverage	Leverage	Insurers' leverage	The ratio of total assets to total debt (Akbar et al., 2017; Mohsni et al., 2021).
Free float	Float	Available outstanding shares for trading	The proportion of outstanding shares that are available to investors for trading on the stock exchange (Huang and Wang, 2015; Uyar et al., 2022).
Business volatility	Bus_Vol	Long-term fluctuations of the insurer's business performance	The standard deviation of equity returns within a five-year rolling time window (Eling and Jia, 2018; Eling and Marek, 2014).
Financial crisis	Fin_Crisis	The years of the global financial crisis	A dummy variable that takes the value one for the time span of 2007–2009 and zero otherwise (Mohsni et al., 2021; Zhou et al., 2019).
Business activity	Bus_Act	Insurers' business activity	A dummy variable equal to zero if the firm is life insurance and one if the firm is non-life insurance (Eling and Marek, 2014; Pasiouras and Gaganis, 2013).
GDP growth	GDPG	Country's gross domestic product growth	The percentage of annual gross domestic product growth rate (Gaganis et al., 2019; Mohsni et al., 2021).
Legal institutions' quality	Institutions	Country's legal institutions' quality	The average of six governance indicators: voice and accountability, control of corruption, government effectiveness, political stability, rule of law and regulatory quality (Beltratti and Stulz, 2012; Magee et al., 2019).
Inflation rate	INFL	Country's inflation rate	The percentage of annual inflation rate (Gaganis et al., 2019; Mühlnickel and Weiß, 2015).

3.4 Results and discussion

3.4.1 Descriptive statistics

Table 3.2 shows the sample distribution regarding the number of observations for each country. The sample contained insurance firms operating in both developed and developing countries. The majority of the observations (42.7%) in the sample were from the United States, confirming the global dominance of the US market in the international insurance industry (Magee et al., 2019) followed by the UK market (10.47%).

Table 3.2: Sample distribution

No.	Country	Observations	Percent	No.	Country	Observations	Percent
1	Austria	26	0.66	23	Netherlands	34	0.86
2	Barbados	16	0.41	24	New Zealand	17	0.43
3	Belgium	17	0.43	25	Nigeria	7	0.18
4	Bermuda	359	9.13	26	Norway	42	1.07
5	Brazil	46	1.17	27	Poland	8	0.20
6	Canada	153	3.89	28	Qatar	2	0.05
7	Cayman Islands	24	0.61	29	Russian Federation	7	0.18
8	China	112	2.85	30	Saudi Arabia	4	0.10
9	Denmark	41	1.04	31	Singapore	16	0.41
10	Finland	17	0.43	32	Slovenia	2	0.05
11	France	115	2.92	33	South Africa	71	1.80
12	Germany	140	3.56	34	South Korea	29	0.74
13	Hong Kong	61	1.55	35	Spain	32	0.81
14	India	37	0.94	36	Sri Lanka	8	0.20
15	Ireland	34	0.86	37	Sweden	4	0.10
16	Israel	3	0.08	38	Switzerland	127	3.23
17	Italy	89	2.26	39	Thailand	6	0.15
18	Japan	59	1.50	40	Turkey	9	0.23
19	Luxembourg	8	0.20	41	United Arab Emirates	27	0.69
20	Malaysia	20	0.51	42	United Kingdom	412	10.47
21	Malta	5	0.13	43	United States	1,682	42.76
22	Mexico	4	0.10	44	Vietnam	2	0.05

Note: This table reports the sample distribution regarding the number of observations for each country.

Table 3.3 demonstrates the descriptive statistics of the variables used in this study. The findings indicate that insolvency risk *(IR)* values range from -6.87 to 5.49, with an average of -0.95 for the entire sample, while the other aspect, underwriting risk *(UR)*, has a mean of 0.14 and a wider range of 0 to 2.59. These findings suggest that insurers' insolvency and underwriting values exhibit wide variation, which is consistent with the findings of prior cross-country studies in the insurance industry (e.g., Fields et al., 2012; Mühlnickel and Weiß, 2015). In terms of independent variables, the average percentage of gender diversity (*Gen_Div*) on insurers' boards across the sample varies from 0% to 58.30%. This indicates a low level of representation of women, given that the mean is 12.30%, which is a mark of boards dominated by men (i.e. heterogeneous boards). This finding is also similar to that of recent research documenting a similarly low trend in global contexts (i.e. 11.9%, 10.4%) (Ji et al., 2021; Kinateder et al., 2021).

For board nationality diversity (*Nat_Div*), the findings show that the presence of non-national directors on insurers' boards ranges from 0% to 80%, but overall, the average is 17.20%. With regard to tenure (*Ten_Div*) and age (*Age_Div*) diversity of boards, the findings for variations in directors' tenure lengths and ages on insurers' boards ranged from 0 to 19.2 and 17.5, with an average of 4.7 and 7.8, respectively. Table 3.3 also illustrates other control variables at the board-, firm- and country-levels that are used in the analysis. For example, on average, about 75% of insurers' board members are non-executive directors (*B_Indep*), which is consistent with García-Sánchez et al.'s (2017) argument that financial firms' boards are characterised by greater independence. The mean value of the natural logarithm of the insurance firms' total assets (*F_Size*) across the sample was 15.83, ranging from a minimum of 7.48 to a maximum of 20.33.

Table 3.3: Descriptive statistics

Variable	*N*	Mean	SD	Min.	Median	Max.
IR	3344	-0.952	1.155	-6.871	-0.995	5.493
UR	3402	0.146	0.278	0.000	0.065	2.595
Gen_Div	3932	0.123	0.118	0.000	0.101	0.583
Nat_Div	3769	0.172	0.226	0.000	0.000	0.801
Ten_Div	3934	4.730	3.531	0.000	4.000	19.20
Age_Div	3919	7.829	2.570	0.000	7.501	17.50
B_Size	3934	10.66	4.003	1.000	10.00	32.00
B_Indep	3934	0.752	0.153	0.077	0.750	1.000
CEO_Dul	3934	0.314	0.464	0.000	0.000	1.000
Risk_Comm	3934	0.159	0.366	0.000	0.000	1.000
F_Size	3921	15.83	2.493	7.489	15.88	20.33
F_Age	3934	3.173	0.577	0.693	3.219	4.043
Leverage	3902	0.066	0.094	0.000	0.045	1.475
Float	3799	0.709	0.255	0.000	0.790	1.000
Bus_Vol	3600	0.068	0.057	0.000	0.050	0.399
Fin_Crisis	3934	0.174	0.379	0.000	0.000	1.000
Bus_Act	3934	0.726	0.446	0.000	1.000	1.000
GDPG	3934	0.019	0.024	-0.081	0.023	0.252
Institutions	3934	1.168	0.484	-1.174	1.254	1.970
INFL	3934	0.023	0.024	-0.154	0.019	0.196

Note: This table presents descriptive statistics for the variables used in this study, including the observation's number (*N*), mean, standard deviation (SD), minimum (Min.), median and maximum (Max.) values. The sample covers the period from 2003 to 2019. Definitions of the variables are reported in **Table 3.1**.

3.4.2 Correlation analysis

Table 3.4 displays the correlations between the independent variables used in this study. According to Liu et al. (2014), a correlation of independent variables of 0.7 or greater signifies a multicollinearity issue. The findings demonstrate that all correlation coefficients are less than the concern value (i.e., 0.7), with the highest correlation being 0.58 between firm size and board size. Thus, the multicollinearity issue is unlikely to be of concern in this study. However, even though high correlation values were not observed, multicollinearity might still exist to some extent (Myers, 1990). Hence, the VIF-test is also used in this study to identify potential issues of multicollinearity. All independent variables' VIFs are in the range of 1.08 to 2.39, with a mean of 1.36, which is lower than the common threshold of 10 (Wahab et al., 2018). This confirms that multicollinearity had no impact on the models investigated in this study.

Table 3.4: Pearson correlation

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. IR	1																			
2. UR	0.139	1																		
3. Gen_Div	-0.179	-0.032	1																	
4. Nat_Div	-0.005	-0.064	0.151	1																
5. Ten_Div	-0.042	0.122	-0.101	-0.146	1															
6. Age_Div	-0.072	-0.101	-0.224	-0.156	0.268	1														
7. B_Size	-0.117	-0.053	0.116	0.200	0.052	-0.043	1													
8. B_Indep	-0.057	0.043	0.206	0.154	-0.053	-0.027	-0.033	1												
9. CEO_Dul	-0.033	-0.088	-0.125	-0.097	0.148	0.074	0.018	-0.176	1											
10. Risk_Comm	-0.112	0.163	0.226	0.184	-0.193	-0.129	-0.001	0.104	-0.073	1										
11. F_Size	0.146	0.125	0.312	0.317	-0.083	-0.271	0.586	-0.016	0.058	0.250	1									
12. F_Age	0.067	0.049	-0.032	0.046	0.546	0.080	0.185	-0.055	0.094	-0.221	0.177	1								
13. Leverage	0.069	0.034	0.048	0.001	-0.028	-0.019	-0.083	0.032	0.018	0.106	0.017	-0.065	1							
14. Float	-0.025	0.126	0.140	0.162	-0.061	-0.229	-0.061	-0.047	0.065	0.090	0.239	0.064	0.045	1						
15. Bus_Vol	0.576	0.222	-0.192	0.081	-0.104	0.109	-0.103	-0.078	-0.049	-0.070	-0.151	-0.002	0.158	0.054	1					
16. Fin_Crisis	-0.055	0.007	-0.181	-0.041	0.002	0.033	-0.007	-0.101	0.038	-0.112	-0.060	0.074	-0.007	0.023	0.122	1				
17. Bus_Act	0.146	-0.262	-0.150	-0.020	0.119	0.121	-0.109	0.021	-0.025	-0.210	-0.355	0.031	0.110	-0.068	0.182	0.041	1			
18. GDPG	-0.120	0.036	0.065	-0.093	0.005	0.009	-0.009	-0.004	0.010	0.151	0.089	-0.035	0.017	-0.061	-0.140	-0.345	-0.169	1		
19. Institutions	0.119	0.066	0.069	0.064	0.112	-0.045	-0.089	0.000	0.053	-0.233	-0.016	0.280	-0.002	0.118	0.099	0.054	0.098	-0.202	1	
20. INFL	0.031	0.039	-0.092	0.032	-0.096	0.009	-0.064	-0.034	0.001	0.015	-0.118	-0.103	0.010	-0.028	0.086	0.008	-0.012	0.180	-0.252	1

Note: This table shows the independent variables' correlation matrix. The variables are defined in detail in **Table 3.1.**

3.4.3 Regression analysis and discussion

Table 3.5 reports the baseline results of the effect of board diversity facets (i.e., gender, nationality, tenure and age) on two aspects of insurance firms' risk taking—insolvency risk and underwriting risk—as well as a series of control variables at the board, firm and country levels. The associations between board diversity variables and insolvency risk *(IR)* are investigated in Model 1, while the associations with underwriting risk *(UR)* are examined in Model 2. Concerning the R-squared values, the two models under investigation yielded scores of 0.60 and 0.30, respectively. These values represent the proportions of variance in the dependent variables that can be explained by the independent variables in each model.

Table 3.5: Baseline regressions results

Variable	Model (1) IR	Model (2) UR
Gen_Div	-0.3502**	-0.1394**
	(0.1437)	(0.0588)
Nat_Div	-0.2968***	-0.1083***
	(0.0701)	(0.0266)
Ten_Div	-0.0171***	0.0062***
	(0.0052)	(0.0015)
Age_Div	-0.0184***	-0.0073***
	(0.0063)	(0.0020)
B_Size	0.0018	-0.0119***
	(0.0056)	(0.0016)
B_Indep	-0.0528	0.1077***
	(0.1285)	(0.0405)
CEO_Dul	-0.1094***	-0.0396***
	(0.0298)	(0.0074)
Risk_Comm	-0.0744*	0.0742***
	(0.0433)	(0.0191)
F_Size	0.00175	0.0193***
	(0.0113)	(0.0033)
F_Age	0.1837***	0.0187
	(0.0404)	(0.0142)
Leverage	0.0156***	0.0026**
	(0.0021)	(0.0013)
Float	-0.1930***	0.0563***
	(0.0622)	(0.0168)
Bus_Vol	0.1624***	0.0119***
	(0.0041)	(0.0013)
Fin_Crisis	-0.0272	0.00375
	(0.1183)	(0.0329)
Bus_Act	0.0777*	-0.1781***
	(0.0397)	(0.0139)
GDPG	-0.0064	0.0043
	(0.0097)	(0.0031)
Institutions	0.0501	0.0135
	(0.2259)	(0.0750)

Variable	Model (1) IR	Model (2) UR
INFL	0.0022	0.0011
	(0.0075)	(0.0025)
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Observations	3,333	3,128
R-squared	0.607	0.302

Note: This table displays the baseline results of the effects of various aspects of board diversity (i.e. gender, nationality, tenure and age) on insurance firms' risk-taking, including a set of control variables at the board, firm and country levels. Model 1 investigates the associations between board diversity variables and insolvency risk *(IR)*, and Model 2 examines relationships with underwriting risk *(UR)*. Standard errors appear in parentheses.
∗∗∗ = Statistical significance at 1%; ∗∗ = statistical significance at 5%; ∗ = statistical significance at 10%. Definitions for all variables are reported in **Table 3.1**.

The first hypothesis in this study addresses the association between board gender diversity and risk-taking in insurance firms. The results in Table 3.5 demonstrate that boards that have a diversity of genders (*Gen_Div*) among the directors have statistically significant negative associations with insolvency *(IR)* and underwriting *(UR)* risks in Models 1 and 2 at the 5% significance level (β = -0.35, $P < 0.05$) and (β = -0.13, $P < 0.05$), respectively. These results suggest that the presence of female directors on an insurer's board is associated with less risk-taking, which is consistent with prior studies reporting a similar association (e.g. Cardillo et al., 2021; Jia, 2019; Lu and Boateng, 2018; Mohsni et al., 2021).

Furthermore, these results align with the predictions of agency theory, which suggests that female directors tend to invest more time and effort in supervisory activities compared to their male counterparts. This increased diligence contributes to enhancing the board's capability in managing risks (Fan et al., 2019; Gul et al., 2011; Hutchinson et al., 2015). Consequently, the enhancement of shareholders' wealth can be optimised through heightened risk management oversight. By ensuring that corporate executives do not engage in excessive risk-taking and opportunistic behaviour, this oversight significantly diminishes the potential for corporate insolvency.

The results also align with resource dependence theory predictions that the appointment of female directors can increase corporate human capital because of the different perspectives, expertise and skills that female members bring. This enhances the board's advisory role in understanding complex projects and their associated risks, and they therefore avoid unsound risks (García-Sánchez et al., 2015; Kim and Starks, 2016; Uyar et al., 2022). Indeed, recent

research (e.g., Anderson et al., 2011; Farag and Mallin, 2017) indicates that technically complex companies (like insurance) have a particular need for diverse gender boards, as directors with diverse perspectives result in valuable advice when making complex strategic decisions. Thus, the empirical results suggest that having gender diverse directors can offer insurance companies critical advice and resources, helping them reduce uncertainty and improve their operational outcomes. Accordingly, in light of the results, H1 is supported.

Moving to the second diversity aspect, as predicted in the study's second hypothesis, board nationality (*Nat_Div*) is significantly and negatively correlated with both aspects of insurer risk—insolvency *(IR)* (Model 1) and underwriting *(UR)* (Model 2)—at the 1% significance level (β = -0.29, $P < 0.01$) and (β = -0.10, $P < 0.01$), respectively. These findings suggest that foreign directors representation on a board indicates lower levels of risk for insurers, which is in line with previous research demonstrating similar relationships (e.g. Adams and Baker, 2021; Ali et al., 2022; Hasan and Xie, 2013; Nainggolan et al., 2022).

In addition, these findings align with the assumptions of agency theory, which posits that foreign directors, due to their external position relative to the national or local inner circle of directors, are more inclined towards independent thought and less reticent about addressing contentious issues during monitoring tasks. This outsider perspective can foster cognitive conflict, as suggested by Oxelheim and Randøy (2003) and Ruigrok et al. (2007), thereby enriching boardroom discussions. Such dynamics could potentially enhance monitoring effectiveness, leading to more objective risk assessments (Srinidhi et al., 2011; Miletkov et al., 2017).

The results also align with resource dependence theory, which predicts that foreign directors can provide additional insights and experiences, cultural value, skills and business networks from different institutional environments that are not offered by home-country directors (Carter et al., 2010; Sarhan et al., 2019). Given that insurance is a global industry, and many companies operate internationally, optimal use and access to important resources, such as better terms for reinsurance, access to networks of brokers and influence over policy making, is especially important for insurers that operate in a highly competitive and strictly regulated environment (Adams and Baker, 2021; Magee et al., 2019). The empirical evidence presented in Table 3.5 underscores the significant role of foreign directors. Their wide-ranging business acumen and socio-cultural experiences are instrumental in advising on complex strategic financial matters,

ultimately enhancing the financial position of firms. Thus, based on this evidence, H2 is supported.

Interestingly, for the third hypothesis about the relationship of board tenure diversity (*Ten_Div*) and risk-taking, the study has mixed results that are dependent on the risk aspect investigated. While diversity of directors' tenure has statistically significant negative associations with the insurer's insolvency risk *(IR)* (Model 1) at the 1% level (β = -0.017, $P < 0.01$), it also has a significant and positive association with underwriting risk *(UR)* (Model 2) at the 1% level (β = 0.006, $P < 0.01$). These results support Ho et al.'s (2013) findings that board composition factors influence insurers' risk aspects differently in addition to affecting their risk-taking. Two possible factors can explain these contradictory findings.

First, consistent with agency and resource dependence theories, tenure-diverse boards may benefit from having short-tenure directors who can offer new perspectives and experience from multiple corporations and who are less entrenched. This, in turn, provides better monitoring and little to no influence by managers. Tenure-diverse boards can also benefit from having longer-tenure directors who better understand firm-specific challenges and have a wide range of information sources and skills, thus providing better advice and decisions (Hagendorff and Keasey, 2012; Jebran et al., 2020; Li and Wahid, 2018; Phuong et al., 2022; Wahab et al., 2018). With a combination of diverse knowledge and a sense of independence, directors can offer effective monitoring and provide advice regarding insolvency risks. Furthermore, insurance board members may become more conservative regarding risks that jeopardise the insurer's solvency to avoid damaging their public reputations or threatening their careers, given that industry regulators place significant pressure on boards of directors to maintain insurers' statutory solvency levels (Adams and Jiang, 2020; 2021; Adiel, 1996). Thus, directors are likely to exert more effort to monitor a firm's compliance with industry regulations to protect the firm from an ultimate collapse (likelihood of insolvency) (Adams and Jiang, 2021).

Second, in line with social identity theory, a board with directors that have diverse tenure lengths will have differing levels of experience, perspectives and values associated with risk-taking (Carter et al., 2010; Ji et al., 2021; Phuong et al., 2022). These differences can lead to more disagreement and conflict between subgroups (long- and short-tenured directors) in determining acceptable risk levels in underwriting operations (Wang and Hsu, 2013). According to Kor (2006) and Castro et al. (2009), short-tenured directors may be more inclined to undertake risky decisions since they feel the need to demonstrate their competency as directors, while long-tenured directors may have less of an appetite for risks since they feel less

pressure to prove themselves. Hence, because it is difficult to attain consensus among directors under such circumstances, the quality of their assessment of acceptable risks may be impaired, resulting in even more uncertain and high-risk underwriting decisions (Ji et al., 2021; Wang and Hsu, 2013). Overall, while directors may agree on achieving statutory solvency levels to meet regulatory requirements and reduce insolvency risk, they may disagree on the optimal risk level for underwriting operations. These findings are consistent with prior studies in which board tenure diversity was negatively associated with insolvency risk (Mollah et al., 2021) but positively associated with operational risk (Wang and Hsu, 2013).

As for the relationship between board age diversity (*Age_Div*) and an insurer's risk-taking, which is our fourth hypothesis, the findings in Table 3.5 indicate a significant and negative relationship at the 1% level for both insolvency risk *(IR)* and underwriting *(UR)* risk measures (β = -0.018, $P < 0.01$) and (β = -0.007, $P < 0.01$), respectively. These findings suggest that boards that are diverse in age can be effective at lowering an insurer's risk-taking, which is consistent with previous studies finding a similar relationship (e.g. Bernile et al., 2018; Bhat et al., 2019; Janahi et al., 2022).

Furthermore, these findings provide empirical support for the agency theory's predictions that diverse age boards could maximise the accumulation of knowledge and perspectives through directors' various experiences that are shaped by different directorial, general and business expertise and that continuously develop over time (Arnaboldi et al., 2020; Kor, 2006). Hardwick et al. (2011) suggest that, as insurance is a highly specialised risk industry, experienced and knowledgeable directors play an essential role in providing effective monitoring and specialist advice to help the board make strategic decisions that ensure solvency maintenance and manage underwriting operations. Therefore, from this perspective, the empirical evidence suggests that diverse age boards can bring professional accumulated knowledge and rich work experiences that enhance the board's monitoring role and contribute to effective decisions regarding managing insurance firms' risk.

These findings also align with the assumptions of resource dependence theory, which posits that board age diversity can offer companies critical resources such as networks, knowledge and experience (Katmon et al., 2019; Wahab et al., 2018). In particular, younger directors, known for their bold and innovative approaches, are crucial in helping insurers enter new markets and respond effectively to competition and market changes. Meanwhile, older directors can bring valuable business acumen and deep knowledge of industry norms,

regulations and market insights from diverse experiences. This combination aids in making wise strategic choices, reducing risks and enhancing insurers' operational activities. Overall, from this perspective, diverse age boards can generate a synergetic effect between the productivity and experience contributed by young and older directors. Such a combination empowers an insurer to secure resources crucial for lowering risks and optimising operational efficiency. Based on this evidence, H4 is supported.

Finally, among the control variables, CEO duality (*CEO_Dul*) has statistically significant negative associations with insurers' risk-taking. These results are in line with previous studies (e.g., Pathan, 2009; Kim and Buchanan, 2008) and align with agency theory's prediction that CEOs are more risk averse owing to career and reputation risks (Jensen and Meckling, 1976; Eisenhardt, 1989). In contrast to our prediction, insurer size (*F_Size*) and age (*F_Age*) are significantly and positively correlated with underwriting risk and insolvency risk, respectively. This indicates that as insurer size increases, underwriting risk exposure will also increase. Similarly, due to outdated underwriting practices or legacy policies, older insurers may be exposed to losses that are above average, ultimately affecting their solvency.

3.4.4 Robustness checks

To validate the sensitivity of our baseline results, a number of robustness tests were conducted. First, the association between board diversity aspects and risk-taking was re-examined employing alternative measures of insurers' soundness and underwriting risk, namely the portfolio risk and the combined ratio. These measures have been suggested by several prior studies on risk taking and the insurance industry (e.g., Fazio et al., 2015; Gaganis et al., 2019; Lepetit et al., 2008; Shim, 2017; Zou et al., 2012). Portfolio risk is calculated as the natural logarithm of the average of the return on assets divided by the standard deviation of the return on assets within a five-year rolling time window. Following Gaganis et al. (2019), the natural logarithm of portfolio risk is multiplied by minus one to facilitate its interpretation as a risk measure. The combined ratio is calculated as the standard deviation of the loss ratio plus the expense ratio, where the expense ratio is computed as the insurance firm's underwriting expenses to the written premiums. Consistent with Shim (2017), the standard deviation of the combined ratio is calculated within a five-year rolling time window. Table 3.6 presents the results on the association between board diversity facets and portfolio risk *(PR)* and between board diversity aspects and the combined ratio *(CR)* (Models 1 and 2, respectively). These are

largely consistent with our baseline results, implying that our main findings are robust to alternative measurements of insurer risk.

Table 3.6: Robustness check using alternative risk measures

Variable	Model (1) PR	Model (2) CR
Gen_Div	-0.4718***	-0.1643**
	(0.1513)	(0.0676)
Nat_Div	-0.2944***	-0.0866***
	(0.0779)	(0.0279)
Ten_Div	-0.0182***	0.0038**
	(0.0056)	(0.0019)
Age_Div	-0.0190***	-0.0078***
	(0.0067)	(0.0024)
B_Size	0.0003	-0.0096***
	(0.0064)	(0.0016)
B_Indep	-0.0101	0.0544
	(0.1343)	(0.0546)
CEO_Dul	-0.1184***	-0.0328***
	(0.0316)	(0.0080)
Risk_Comm	-0.0521	0.0763***
	(0.0469)	(0.0227)
F_Size	0.0005	0.0111***
	(0.0119)	(0.0041)
F_Age	0.2068***	0.0095
	(0.0432)	(0.0180)
Leverage	0.0161***	0.0017
	(0.0024)	(0.0012)
Float	-0.2128***	0.0264
	(0.0656)	(0.0192)
Bus_Vol	0.1634***	0.0109***
	(0.0044)	(0.0014)
Fin_Crisis	-0.1221	0.0502
	(0.1345)	(0.0317)
Bus_Act	0.0454	-0.1876***
	(0.0430)	(0.0183)
GDPG	-0.0018	0.0088**
	(0.0090)	(0.0040)
Institutions	-0.0473	0.0776
	(0.2354)	(0.0878)
INFL	0.0083	0.0008
	(0.0065)	(0.0028)
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Observations	3,312	2,361
R-squared	0.578	0.306

Variable	Model (1) PR	Model (2) CR

Note: This table reports the results of the robustness check using alternative risk measures. Model 1 investigates the associations between board diversity variables and portfolio risk *(PR)*, and Model 2 examines relationships with combined ratio *(CR)*. Standard errors appear in parentheses.
∗∗∗ = Statistical significance at 1%; ∗∗ = statistical significance at 5%; ∗ = statistical significance at 10%. Definitions for all variables are reported in **Table 3.1**.

Second, to address possible endogeneity issues that might emerge from a simultaneous association between board diversity facets and risk-taking aspects, a lagged-structure model was used by introducing a one-year gap between the independent variables and the dependent variables (Adams and Jiang, 2020; Sarhan et al., 2019). The results of Models 1 and 2 (Table 3.7) broadly align with those reported in the baseline results, indicating that the findings of the study are generally robust to potential endogeneity issues that might emerge from a simultaneous relationship between board diversity facets and risk-taking aspects.

Table 3.7: Robustness check using a one-year-lagged structure model

Variable	Model (1) IR	Model (2) UR
Gen_Div	-0.2461*	-0.1225**
	(0.1484)	(0.0493)
Nat_Div	-0.2771***	-0.1068***
	(0.0735)	(0.0246)
Ten_Div	-0.0145***	0.0062***
	(0.0052)	(0.0017)
Age_Div	-0.0124**	-0.0065***
	(0.0059)	(0.0019)
B_Size	0.0070	-0.0120***
	(0.0055)	(0.0017)
B_Indep	-0.0824	0.1070***
	(0.1158)	(0.0388)
CEO_Dul	-0.1143***	-0.0385***
	(0.0305)	(0.0102)
Risk_Comm	-0.0635	0.0734***
	(0.0424)	(0.0133)
F_Size	-0.0017	0.0193***
	(0.0095)	(0.0032)
F_Age	0.1700***	0.0202*
	(0.0358)	(0.0116)
Leverage	0.0175***	0.0026**
	(0.0016)	(0.0006)
Float	-0.1929***	0.0553***
	(0.0611)	(0.0198)
Bus_Vol	0.1637***	0.0119***

Variable	Model (1) IR	Model (2) UR
	(0.0027)	(0.0009)
Fin_Crisis	0.0067	0.0045
	(0.1114)	(0.0353)
Bus_Act	0.0806*	-0.1796***
	(0.0362)	(0.0118)
GDPG	-0.0068	0.0045
	(0.0103)	(0.0035)
Institutions	0.0591	0.0212
	(0.2567)	(0.0832)
INFL	0.0017	-0.0009
	(0.0084)	(0.0027)
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Observations	3,327	3,121
R-squared	0.609	0.300

Note: This table displays the results of the robustness check using a one-year-lagged structure model for the independent variables. Model 1 investigates the associations between board diversity variables and insolvency risk *(IR)*, and Model 2 examines relationships with underwriting risk *(UR)*. Standard errors appear in parentheses.
∗∗∗ = Statistical significance at 1%; ∗∗ = statistical significance at 5%; ∗ = statistical significance at 10%. Definitions for all variables are reported in **Table 3.1**.

Third, although a range of control variables and fixed effects were incorporated into the baseline model, endogeneity problems related to omitted variables may still have occurred (Ji et al., 2021; Phuong et al., 2022). Thus, a firm fixed effect model was employed to address possible endogeneity issues that might emerge from omitted and unobserved factors. Models 1 and 2 (Table 3.8) show the results of employing the firm fixed effect model, which are largely consistent with those reported in the baseline results. This implies that the findings of the study are generally robust to potential endogeneity issues that might emerge from omitted factors.

Table 3.8: Robustness check employing a firm fixed effect model

Variable	Model (1) IR	Model (2) UR
Gen_Div	-0.1030**	-0.0489***
	(0.0440)	(0.0113)
Nat_Div	-0.0942***	-0.0295***
	(0.0361)	(0.0104)
Ten_Div	-0.0723*	0.0287***
	(0.0411)	(0.0111)
Age_Div	-0.0720**	-0.0280***
	(0.0342)	(0.0082)
B_Size	0.0054	-0.0092***

Variable	Model (1) IR	Model (2) UR
	(0.0072)	(0.0014)
B_Indep	-0.1037	0.0855**
	(0.1598)	(0.0376)
CEO_Dul	-0.1201***	-0.0358***
	(0.0372)	(0.0071)
Risk_Comm	-0.0720	0.0780***
	(0.0499)	(0.0184)
F_Size	0.0180	0.0165***
	(0.0130)	(0.0030)
F_Age	0.2139***	0.0052
	(0.0444)	(0.0126)
Leverage	0.0159***	0.0020
	(0.0025)	(0.0012)
Float	-0.2668***	0.0480***
	(0.0810)	(0.0160)
Bus_Vol	0.1461***	0.0099***
	(0.0044)	(0.0012)
Fin_Crisis	-0.3927**	0.0223
	(0.1933)	(0.0313)
Bus_Act	0.1117**	-0.1723***
	(0.0472)	(0.0136)
GDPG	-0.0052	0.0010
	(0.0121)	(0.0028)
Institutions	0.0471	0.0794
	(0.292)	(0.0693)
INFL	0.0107	0.0071
	(0.0091)	(0.0020)
Year fixed effect	Yes	Yes
Firm fixed effect	Yes	Yes
Observations	3,333	3,128
R-squared	0.453	0.268

Note: This table reports the results of the robustness check using a firm fixed effect model. Model 1 investigates the associations between board diversity variables and insolvency risk *(IR)*, and Model 2 examines relationships with underwriting risk *(UR)*. Standard errors appear in parentheses.
∗∗∗ = Statistical significance at 1%; ∗∗ = statistical significance at 5%; ∗ = statistical significance at 10%. Definitions for all variables are reported in **Table 3.1**.

Fourth, to mitigate the potential for endogeneity issues arising from self-selection bias, which may be due to observable differences in firm characteristics rather than the influence of board diversity indicators (e.g., Alkhawaja et al., 2023), the propensity score matching method (PSM) was employed. Specifically, the analysis matched firms with high gender, nationality, tenure and age diversity on their boards (treated firms) to those with low diversity across these same

aspects (control firms)[14]. The objective in matching treatment and control firms is to guarantee that paired firms are nearly identical across all characteristics except for their levels of diversity (Faccio et al., 2016).

To conduct the PSM analysis, binary variables were created for *Gen_Div*, *Nat_Div*, *Ten_Div* and *Age_Div*, consistent with Minton et al. (2014). These binary variables take the value of one if the corresponding variable exceeded the sample median (treated groups) and zero otherwise (control groups). Subsequently, a probit regression model was used to estimate the propensity score by regressing the diversity indicator variables (as binary variables) on the same variables included in equation (2). Following Mollah et al. (2021), the treatment group of firms was matched with the control group of firms using a calliper propensity score match of 0.01 without replacement.

Table 3.9, Panel A, confirms effective matching by revealing no significant differences in the mean values of firm characteristics between the treated and control groups for each diversity aspect. Subsequently, the matched samples were used to conduct OLS regressions, with the results presented in Panel B of Table 3.9. The analysis of Models 1 through 8 in Panel B demonstrates that the coefficients for *Gen_Div*, *Nat_Div* and *Age_Div* remain significantly negative in relation to both insolvency risk *(IR)* and underwriting risk *(UR)*. However, while *Ten_Div* similarly shows a negative relationship with insolvency risk *(IR)*, it also continues to present a significant positive relationship with underwriting risk *(UR)* in Model 6. These findings closely mirror the baseline analysis, indicating that the study's results are consistent and largely unaffected by potential endogeneity concerns stemming from sample selection bias.

[14] Each diversity measure was examined independently to allow for the identification of a control and treatment group for each indicator of diversity.

Table 3.9: Robustness check employing the propensity score matching method

Panel A. Differences in firm characteristics between matched samples for each aspect of diversity

Variable	Gen_Div			Nat_Div			Ten_Div			Age_Div		
	Treated	Control	t-statistic	Treated	Control	t-statistic	Treated	Control	t-statistic	Treated	Control	t-statistic
B_Size	10.88	10.83	0.260	10.50	10.43	0.380	10.89	10.80	0.460	10.91	10.76	0.910
B_Indep	0.744	0.743	0.150	0.740	0.747	-0.970	0.765	0.759	0.800	0.749	0.747	0.240
CEO_Dul	0.339	0.350	-0.480	0.255	0.279	-1.150	0.275	0.287	-0.510	0.333	0.336	-0.130
Risk_Comm	0.143	0.150	-0.450	0.183	0.167	0.910	0.166	0.173	-0.340	0.166	0.160	0.440
F_Size	15.96	15.96	-0.020	15.89	15.83	0.560	15.96	16.00	-0.280	15.91	15.80	1.180
F_Age	3.226	3.233	-0.290	3.194	3.201	-0.270	3.265	3.278	-0.570	3.214	3.223	-0.410
Leverage	6.704	6.605	0.250	7.223	7.236	-0.030	5.822	6.011	-0.480	6.809	7.079	-0.720
Float	0.708	0.711	-0.220	0.709	0.713	-0.370	0.726	0.737	-0.860	0.711	0.705	0.650
Bus_Vol	6.686	6.761	-0.310	6.706	6.971	-0.990	7.128	7.194	-0.220	6.753	6.883	-0.580
Fin_Crisis	0.166	0.169	-0.120	0.150	0.164	-0.820	0.172	0.189	-0.870	0.174	0.181	-0.420
Bus_Act	0.750	0.741	0.420	0.752	0.757	-0.270	0.727	0.720	0.290	0.742	0.739	0.180
GDPG	1.916	1.896	0.180	2.082	1.971	0.980	1.578	1.622	-0.390	1.786	1.785	0.010
Institutions	1.171	1.182	-0.510	1.159	1.166	-0.300	1.258	1.252	0.300	1.179	1.194	-0.790
INFL	2.124	2.135	-0.130	2.201	2.155	0.430	2.207	2.277	-0.610	2.273	2.319	-0.530

Panel B. Regression results on matched samples

Variable	(1) IR	(2) UR	(3) IR	(4) UR	(5) IR	(6) UR	(7) IR	(8) UR
Gen_Div	-0.0948**	-0.0276**						
	(0.0419)	(0.0111)						
Nat_Div			-0.1173***	-0.0477***				
			(0.0341)	(0.0127)				
Ten_Div					-0.1048***	0.0343***		
					(0.0387)	(0.0122)		
Age_Div							-0.1038***	-0.0295***
							(0.0311)	(0.0093)
Baseline controls	Included	Included	Included	Included	Included	Included	Included	Included
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,690	1,677	1,629	1,569	1,386	1,351	1,647	1580
R-squared	0.786	0.262	0.643	0.283	0.621	0.282	0.601	0.251

Note: This table reports the results of the robustness check using the propensity score matching method. Panel A presents a comparative analysis of the differences in firm characteristics between the control firms and the treated firms within the matched sample across each diversity aspect. Panel B displays estimation results using those matched samples. Models 1, 3, 5, and 7 in Panel B investigate the associations between board gender, nationality, tenure and age diversity, respectively, and insolvency risk *(IR)*. Models 2, 4, 6, and 8 examine the relationships between those diversity measures and underwriting risk *(UR)*. Standard errors are in parentheses.
∗∗∗ denotes 1% statistical significance; ∗∗ indicates 5% significance; ∗ signifies 10% significance. Variable definitions are in **Table 3.1.**

Fifth, as per the summary statistics, data from the United States constituted about 42.7% of the sample. Thus, a further robustness check testing sample sensitivity that excluded these data was performed to eliminate the possibility of influence from them. The results of Models 1 and 2 (Table 3.10) remained consistent with the baseline findings, suggesting that the U.S. data did not unduly influence the overall results.

Table 3.10: Robustness check testing sample sensitivity

Variable	Model (1) IR	Model (2) UR
Gen_Div	-0.4764**	-0.1357*
	(0.2151)	(0.0757)
Nat_Div	-0.1641*	-0.1878***
	(0.0946)	(0.0322)
Ten_Div	-0.0204**	0.0068**
	(0.0096)	(0.0032)
Age_Div	-0.0286***	-0.01667***
	(0.0099)	(0.0033)
B_Size	0.0155*	-0.0117***
	(0.0079)	(0.0024)
B_Indep	-0.2000	0.0141
	(0.1720)	(0.0573)
CEO_Dul	-0.0052	-0.0658***
	(0.0551)	(0.0186)
Risk_Comm	-0.0799	0.0829***
	(0.0515)	(0.0180)
F_Size	0.0155	0.0314***
	(0.0167)	(0.0056)
F_Age	0.2480***	0.0229
	(0.0535)	(0.0174)
Leverage	0.0110***	0.0023
	(0.0024)	(0.0016)
Float	-0.0857	0.0566*
	(0.0910)	(0.0297)
Bus_Vol	0.1583***	0.0182***
	(0.0042)	(0.0013)
Fin_Crisis	-0.3895	0.1304
	(0.1645)	(0.0524)
Bus_Act	0.2166***	-0.2784***
	(0.0572)	(0.0212)
GDPG	-0.0032	0.0048
	(0.0118)	(0.0042)
Institutions	0.0167	0.0026
	(0.3365)	(0.0997)
INFL	0.0071	0.0007
	(0.0089)	(0.0031)

Variable	Model (1) IR	Model (2) UR
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Observations	1,886	1,759
R-squared	0.664	0.383

Note: This table displays the results of the robustness check testing sample sensitivity by excluding US data. Model 1 investigates the associations between board diversity variables and insolvency risk *(IR)*, and Model 2 examines relationships with underwriting risk *(UR)*. Standard errors appear in parentheses.
∗∗∗ = Statistical significance at 1%; ∗∗ = statistical significance at 5%; ∗ = statistical significance at 10%. Definitions for all variables are reported in **Table 3.1**.

Sixth, considering the implementation of mandatory female board quotas, this study leverages these legislative changes to address potential causality concerns between board gender diversity and risk-taking. This methodological approach is significant for two primary reasons. First, gender quota regulations provide a valuable natural policy experiment by removing firms' ability to voluntarily select board members (Alkhawaja et al., 2023). Under these regulations, corporate boards are mandated to appoint female directors irrespective of firm-specific characteristics or internal preferences. Norway led this initiative in 2003, with mandatory compliance required by 2006 (Matsa and Miller, 2013). Since then, various nations in the sample, including France, Belgium, Denmark, Finland, Germany, India, Israel, Italy, Malaysia, the Netherlands, and Spain, have introduced similar legislative mandates[15]. Second, these regulatory changes across different nations serve as an exogenous shock to CG structures, making it unlikely that they were influenced by insurers' existing risk-taking behaviours or preferences. Given the complex regulatory environment and intricate risk management requirements inherent to the insurance sector, the implementation of gender quotas represents a suitable exogenous shock to board composition. This change facilitates a more rigorous examination of whether gender-diverse boards influence risk-taking decisions within insurance firms.

To analyse the influence of these board gender quota laws on insurer risk-taking, this study employs a generalised difference-in-differences (DID) model., which helps mitigate endogeneity concerns such as reverse causality and omitted variable bias (Balsmeier et al., 2017; Liao et al., 2022). The model is specified as follows:

[15] Further details on the board gender quota policies of the countries included in the study are provided in Appendix 3.1.

$$IR_{ijt}\,\&\,UR_{ijt} = \alpha + \beta 1\ Gender\_Dummy \times Post_{ijt} + \beta 2\ Gender\_Dummy_{ijt} + \beta 3\ Post_{ijt} + \beta 4\ Board_{ijt}\,\&\,Firm_{ijt}\,\&\,Country_{jt} + Year.FE + Country.FE + \epsilon_{ijt} \quad (3)$$

The key variable of interest is the interaction term, *Gender_Dummy* × *Post*, which captures the impact of the exogenous increase in board gender diversity resulting from regulatory changes on insurers' risk-taking. *Gender_Dummy* is a binary variable indicating the presence of at least one female director on the board, while *Post* is a binary variable equal to one for countries with implemented gender quotas in a given year (treatment group) and zero for those without (control group). The model also incorporates various relevant control variables and fixed effects, as discussed earlier.

The results, presented in Table 3.11 (Models 1 and 2), reveal a significant negative association between the interaction term *Gender_Dummy* × *Post* and both insolvency risk *(IR)* and underwriting risk *(UR)*. These findings support the baseline results, suggesting that the presence of female directors on insurer boards strengthens the board's monitoring and advisory functions, allowing for more effective management and understanding of the complex risks associated with insurance firms' operations and projects. Furthermore, the results indicate a notable reduction in insolvency and underwriting risk following the introduction of gender quotas on corporate boards. This outcome highlights the positive impact of such policy interventions in promoting gender diversity and improving risk management practices within the insurance industry. Overall, the results underscore the significance of board gender diversity in enhancing the stability and resilience of the insurance sector, offering valuable insights for policymakers and industry stakeholders.

Table 3.11: Regressions results for the impact of implementing board gender quotas using difference-in-differences approach

Variable	Model (1) IR	Model (2) UR
Gender_Dummy × Post	-0.7471***	-0.1243**
	(0.1864)	(0.0591)
Gender_Dummy	-0.0732**	-0.0374***
	(0.0320)	(0.0122)
Post	0.6162***	0.1137*
	(0.1872)	(0.0603)
B_Size	0.00755	-0.0104***
	(0.0056)	(0.0016)

Variable	Model (1) IR	Model (2) UR
B_Indep	-0.0599	0.0628
	(0.1215)	(0.0396)
CEO_Dul	-0.1088***	-0.0368***
	(0.0295)	(0.0072)
Risk_Comm	-0.0602	0.0695***
	(0.0422)	(0.0186)
F_Size	0.0034	0.0164***
	(0.0105)	(0.0031)
F_Age	0.1065***	0.0023
	(0.0335)	(0.0110)
Leverage	0.0152***	0.0025**
	(0.0021)	(0.0013)
Float	-0.1946***	0.0544***
	(0.0600)	(0.0162)
Bus_Vol	0.1614***	0.0108***
	(0.0040)	(0.0013)
Fin_Crisis	-0.0356	0.0170
	(0.1183)	(0.0323)
Bus_Act	0.0446	-0.1758***
	(0.0383)	(0.0137)
GDPG	-0.0109	0.0044
	(0.0096)	(0.0030)
Institutions	0.1781	0.0230
	(0.225)	(0.0703)
INFL	0.0089	0.0010
	(0.0070)	(0.0022)
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Observations	3,449	3,231
R-squared	0.602	0.288

Note: This table presents difference-in-differences estimates examining the impact of gender quotas—as an exogenous change to board composition—on insurer risk-taking. Model 1 investigates the effect on insolvency risk *(IR)* and Model 2 examines underwriting risk *(UR)*. The key variable of interest is the interaction term, *Gender_Dummy* × *Post*, which captures the impact of the exogenous increase in gender diversity stemming from the regulatory quota. *Gender_Dummy* is an indicator equal to one if the board has at least one female director, and zero otherwise. *Post* is a binary variable, assigned a value of one if a country implements a gender quota on corporate boards in a specific year (i.e., the treatment group), and otherwise zero (i.e., the control group). The remaining variables are defined in **Table 3.1.**
Robust standard errors are reported in parentheses.
∗∗∗ denotes 1% statistical significance; ∗∗ indicates 5% significance; ∗ signifies 10% significance.

Finally, in examining tokenism and critical mass theories, research indicates that appointing a single female director is often perceived as a tokenistic gesture, aimed at fulfilling societal expectations for gender representation on corporate boards (Konrad et al., 2008; Nguyen et al., 2021). In such cases, a lone female director may struggle to resist peer pressure, which can limit her ability to contribute effectively and provide mentorship (Malagila et al., 2021; Torchia et al., 2011). In contrast, critical mass theory argues that having only one or two female

directors is insufficient to significantly influence decision-making (Liu, 2018). This theory suggests that a threshold of female representation—typically three or more—is required to move beyond tokenism and exert meaningful influence on board dynamics and decisions (Jia and Zhang, 2013; Torchia et al., 2011).

To further explore the impact of gender diversity, additional analyses were conducted using alternative measures. Gender diversity *(Gen_Div)* was redefined through binary variables representing the presence of one female director *(FD_one)*, two female directors *(FD_two)*, and three or more female directors *(FD_three_or_more)*. The results, presented in Table 3.12 (Models 1-6), show that all three measures are significantly and negatively associated with both insolvency risk *(IR)* and underwriting risk *(UR)*. Notably, the strength of these associations increases as the number of female directors rises. The coefficient for FD_three_or_more exhibits a stronger negative relationship with both IR and UR compared to FD_one and FD_two, indicating that having at least three female directors—constituting a critical mass—has a more substantial impact on insurer risk reduction.

These findings align with critical mass theory, suggesting that while the presence of even one female director can have a beneficial effect, the impact becomes more pronounced with greater female representation. This supports the view that a critical mass of female directors may be necessary to fully realise the benefits of gender diversity in corporate governance, underscoring the enhanced advantages of achieving higher levels of gender balance on boards. Overall, the robustness checks suggest that the study's findings are generally robust to alternative tests.

Table 3.12: Regression results for testing tokenism and critical mass effects

Variable	Model (1) IR	Model (2) IR	Model (3) IR	Model (4) UR	Model (5) UR	Model (6) UR
FD_one	-0.0462*			-0.0175*		
	(0.0350)			(0.0114)		
FD_two		-0.06750*			-0.0313**	
		(0.0361)			(0.0119)	
FD_three_or_more			-0.1253**			-0.0538**
			(0.0376)			(0.0127)
Nat_Div	-0.2911***	-0.2944***	-0.2965***	-0.1055***	-0.1075***	-0.1094***
	(0.0701)	(0.0701)	(0.0703)	(0.0266)	(0.0266)	(0.0267)
Ten_Div	-0.0164***	-0.0171***	-0.0173***	0.0061***	0.0065***	0.0065***
	(0.0052)	(0.0052)	(0.0052)	(0.0015)	(0.0015)	(0.0015)
Age_Div	-0.0179***	-0.0188***	-0.0192***	-0.0070***	-0.0075***	-0.0077***
	(0.0063)	(0.0063)	(0.0063)	(0.0019)	(0.0020)	(0.0020)

Variable	Model (1) IR	Model (2) IR	Model (3) IR	Model (4) UR	Model (5) UR	Model (6) UR
Baseline controls	Included	Included	Included	Included	Included	Included
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,333	3,333	3,333	3,128	3,128	3,128
R-squared	0.606	0.606	0.607	0.301	0.301	0.302

Note: This table presents the results of testing tokenism and critical mass effects. Model 1 examines the associations between binary variables representing the presence of one female director *(FD_one)*, two female directors *(FD_two)*, and three or more female directors *(FD three or more)* and insolvency risk *(IR)*, while Model 2 investigates the relationships with underwriting risk *(UR)*. Standard errors appear in parentheses.
∗∗∗ = Statistical significance at 1%; ∗∗ = statistical significance at 5%; ∗ = statistical significance at 10%. Definitions for all variables are reported in **Table 3.1**.

3.4.5 Further analyses

3.4.5.1 Board diversity and insurer policies

Generally, the findings indicate that diversity in board gender, nationality, tenure and age can enhance the board's ability to monitor and mitigate risk in insurance companies. Given the highly regulated and risk-sensitive nature of the insurance industry, effective risk management is critical for long-term stability and compliance with regulatory frameworks. Therefore, further analysis investigates whether these aspects of board diversity influence insurer policies, focusing on the channels through which insurer risk is reduced. Specifically, attention is given to two critical types of policies: investment and financial.

Investment policies, particularly relevant for insurance companies due to their need to manage large portfolios of assets to cover future liabilities, are proxied by the increase in total investment over the prior year (Ho et al., 2013). Financial policies, reflected by leverage (the ratio of total debt to total assets), are crucial as insurers must balance debt with asset management to maintain solvency and meet regulatory capital requirements (Adams and Baker, 2021).

Table 3.13 provides evidence from regressions of insurer policies on the diversity of boards in terms of gender, nationality, tenure and age within insurance firms. In Models 1 and 2, the dependent variables are *(Investment)* and *(Leverage)*, respectively. The significant negative coefficients on board diversity across both models suggest that increased diversity in these dimensions leads to a reduction in risk exposure by prompting more cautious approaches to

investment and financial decisions. For insurers, this implies that diverse boards are likely to promote more conservative investment strategies and tighter control over leverage, helping to mitigate risks such as underperformance of investment portfolios or financial instability.

Overall, these findings suggest that gender, nationality, tenure, and age diversity on insurance company boards contribute to reducing firm risk by fostering more prudent, risk-averse decision-making in critical areas such as investment management and financial leverage, aligning with the industry's need for robust risk controls and regulatory adherence.

Table 3.13: Regression results for insurer policies

Variable	Model (1) Investment	Model (2) Leverage
Gen_Div	-0.7441***	-0.1432***
	(0.1479)	(0.0326)
Nat_Div	-0.3124***	-0.0647***
	(0.0789)	(0.0224)
Ten_Div	-0.0144***	-0.0048***
	(0.0054)	(0.0018)
Age_Div	-0.0112*	-0.0039***
	(0.0065)	(0.0012)
B_Size	-0.0242***	0.0020
	(0.0055)	(0.0014)
B_Indep	-0.5334***	-0.0406
	(0.1210)	(0.0422)
CEO_Dul	-0.0502	-0.0299***
	(0.0330)	(0.0076)
Risk_Comm	-0.0565	0.0262
	(0.0426)	(0.0178)
F_Size	-0.9887***	-0.0027
	(0.0109)	(0.0043)
F_Age	0.0277	0.0078
	(0.0364)	(0.0117)
Leverage	-0.0151***	
	(0.0022)	
Float	-0.1004	-0.0559**
	(0.0646)	(0.0235)
Bus_Vol	0.0065**	0.0124***
	(0.0029)	(0.0014)
Fin_Crisis	0.1932***	0.0298
	(0.0421)	(0.0288)
Bus_Act	-0.0606	0.0035
	(0.0382)	(0.0112)
GDPG	0.0086	0.0035
	(0.0088)	(0.0022)
Institutions	0.9662***	-0.0512

Variable	Model (1) Investment	Model (2) Leverage
	(0.2284)	(0.0514)
INFL	0.0390***	-0.0034
	(0.0081)	(0.0015)
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Observations	3,064	3,333
R-squared	0.702	0.462

Note: This table presents the results of the impact of various facets of board diversity (i.e., gender, nationality, tenure and age) on insurer policies. Model 1 examines the associations between the aforementioned diversity aspects and *(Investment)*, while Model 2 investigates the relationships with *(Leverage)*. Standard errors appear in parentheses.
∗∗∗ = Statistical significance at 1%; ∗∗ = statistical significance at 5%; ∗ = statistical significance at 10%. Definitions for all variables are reported in **Table 3.1**.

3.4.5.2 Board diversity and insurer profitability

In addition, while the primary focus of this study has been to examine whether diversity in board gender, nationality, tenure, and age can mitigate risk-taking among insurers, it is equally important to assess how these diversity aspects influence financial performance. Accordingly, further investigation evaluates whether these diversity dimensions also impact insurer profitability. Table 3.14 presents the results for board diversity in gender, nationality, tenure, and age and its effect on insurer profitability in Models 1 and 2, with ROA and ROE used as proxies for profitability.

The results indicate that board diversity significantly improves profitability across both models, suggesting that these factors not only mitigate excessive risk-taking but also align with shareholders' financial interests. This finding is especially important within the insurance industry, where balancing risk management with profitability remains a constant challenge (Adams et al., 2024). The positive relationship between board diversity aspects and profitability suggests that the more conservative approach to risk-taking, as identified in the baseline analysis, does not come at the expense of financial returns. Consequently, insurer shareholders may benefit from increased board diversity, as it promotes greater shareholder protection, more sustainable profitability, and enhanced long-term value creation within a dynamic and competitive industry environment.

Table 3.14: Regression results for insurer profitability

Variable	Model (1) ROA	Model (2) ROE
Gen_Div	0.2616***	0.1048***
	(0.0460)	(0.0273)
Nat_Div	0.0761***	0.0229*
	(0.0237)	(0.0138)
Ten_Div	0.0070***	0.0042***
	(0.0018)	(0.0011)
Age_Div	0.0043**	0.0035***
	(0.0021)	(0.0014)
B_Size	0.0012	0.0013
	(0.0015)	(0.0010)
B_Indep	-0.2130***	-0.0170
	(0.0345)	(0.0221)
CEO_Dul	0.0090	0.0218***
	(0.0108)	(0.0058)
Risk_Comm	0.0808***	0.0251***
	(0.0140)	(0.0074)
F_Size	-0.0881***	-0.0150***
	(0.0053)	(0.0028)
F_Age	-0.0405***	-0.0334***
	(0.0116)	(0.0064)
Leverage	-0.0037	-0.0080**
	(0.0007)	(0.0003)
Float	0.0334***	0.0116
	(0.0204)	(0.0112)
Bus_Vol	-0.0874***	-0.0068***
	(0.0097)	(0.0051)
Fin_Crisis	0.0293**	0.0126
	(0.0144)	(0.0203)
Bus_Act	0.0151	0.0047
	(0.0130)	(0.0074)
GDPG	-0.0021	-0.0033
	(0.0023)	(0.0020)
Institutions	-0.0037	-0.0176
	(0.0123)	(0.0468)
INFL	0.0191	0.0044
	(0.0024)	(0.0015)
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Observations	3,595	3,591
R-squared	0.242	0.252

Note: This table presents the results of the impact of various facets of board diversity (i.e., gender, nationality, tenure and age) on insurer profitability. Model 1 examines the associations between the aforementioned diversity aspects and *(ROA)*, while Model 2 investigates the relationships with *(ROE)*. Standard errors appear in parentheses.

∗∗∗ = Statistical significance at 1%; ∗∗ = statistical significance at 5%; ∗ = statistical significance at 10%. Definitions for all variables are reported in **Table 3.1**.

3.5 Conclusion

In the aftermath of the recent global financial crisis (mid-2007 to early 2009), questions arose about the effectiveness of CG in various countries. A fundamental component of CG is the board of directors' role, which is largely accountable for monitoring and overseeing corporate risk activities, thus preventing such crises from occurring. It is argued that diversity on the board promotes cognitive conflict among directors, which is expected to better reinforce the board's performance in its advisory and oversight functions. In this respect, several prior studies have examined how board diversity influences risk-taking in non-financial firms, but such evidence from financial firms is still scarce—and among the few studies conducted on financial firms, most focus only on the banking sector. Thus, the aim of this study was to extend the existing literature by investigating the influence of board diversity on firm risk-taking in the insurance industry. Specifically, using an international sample comprising 3,333 firm-years of publicly traded life and non-life insurance firms in 44 countries over a 17-year period, the study examined the impact of multiple facets of board diversity (i.e., gender, nationality, tenure and age) on two critical aspects of risk-taking in insurance firms: insolvency risk (i.e., financial risk) and underwriting risk (i.e., operational risk).

The study's findings reveal that board diversity in terms of gender, nationality and age is significantly and negatively associated with insurers' insolvency and underwriting risk. This negative association suggests that board diversity can enhance the board's effectiveness in fulfilling its monitoring and advising roles to mitigate insurers' risk-taking. Moreover, regarding the relationship between board tenure diversity and risk-taking, this study obtained mixed findings that are dependent on the risk aspect investigated. While diversity in directors' tenure was significantly negatively associated with insurer insolvency risk, it also had a significant positive association with underwriting risk. This suggests that while long- and short-tenured directors may agree on achieving statutory solvency levels to meet regulatory requirements and reduce insolvency risk, when undertaking underwriting operations, they may diverge on what constitutes the optimal risk level. These findings are robust to alternative risk measures, various endogeneity issues, sample variations (when excluding US data), assessments of mandatory female board quotas, and examinations of tokenism and critical mass theories. Further analyses indicate that these diversity aspects tend to adopt more conservative investment and financial policies. Importantly, this risk-averse approach does not reduce financial returns, suggesting that greater board diversity aligns risk management practices with effective financial performance outcomes. Taken together, these findings suggest that board

diversity with respect to gender, nationality, tenure and age has a beneficial influence on insurer risk management, and the potential benefits of such diversity (e.g., diverse knowledge) outweigh the potential costs (e.g., communication issues).

These findings have several important practical and policy implications. For insurance industry practitioners, the results demonstrate that increasing board diversity across multiple dimensions, gender, nationality, age, and tenure, can enhance risk management practices without compromising financial performance. One primary objective for insurers is maintaining sound financial solvency (Eling and Jia, 2018), and the findings provide strong evidence that board diversity plays a crucial role in mitigating insolvency risk. Furthermore, insurer executives and board nomination committees should carefully consider these results when making board appointment decisions, particularly focusing on achieving balanced representation across different diversity dimensions. The evidence on gender diversity is especially noteworthy, demonstrating that boards with three or more female directors achieve significantly stronger risk oversight compared to those with token representation—highlighting that meaningful gender diversity, rather than symbolic appointments, is crucial for effective governance. In addition, the finding that board diversity leads to more conservative investment and financial policies while maintaining profitability provides a practical model for balancing risk management with financial performance.

For policymakers and regulators, this study offers evidence supporting the effectiveness of board diversity initiatives in the insurance sector. The findings are particularly relevant for the Bank for International Settlements and other regulatory bodies engaged in improving financial firm governance systems and risk management procedures (Abou-El-Sood, 2021). Specifically, the results indicate that board diversity effectively enhances oversight quality and strategic risk decision-making for financial firms. Moreover, the finding that gender quota regulations led to reduced risk-taking suggests that such policy interventions can help achieve desired regulatory outcomes in terms of enhanced risk management. Regulators might also consider extending diversity requirements beyond gender to include other aspects, such as nationality and age diversity, given their demonstrated benefits for risk oversight. Additionally, the cross-country evidence showing that diversity's risk-mitigating effects persist across different regulatory environments reinforces the need for internationally aligned diversity-related governance standards (e.g., Adams et al., 2015). Such harmonisation could facilitate more consistent and effective governance practices, particularly beneficial for multinational insurance firms operating across multiple regulatory systems.

Although the current study offers important evidence and significant implications, several promising avenues exist for future research. First, as the results are confined to publicly listed insurance firms, future studies could explore how board diversity affects private insurers' risk-taking. Given that private firms operate under different management dynamics and face distinct governance challenges, such research could provide valuable comparative insights and enhance our understanding of how ownership structure may moderate the relationship between board diversity and risk management. Second, while the study focuses on gender, nationality, tenure, and age diversity due to data availability constraints, future research could examine other dimensions of board diversity. Specifically, investigations into directors' educational backgrounds, ethnicity, and professional experience could offer novel insights into how different forms of cognitive and demographic diversity influence risk-taking in insurance firms. Such research could help develop a more comprehensive framework for understanding the multifaceted nature of board diversity and its implications for CG.

Third, researchers could expand the scope of investigation by conducting comparative studies between conventional insurance markets and Islamic insurance (takaful) markets. Such cross-market analyses could reveal how different business models and regulatory frameworks affect the relationship between board diversity and risk-taking. This research direction is particularly relevant given the growing importance of Islamic finance globally and could provide valuable insights for both conventional and Islamic insurers. Fourth, building on the findings about risk-taking, future researchers could investigate how board diversity affects other insurance firm outcomes. This could include examining the impact on loss reserves, market share, product innovation, customer satisfaction, and operational efficiency. Finally, since corporate financial decisions are fundamentally shaped by national institutional factors such as governance quality and cultural norms, future research could examine how these country-level characteristics moderate the relationship between board diversity and risk-taking in insurance firms. Such investigations could provide valuable insights for developing context-specific approaches to board composition that account for different institutional environments.

Chapter 4: Institutional factors and board diversity in insurance firms: global analysis on risk-taking

Abstract

This study aims to investigate how institutional factors moderate the relationship between board diversity and risk-taking within the insurance industry. Utilising a composite index of board diversity and analysing a global dataset of 3,187 firm-year observations from publicly listed life and non-life insurance companies over 17 years (2003-2019), the findings reveal that increased board diversity is associated with reduced insolvency and underwriting risk among insurance firms. The study further shows how country-level institutional frameworks shape this relationship. Specifically, strong national governance quality amplifies the risk-mitigating benefits of board diversity. Moreover, drawing on Hofstede's (1980) cultural dimensions, the study demonstrates that societies with high uncertainty avoidance strengthen the risk-reducing effects of board diversity, while cultures characterised by high individualism, power distance, and masculinity attenuate these benefits. These findings remain robust even when different measures and econometric models are employed to address potential issues. Additional analyses focused on the global financial crisis (2007-2009) reveal that the effectiveness of diverse boards in mitigating risk is especially pronounced during periods of economic stress. These findings carry significant implications for insurance industry governance and regulatory frameworks, highlighting how the effectiveness of board diversity in risk management is contingent upon both institutional quality and cultural context.

Keywords: Board diversity, corporate governance, institutional factors, insurance industry, risk-taking, national governance quality, national culture, individualism, uncertainty avoidance, power distance, masculinity

4.1 Introduction

The insurance industry plays a crucial role in maintaining the stability and sustainability of the financial system and the global economy, acting as both a major investor in financial markets and the ultimate bearer of numerous financial risks (Grant, 2012; Eling and Jia, 2018). In 2021, the sector accounted for 7.1% of global economic activity[16], with a total premium volume of $7.1 trillion in 2023, and is projected to continue growing steadily[17]. This growth underscores the industry's importance in mitigating uncertainties and safeguarding economic and societal stability (The Geneva Association, 2022). Given its pivotal role, ensuring the stability and sound governance of insurance firms is of paramount concern for regulators, policymakers, and various stakeholders (Rubio-Misas, 2023). While effective CG can enhance industry performance and contribute positively to overall economic stability, CG failures can have profound consequences, as illustrated by the 2008 global financial crisis (Courbage and Nicolas, 2021; Kaserer and Klein, 2019). The U.S. government's $182 billion bailout of the American Insurance Group (AIG) exemplified how weak CG structures and reckless managerial practices can threaten economic stability (Boubakri, 2011; Eckles and Halek, 2010).

In response to such crises, industry regulators and policymakers have intensified efforts to strengthen CG frameworks within the insurance sector, with a particular focus on enhancing the oversight and risk management responsibilities of insurance boards (Adams and Jiang, 2016; Abdoush et al., 2022). Historically, broader CG reforms have emphasised board independence as a key mechanism for reducing agency conflicts and enhancing oversight. However, more recently, regulatory and scholarly attention has turned to board diversity as a potential factor to further improve board effectiveness (Chidambaran et al., 2022; Behlau et al., 2024). While initial efforts to promote board diversity focused on gender representation to achieve gender equality (Carter et al., 2010), the scope has since broadened to include attributes such as nationality, tenure, and age (Ozdemir et al., 2021). This shift reflects a growing recognition of the theoretical and empirical evidence suggesting that diverse boards are critical for effective CG and board performance (Ali et al., 2023; Elnahass et al., 2023). Accordingly, this study seeks to contribute to this body of literature by examining the effects of board

[16] See https://www.mapfre.com/en/insights/insurance/insurance-accounts-for-more-than-seven-percent-the-global-economy/

[17] See https://www.swissre.com/institute/research/sigma-research/sigma-2023-03/5-charts-wold-insurance-2023.html

diversity on risk-taking within insurance firms and exploring how institutional factors moderate this relationship.

Contemporary organisational theories, such as agency theory and resource dependence theory, underscore the significance of diversity in enhancing board functionality. Diverse boards introduce a range of perspectives (Adams and Ferreira, 2009), enrich decision-making processes (Garcia-Meca et al., 2015), and provide greater resources for problem-solving (Ji et al., 2021). This diversity reduces information asymmetry (Jebran et al., 2020) and promotes transparency (James et al., 2021). Boards that encompass a diverse array of human capital, cognitive functions, attitudes, and values offer a broad spectrum of insights and viewpoints, which can enhance scrutiny of management decisions (Baker et al., 2020; Zattoni et al., 2023), foster creativity and innovation (Xu et al., 2017; Ozdemir et al., 2021), and strengthen engagement with the external environment (Ararat et al., 2015; Lu et al., 2022). Ultimately, board diversity can improve both advisory and monitoring functions, leading to better CG outcomes (Carter et al., 2010; Zhou et al., 2019).

Meanwhile, the relationship between board diversity and risk-taking remains a relatively underexplored issue, and existing empirical findings are generally inconclusive (e.g., Khatib et al., 2023; Baker et al., 2020; Berger et al., 2014; Nguyen et al., 2020; Ozdemir et al., 2021; Sila et al., 2016; Teodósio et al., 2021; Zattoni et al., 2023). This inconclusiveness may be attributed, in part, to the unique characteristics of different industries (Oliver, 1997; Jackson and Schuler, 1995). Guillén (2000) argues that effective CG systems are inherently dependent on industry context, making industry-specific examination of board diversity and risk-taking essential. This perspective is particularly pertinent to the insurance sector, which operates under complex regulatory environments and faces stringent compliance requirements. For example, insurers have a fiduciary duty to manage policyholder premiums prudently while maintaining their long-term claim-paying ability (Adams and Jiang, 2020; Gaganis et al., 2016). Furthermore, the industry's heightened exposure to financial risks, market volatility, and sensitivity to macroeconomic factors—such as fluctuations in interest rates and economic cycles—underscore the importance of effective risk management (Eling and Jia, 2018; Fields et al., 2012). These factors make effective risk management not merely a defensive measure, but a critical competency that drives growth and innovation, as insurers' long-term success depends on effectively managing and establishing appropriate risk levels (Magee et al., 2019). Given these unique industry dynamics, a diverse board composition may be particularly

impactful in the insurance sector by integrating comprehensive risk management practices with strategic, growth-oriented decision-making.

However, board diversity may not have a uniform impact on reducing corporate risk across different institutional contexts. Specifically, the extent to which diverse boards effectively mitigate risk can be shaped by broader institutional factors, such as national governance quality and cultural norms. These factors can influence CG practices and help clarify the often ambiguous and inconclusive findings regarding the effect of board diversity on firm risk (Mohsni et al., 2021), as discussed earlier. Indeed, research suggests that national governance and culture can influence corporate financial decisions, and applying these dimensions to board decision-making can yield insights that might not be captured through traditional CG frameworks (e.g., Carter et al., 2003; Filatotchev et al., 2013; Haniffa and Cooke, 2005; Minichilli et al., 2012).

On one hand, national governance quality is a critical institutional factor that can either amplify or constrain the effectiveness of CG mechanisms, including board diversity. National institutions encompass formal rules such as constitutions and laws, as well as informal norms, customs, and traditions that collectively shape the operational environments of firms (North, 1990). These institutions establish the boundaries within which boards operate, influencing how diversity-related dynamics unfold in corporate decision-making (Fields et al., 2012). Institutional theory suggests that firms' CG practices are deeply influenced by the norms and regulatory frameworks present in their national contexts (Hall and Soskice, 2003).

In high-quality governance environments, well-enforced legal protections, transparent regulatory frameworks, and robust institutional checks may enhance the ability of diverse boards to contribute meaningfully to decision-making (Filatotchev et al., 2013). These environments can reduce the likelihood of managerial entrenchment and create opportunities for board members with varied perspectives to voice concerns and challenge dominant executives (Doidge et al., 2007; Post and Byron, 2015). Hence, diverse boards can get better access to risk-relevant information and more effectively oversee risk management processes, reducing excessive risk-taking and promoting sustainable growth. Conversely, in low-quality governance environments, weak regulatory enforcement and insufficient legal protections may dilute the potential benefits of board diversity (Bushman et al., 2004). In such contexts, the presence of entrenched management or limited board independence can hinder the active participation of diverse members, preventing them from effectively influencing firm policies.

Without adequate institutional support, the monitoring and advisory roles of diverse boards are likely to be undermined, potentially leading to suboptimal decision-making and heightened risk exposure. Thus, national governance quality can set the stage for effective board diversity and influence how diversity impacts risk-taking.

On the other hand, culture profoundly shapes the perceptions, preferences, and behaviours of financial decision-makers, including boards of directors, thereby influencing their decision-making outcomes (Ji et al., 2021). Cultural values and norms create an invisible but powerful framework that affects how diverse board members interact, share information, and make collective decisions (Mohsni et al., 2021). For example, in individualistic cultures, while diverse perspectives are more likely to be voiced independently, strong individualistic tendencies can lead to overconfidence and reduced cooperation among board members, potentially weakening their collective risk monitoring effectiveness (Van den Steen, 2004; Chui et al., 2010).

Cultural dimensions such as uncertainty avoidance, power distance, and masculinity further can shape the relationship between board diversity and risk-taking. High uncertainty avoidance cultures often enhance the benefits of board diversity by fostering structured processes for integrating different viewpoints into risk assessment, leading to more comprehensive risk analysis (Gaganis et al., 2019). Conversely, in high power-distance cultures, hierarchical relationships can create barriers to open communication, potentially constraining minority board members from challenging risky decisions effectively (Schramm-Nielsen, 1989). Similarly, masculine cultures' emphasis on competition and achievement may override the cautionary perspectives that diverse boards bring, potentially diminishing their risk-moderating effects (Kreiser et al., 2010). These cultural dynamics highlight the importance of understanding how informal institutional factors shape board diversity's role in risk management, particularly in the globally interconnected and regulated insurance industry.

Therefore, this study aims to offer a novel perspective and build on the existing literature by investigating how institutional factors moderate the relationship between board diversity and risk-taking. Specifically, it aims to accomplish the following research objectives:

- **RO1:** To investigate the effect of board diversity on risk-taking in insurance firms.
- **RO2:** To investigate the moderating role of national governance quality on the relationship between board diversity and risk-taking in insurance firms.

- **RO3:** To investigate the moderating role of national culture (individualism, uncertainty avoidance, power distance, and masculinity) on the relationship between board diversity and risk-taking in insurance firms.

To achieve these outlined objectives, this study examines a global dataset of 3,187 firm-year observations from publicly listed life and non-life insurance companies spanning 17 years (2003-2019). By employing a multidimensional measure of board diversity encompassing various aspects such as gender, nationality, tenure, and age, the baseline results indicate that board diversity significantly reduces both insolvency and underwriting risk within insurance firms. Further analyses focusing on the global financial crisis (2007-2009) reveal that the risk-mitigating effects of diverse boards are particularly pronounced during periods of economic stress.

The findings then highlight the crucial role of institutional and cultural factors in moderating the relationship between board diversity and risk-taking. Specifically, the beneficial impact of board diversity on risk-taking is more pronounced for insurers operating in countries with high national governance quality. Additionally, cultural dimensions influence this dynamic: cultures characterised by high levels of uncertainty avoidance amplify the risk-reducing effects of board diversity, whereas cultures marked by high individualism, power distance, and masculinity tend to weaken this impact. These results remain robust across various measures and econometric models designed to address potential issues.

This study contributes to the existing knowledge in several ways. First, it expands the focus from a single aspect of diversity to a more holistic examination of how multifaceted board diversity impacts risk-taking in insurance firms within an international context. While previous research has highlighted specific dimensions of diversity, such as gender diversity improving decision quality (Jouber, 2024) and foreign directors enhancing firms' networks (Adams and Baker, 2021), to the best of the author's knowledge, no prior studies have systematically investigated the collective influence of board diversity on risk-taking in the insurance industry from a global perspective. Furthermore, the literature shows mixed findings regarding the influence of board diversity on risk-taking (e.g., Ozdemir et al., 2021; Sila et al., 2016; Teodósio et al., 2021). To address these gaps, this study develops a composite index incorporating gender, nationality, tenure, and age, offering a more integrated approach to board diversity measurement. The findings indicate that boards composed of members with diverse characteristics across multiple dimensions are better equipped to fulfil their monitoring and

advisory roles, enhancing their ability to assess and manage risk-taking effectively. This research provides new empirical evidence that underscores the importance of viewing board diversity as an integrated construct, advancing both theoretical and practical understandings of its impact on firm risk.

Second, this study advances the understanding of how institutional environments shape the effectiveness of board diversity in risk management. Drawing on institutional theory, which suggests that national governance quality creates both challenges and opportunities for firm operations (Filatotchev et al., 2013), the findings demonstrate that governance quality systematically moderates the relationship between board diversity and risk-taking. Specifically, high-quality governance environments amplify the positive effects of board diversity by fostering accountability, transparency and independent decision-making, enhancing diverse boards' ability to access risk-relevant information and exercise effective oversight. This contribution extends prior research indicating that firms in different institutional settings adopt diverse approaches to similar governance challenges (e.g., Aguilera and Jackson, 2010; Jackson, 2010; García-Meca et al., 2015). It empirically supports the view that CG practices cannot adopt a "one-size-fits-all" model in international contexts (Nguyen et al., 2021). Instead, the study reveals that the effectiveness of board diversity in mitigating risk is context-dependent, with stronger governance systems providing the institutional support needed to maximise its benefits. These findings underscore the importance of tailoring governance practices to align with the specific institutional environment in which firms operate.

Third, this study provides novel insights into how cultural dimensions differentially moderate the effectiveness of board diversity in risk-taking. The findings reveal distinct patterns through which national culture shapes boardroom dynamics and risk management practices. In particular, high uncertainty avoidance strengthens the risk-mitigating effects of board diversity by promoting structured decision-making and comprehensive risk assessments. Conversely, individualism, power distance and masculinity exhibit weakening effects, as these cultural traits can hinder the collaborative dynamics and oversight capabilities of diverse boards. These findings extend the literature on cultural influences in CG by providing a nuanced understanding of how informal institutions affect board functioning (e.g., Li et al., 2013; Gaganis et al., 2019; Eljilany et al., 2023). While prior research has broadly examined cultural effects on corporate decisions, this study identifies specific mechanisms through which different cultural dimensions either enhance or diminish the effectiveness of board diversity in

managing firm risk. The results highlight that the success of board diversity initiatives depends not only on board composition but also on the cultural context in which boards operate. These insights are particularly valuable for multinational firms in developing governance practices that account for varying cultural environments while maintaining effective risk management.

The remainder of the study is structured as follows: Section 4.2 reviews relevant literature and develops the study's hypotheses. Section 4.3 then outlines the data and methodology used in the analysis. Next, Section 4.4 presents the empirical results and discusses the findings. Finally, Section 4.5 concludes and proposes directions for future research.

4.2 Literature review and hypotheses development

4.2.1 Theoretical background

No single theory adequately captures board diversity's implications, necessitating a multi-theoretical approach (Carter et al., 2010). The primary responsibilities of the board of directors include (i) overseeing and supervising managerial activities while ensuring organisational adherence to relevant regulations and laws, as grounded in agency theory; and (ii) offering guidance and counsel to the management team while facilitating the organisation's engagement with its external environment, as informed by resource dependence theory (Adams et al., 2010; Monks and Minow, 2011). Agency theory highlights the inherent conflict between shareholders (principals) and managers (agents) arising from the separation of ownership and control (Watts and Zimmerman, 1978; Fama and Jensen, 1983). Managers may pursue self-interested decisions that deviate from shareholders' objectives, such as investing in negative net-present value projects that reduce shareholder value (Shaikh et al., 2018). The board of directors serves as a crucial governance mechanism to mitigate these agency conflicts through effective monitoring (Fama and Jensen, 1983). This monitoring function requires directors to evaluate, scrutinise, and regulate corporate activities, thereby enhancing market confidence and stakeholder assurance (Nicholson and Newton, 2010).

Board diversity can enhance this monitoring role by introducing members' varied skills, experiences, perspectives, business knowledge, and problem-solving approaches (Farag and Mallin, 2017; Walt and Ingley, 2003). Such diversity strengthens the board's oversight by fostering robust discussions, posing challenging questions, promoting independent thinking, and holding management accountable, thereby improving monitoring effectiveness (Gul et al., 2011; Jebran et al., 2020; Talavera et al., 2018). In the insurance sector, where firms operate in

a highly regulated and knowledge-intensive environment, diverse boards may play a vital role in aligning risk management practices with strategic objectives. By incorporating various perspectives, these boards can effectively balance risk-return trade-offs, ensuring that corporate strategies align with shareholder interests while addressing the industry's unique challenges (Bhat et al., 2020; Ozdemir et al., 2021).

Resource dependence theory complements agency theory by emphasising the board's role in acquiring and managing critical resources (Carter et al., 2003; Pfeffer and Salancik, 1978). Boards can link the firm to external resources such as industry expertise, regulatory knowledge, policy influence, and stakeholder connections (Hillman et al., 2009; Terjesen et al., 2009). By managing these external dependencies, the board can enhance firm value, reduce risk, and build legitimacy in the marketplace (Mahadeo et al., 2012; Post and Byron, 2015). Board diversity can further strengthen this resource-acquisition role by introducing a wider range of skills, networks, and insights. Directors from varied backgrounds contribute industry-specific knowledge, international experience, and connections to policymakers, suppliers, and other stakeholders, thereby expanding the firm's external network and improving its ability to respond to dynamic market conditions (Hillman et al., 2000; Sarhan et al., 2019). Additionally, diverse boards bring fresh perspectives that enhance decision-making and strategic alignment, particularly in industries with high external pressures and uncertainties (Adams and Baker, 2021; Elmagrhi et al., 2019). In the insurance sector, a diverse board can help firms navigate complex regulatory environments, mitigate risks, and foster stakeholder trust. These capabilities are especially valuable in highly regulated industries, where firms must balance compliance with innovation to remain competitive (Talavera et al., 2018). By leveraging the diverse resources of their boards, insurers can better align governance practices with external demands, securing competitive advantages and minimising risk exposure.

While agency and resource dependence theories focus on internal governance dynamics, institutional theory extends the analysis by considering the broader context in which firms operate. According to institutional theory, organisational decisions and structures are influenced by efficiency considerations and the need for legitimacy within their institutional environment (DiMaggio and Powell, 1983; Scott, 2005). Firms face three types of institutional pressures: coercive pressures from formal regulations and societal expectations, normative pressures from professional standards and industry norms, and mimetic pressures that drive organisations to imitate successful peers (DiMaggio and Powell, 1983). These pressures vary across national contexts, shaping how firms adapt and navigate their environments.

Firms operate within a framework of formal and informal norms and regulations that shape their activities, reflecting the institutional environment in which they are embedded (North, 1990). National governance quality is a critical formal institutional factor, encompassing regulatory frameworks, policies, and enforcement mechanisms that influence corporate behaviour (Kaufmann et al., 2011). The quality of national governance determines the nature of the challenges firms face, either constraining or enabling their strategic choices and policies (Filatotchev et al., 2013). High-quality governance systems establish clear rules, accountability structures, and enforcement mechanisms that effectively empower diverse boards to fulfil their monitoring and advisory responsibilities (Shleifer and Vishny, 1997). Such systems promote transparency and create a stable environment, allowing boards to make informed decisions with reduced uncertainty (Healy and Palepu, 2001). Conversely, weak governance systems can undermine these functions by lacking adequate accountability and enforcement (La Porta et al., 2000). In such contexts, diverse boards may struggle to align their decisions with organisational objectives, encountering difficulties mitigating risks or curbing managerial opportunism. Moreover, the disparity in governance quality across nations underscores the inadequacy of a "one-size-fits-all" approach to CG, highlighting the need for context-specific strategies tailored to each institutional environment (Jackson, 2010; Nguyen et al., 2021). These variations in governance quality can influence how diverse boards manage risk and balance competing priorities, such as compliance, innovation, and stakeholder engagement (Sarhan et al., 2019).

In addition to national governance quality, national culture, as part of the informal institutional environment, may also influence how board diversity affects corporate risk-taking. Defined as shared characteristics that distinguish members of one society from another, Hofstede (1980) identifies four key cultural dimensions: individualism, uncertainty avoidance, power distance, and masculinity. Highlighting the impact of culture on shaping personal values, Homer and Kahle (1988) further suggest that differences in individual preferences are culturally determined (Weber and Hsee, 1998). For instance, individualistic cultures emphasise independence and competition, often encouraging riskier decision-making processes (Gaganis et al., 2019). In such contexts, diverse boards may face challenges in achieving cohesion, as fragmented decision-making dynamics can increase communication costs and conflicts (Ji et al., 2021). In contrast, collectivist cultures prioritise group harmony and consensus-building, fostering stable governance structures that align diverse boards toward risk-averse strategies (Hofstede, 2001).

Furthermore, cultures with high uncertainty avoidance favour stability and structured processes, which can align with the decision-making approaches of diverse boards, fostering cautious and deliberate strategies to manage risks effectively (Mihet, 2013; Mohsni et al., 2021). Conversely, high-power distance cultures, where authority is concentrated among senior directors, may reduce the collective oversight potential of diverse boards by limiting their ability to fully utilise diverse perspectives in decision-making, potentially weakening their influence on risk management dynamics (Smith et al., 2006). Masculinity, another cultural dimension, affects the priority of growth versus risk reduction. In highly masculine cultures, where competition and assertiveness dominate, the risk-reducing benefits of diverse boards may be diminished as directors prioritise aggressive strategies over cautious decision-making (Mohsni et al., 2021).

These cultural traits embedded within national contexts may alter the effectiveness of board diversity in managing corporate risk profiles (Mihet, 2013). Hence, institutional theory suggests that, beyond determining the flexibility with which firms adopt CG strategies, both national governance quality and culture profoundly influence the extent to which board diversity can effectively mitigate or enhance corporate risk-taking.

4.2.2 Hypotheses development

4.2.2.1 Board diversity

A firm's risk profile in the insurance industry arises from the complex interplay between underwriting decisions, investment strategies, and operational management, all shaped by a stringent regulatory environment (Adams and Jiang, 2016; Jouber, 2024). The board of directors plays a crucial role in governing these risk-related decisions, monitoring and guiding management's risk appetite to align with the interests of diverse stakeholders, including policyholders, shareholders, and regulators (Akbar et al., 2017; García-Sánchez et al., 2017). A diverse board is less likely to adopt a narrow or singular perspective on risk assessment (Gul et al., 2011). Instead, it is better equipped to consider multiple risk dimensions across various business lines, dynamic market conditions, and evolving regulatory requirements (Elnahass et al., 2023). This multidimensional approach to risk oversight enables insurers to maintain prudent risk levels while pursuing strategic objectives and fostering long-term sustainability (Ozdemir et al., 2021).

Effective risk management in insurance relies on a firm's ability to capture and process complex, multidimensional risk information spanning business operations, investment portfolios, and underwriting activities (Knights and Vurdubakis, 1993). Failure to implement robust risk assessment capabilities compromises decision-making and may result in mispriced insurance products, insufficient loss reserves, or poorly aligned investment strategies (Zou et al., 2012). In this context, board diversity can enhance risk management through several mechanisms. First, diverse boards bring a broader range of experiences and analytical perspectives, enabling them to evaluate complex risks, from operational underwriting challenges to financial risks such as market volatility, credit exposure, and liquidity management (Anderson et al., 2011; Farag and Mallin, 2017). These enriched perspectives help boards identify emerging risks, weigh risk-return trade-offs, and design effective mitigation strategies (Kim and Starks, 2016; Uyar et al., 2022). As noted by Haynes and Hillman (2010), the diversity of board capital acts as a catalyst for functional changes within corporations.

Second, as fiduciaries, board members hold significant authority over governance and risk-taking decisions, giving them the legitimate power to influence the firm's strategic direction (Abou-El-Sood, 2021). The diversity of their perspectives enriches the decision-making process, creating a powerful and influential top-down governance force that shapes the insurer's risk profile and aligns it with stakeholder interests (Ongsakul et al., 2022; Sun et al., 2022). Third, research on cognitive diversity suggests that heterogeneous groups can offer superior analytical resources and problem-solving capabilities (Backes and Veen, 2013; Forbes and Milliken, 1999). These attributes may improve risk assessment processes and enhance the firm's understanding of external factors such as market dynamics and regulatory developments (Talavera et al., 2018).

Additionally, board members act as critical connectors between insurers and external stakeholders, including regulators, rating agencies, reinsurers, and market participants (Hillman et al., 2009). A diverse board broadens the organisation's understanding of stakeholder risk preferences, regulatory requirements, and market expectations through varied connections and experiences (Mahadeo et al., 2012). This external insight is particularly valuable in the insurance industry, where effective risk management requires a nuanced understanding of stakeholder concerns related to risk exposure, capital adequacy, and solvency (Adams and Jiang, 2020). Diversity among board members can thus enhance the insurer's technical expertise and the effectiveness of regulatory compliance, helping to establish robust

risk assessment processes, develop comprehensive strategies, and strengthen governance systems (Chen et al., 2024; Hardwick et al., 2011).

Empirical evidence underscores the value of board diversity in risk management. Board gender diversity, for instance, enhances risk oversight and reduces financial volatility, with female directors often adopting a more cautious and comprehensive governance approach (Lu and Boateng, 2018). Nationality diversity improves corporate solvency by providing insights into cross-border risks and regulatory variations (Adams and Baker, 2021). Tenure diversity bolsters governance quality by enhancing vigilance and the ability to scrutinise managerial decisions, thereby reducing the risk of failure (Ji et al., 2021). Similarly, age diversity strengthens monitoring performance, enabling boards to tackle complex tasks and refine decision-making processes (Janahi et al., 2022; Wegge et al., 2008). Collectively, these findings highlight how diverse boards contribute to effective risk management by leveraging multifaceted expertise and connections.

However, board diversity can present challenges despite its benefits, such as longer deliberation times and higher coordination costs in decision-making (Carter et al., 2010; Erhardt et al., 2003). These challenges may hinder the board's efficiency, particularly in time-sensitive risk management scenarios. Yet, given the insurance industry's intense scrutiny by various stakeholders (e.g., policymakers, regulators, and rating agencies), board members are highly motivated to maintain their public reputation for prudent management (Eling and Marek, 2014). Consequently, potential collaboration and communication challenges arising from board diversity are likely to be marginalised as directors prioritise preserving their reputation within this highly trust-based industry. Furthermore, while diverse boards may include members with varying risk appetites, there is typically strong alignment on prioritising solvency and regulatory compliance, both essential for industry stability, since failures in risk management can have severe micro- and macroeconomic consequences. Based on these theoretical insights and empirical findings, the first hypothesis is as follows:

H1: Board diversity significantly and negatively affects firm risk-taking in the insurance industry.

4.2.2.2 Moderating role of national governance quality

The role of national institutions in moderating the effect of board diversity on corporate performance has gained increasing attention in governance literature (Terjesen and Singh,

2008; Grosvold and Brammer, 2011). National institutions, comprising formal constraints (e.g., constitutions, legal frameworks, property rights) and informal constraints (e.g., traditions, norms, cultural codes), shape the operational environment for corporations and influence decision-making as enablers or barriers (North, 1990; Hall and Soskice, 2003). Among these, national governance quality plays a pivotal role by providing mechanisms and processes that ensure accountability, transparency and conflict resolution (UN, 1994). By shaping the interactions between stakeholders and corporate managers, governance quality can directly affect the rights, responsibilities and incentives of both parties, influencing corporate outcomes (Filatotchev et al., 2013). Research further highlights that governance frameworks vary significantly across countries due to differences in ownership structures, regulatory systems, and cultural norms, underscoring the limitations of a "one-size-fits-all" approach to CG (Aguilera et al., 2008; Jackson, 2010; Nguyen et al., 2021). These institutional variations significantly impact how CG mechanisms, including board diversity, are designed and implemented, shaping their effectiveness in different national contexts (Van Essen et al., 2012).

Institutional frameworks also play a critical role in shaping corporate risk-taking by serving as external governance mechanisms. According to institutional theory, these frameworks promote economic stability and mitigate market volatility (Phuong et al., 2022). North (1990) argues that an economy's structural environment, comprising political, regulatory, and legal systems, determines its transaction costs. Empirical evidence demonstrates that countries with high-quality national governance benefit from reduced managerial opportunism (Doidge et al., 2007), lower risks to investor rights (Claessens and Laeven, 2003), decreased information asymmetry (Bushman et al., 2004) and diminished liquidity costs (Lang et al., 2012). These benefits arise from robust mechanisms for contract enforcement, governance, and oversight. Additionally, strong institutional frameworks have been linked to increased investment value (John et al., 2008) and reduced equity financing costs due to lower risk premiums (Hail and Leuz 2006). As a result, insurance companies operating in high-governance-quality countries tend to exhibit more conservative risk-taking (Fields et al., 2012; Lee and Lin, 2016).

Arguably, high-quality national governance is more likely to foster an environment conducive to the effective functioning of diverse boards. In such settings, accountability and transparency can improve access to risk-relevant information, enabling boards to enhance their monitoring and advisory roles (Phuong et al., 2022). This fosters conditions under which board diversity, through varied perspectives and enhanced decision-making, can yield more effective risk management and improved corporate performance (Nguyen et al., 2021). For instance, well-

regulated environments have been shown to amplify the positive effects of gender-diverse and tenure-diverse boards on firm outcomes, including financial performance and investment efficiency (García-Sánchez et al., 2015; Phuong et al., 2022). Conversely, weak legal systems, limited investor protections, and insufficient oversight in low-governance-quality environments may undermine the potential benefits of board diversity. Firms in such contexts may face challenges in implementing effective monitoring mechanisms, restricting the ability of diverse boards to influence corporate outcomes meaningfully (Doidge, 2004; Yoshikawa et al., 2014). This may constrain the positive effects of diversity on risk management, underscoring the crucial role of governance quality in moderating these dynamics. Therefore, high national governance quality is expected to reinforce the negative relationship between board diversity and firm risk-taking in the insurance industry. The second hypothesis is as follows:

H2: High national governance quality reinforces the negative relationship between board diversity and firm risk-taking in the insurance industry.

4.2.2.3 Moderating role of national culture

Beyond the quality of national governance, national culture, as a component of the informal institutional environment, may also influence the relationship between board diversity and firm risk-taking. In his foundational work, Hofstede (1984, p.389) defines culture as the "collective programming of the mind that distinguishes the members of one category of people from another," arguing that all managerial decisions are inherently "culturally dependent." Building on Hofstede's (1984) cultural dimensions framework, extensive research has demonstrated culture's moderating influence on firm values and operations (e.g., Kanagaretnam et al., 2012; Li et al., 2013; Dheera-aumpon, 2018; Yamen et al., 2022; Makni Fourati et al., 2024). This relationship aligns with Homer and Kahle's (1988) empirically validated 'value-attitude-behaviour hierarchy,' which establishes that values shape attitudes, influencing behaviour (Gaganis et al., 2019). Weber and Hsee (1998) apply this framework to risk preferences, demonstrating how cultural values at the societal level ultimately shape individual risk-taking behaviours.

Cultural norms play a crucial role in shaping corporate risk dynamics by influencing the board of directors, which oversees managerial actions, guides decisions, and protects stakeholder interests (Adams et al., 2010). According to institutional theory, corporations align their structures with institutional norms to gain legitimacy and ensure survival (Greenwood and

Hinings, 1996; Suchman, 1995). As integral components of these norms, cultural values can shape CG frameworks (Buck and Shahrim, 2005; Denis and McConnell, 2003). For instance, governance systems rooted in the “Anglo-Saxon” model, common in countries like the United States, emphasise shareholder protection and board accountability. In contrast, Nordic governance systems, such as those in Denmark, prioritise broader stakeholder engagement (Nguyen et al., 2021).

Research demonstrates that cultural dimensions, such as masculinity and uncertainty avoidance, influence board leadership structures, diversity, and composition, including gender representation (Attah-Boakye et al., 2020; Li and Harrison, 2008). Furthermore, cultural norms can shape board decision-making by influencing how members interpret information and interact with one another (Hofstede, 1980; North, 1990). These shared cultural values can either enhance or impede decision efficacy, ultimately affecting board performance. Minichilli et al. (2012) illustrate this dynamic by comparing Latin and Scandinavian countries, showing how cultural contexts moderate the relationship between board monitoring performance and decision-making processes.

In light of these insights, various frameworks of national culture have been proposed in the literature, with Hofstede's being the most prominent (Ji et al., 2021). Hofstede's (1980) foundational work introduced four dimensions that provide a framework for modelling national cultures: individualism, uncertainty avoidance, power distance, and masculinity. Building on these dimensions, this study examines how national cultural values moderate the relationship between board diversity and corporate risk-taking within the insurance industry.

a. Individualism

Individualism reflects a societal structure where individuals maintain loose connections with others, prioritising personal and immediate family needs over broader social obligations. In contrast, collectivism characterises societies where individuals are integrated into strong, cohesive groups that emphasise collective achievements and loyalty (Hofstede, 2001; Brewer and Venaik, 2011). Citizens in individualistic societies often focus on autonomous personal goals and self-orientation, while those in collectivistic cultures prioritise group harmony, collective achievements, and the "we" over the "I" (Gaganis et al., 2019). Power et al. (2010) highlight that individualistic cultures often associate personal achievement with higher levels

of competition, leading individuals in these societies to exhibit more aggressive and ambitious behaviours in pursuit of personal goals.

Institutional theory posits that economic agents are influenced by a network of formal and informal norms and regulations (North, 1990). Managers in individualistic societies tend to underestimate uncertainty in decision-making due to a self-enhancing belief in their skills (Van den Steen, 2004). This confidence enables them to make riskier decisions, relying on personal judgment (Kreiser et al., 2010), which is further linked to overconfidence and overoptimism (Chui et al., 2010). From the perspective of resource dependence theory, diverse boards contribute valuable perspectives, industry expertise, and external stakeholder connections that enhance firm success (Sarhan et al., 2019). However, in highly individualistic societies, cultural traits may inhibit the effective utilisation of these resources. The prioritisation of personal over collective achievement, as suggested by institutional theory, can hinder board members' ability to collaborate effectively and fully leverage diversity for organisational benefit.

Empirical studies support these cultural dynamics. For instance, Gundlach et al. (2006) found that individualistic traits negatively influence team performance by undermining collaboration and cohesion. Additionally, Naghavi et al. (2021) and Mohsni et al. (2021) identify a moderating effect of culture on the relationship between board gender diversity and firm performance, finding that high levels of individualism weaken the positive impact of diversity. However, despite these findings, the literature remains largely silent on how individualistic culture moderates the relationship between board diversity and firm risk-taking in the insurance industry on a global scale. As a result, based on relevant literature and empirical evidence, the third hypothesis is as follows:

H3: High individualistic culture weakens the negative relationship between board diversity and firm risk-taking in the insurance industry.

b. Uncertainty avoidance

Uncertainty avoidance refers to how much individuals feel uneasy or anxious in situations they perceive as unstructured, ambiguous, or unpredictable and the degree to which they seek to minimise such situations by adhering to rigid behavioural norms and embracing absolute truths (Merkin, 2006; Stohl,1993). Cultures characterised by high uncertainty avoidance, such as Germany (Hofstede, 2001), favour stability and security stronger. Individuals in these societies often seek to exert greater control over uncontrollable factors by adhering to structured rules

and clear behavioural codes to reduce ambiguity (Pillay and Dorasamy, 2010; Gaganis et al., 2019). Conversely, cultures with low uncertainty avoidance, such as Sweden (Hodgetts, 2006), tend to favour risk-taking and personal accountability (Pillay and Dorasamy, 2010), resulting in divergent risk-taking behaviours between individuals in high and low uncertainty avoidance societies.

This cultural dimension can influence corporate decision-making, especially in organisations headquartered in countries with high uncertainty avoidance. Managers in these contexts are typically more risk-averse and adopt conservative strategies to safeguard against unfavourable outcomes (Li et al., 2013; Riddle, 1992). For instance, they tend to hold larger cash reserves as a buffer against uncertainty (Ramirez and Tadesse, 2009). In industries characterised by high levels of information complexity and inherent uncertainty, such as insurance, managers tend to carefully assess risks rather than completely avoid them (Mihet, 2013). To mitigate risk exposure, board members in high uncertainty avoidance cultures are likely to establish explicit decision-making frameworks and enforce predictable procedures to guide risk estimation and management.

High uncertainty avoidance societies also emphasise trust in experts and specialists (Pillay and Dorasamy, 2010), reflecting a broader cultural preference for interpretability and predictability. This societal tendency aligns with institutional theory, which posits that culture can shape behaviours, including attitudes toward risk-taking (Ji et al., 2021). Within CG, resource dependence theory suggests that diverse boards bring varied perspectives and expertise, reducing information asymmetry and enhancing risk management practices (Hutchinson et al., 2015). Therefore, board diversity may add greater value in high uncertainty avoidance settings by fostering structured approaches to risk estimation and management, aligning with cultural preferences for security and stability.

Research has established a strong link between uncertainty avoidance and corporate risk-taking. For instance, Ashraf et al. (2016), Gaganis et al. (2019), and Li et al. (2013) found that cultures with high uncertainty avoidance engage less in corporate risk-taking due to their inherent risk aversion. In examining the moderating role of culture on corporate outcomes, Mohsni et al. (2021) found that high uncertainty avoidance strengthens the negative relationship between board gender diversity and firm risk. However, there is limited empirical evidence on how uncertainty avoidance moderates the relationship between board diversity and risk-taking in the insurance industry on a global scale. Drawing on the relevant literature and theoretical frameworks, the fourth hypothesis is as follows:

H4: High uncertainty avoidance culture reinforces the negative relationship between board diversity and firm risk-taking in the insurance industry.

C. Power distance

Power distance describes how much people with less authority in groups and social structures (such as families or organisations) consider it normal and acceptable that power is not shared equally among members (Hofstede, 2001). In high power distance societies, hierarchical structures dominate, with the less powerful exhibiting a high tolerance for power imbalances and refraining from questioning or challenging authority (Park, 2003). This dynamic fosters centralised decision-making, strict adherence to authority, and limited opportunities for lower-power members to voice dissent, often leading to reduced organisational innovation and weaker risk oversight (Hofstede, 2001; Li et al., 2013). Conversely, low power distance cultures are characterised by decentralised governance, participative decision-making, and greater autonomy for less powerful members, typically resulting in more diverse decision-making perspectives (Hodgetts and Luthans, 1993).

In organisational dynamics, governance and decision-making processes, particularly those related to risk management, are influenced by cultural dimensions such as power distance. Power tends to be concentrated among a few board members in high power distance cultures, which may hinder collaborative decision-making and comprehensive risk assessment. This concentration exacerbates information asymmetry, limits information sharing, and suppresses the diversity of ideas, potentially compromising the quality and effectiveness of risk management decisions (Ji et al., 2021). Moreover, high power distance fosters mistrust between dominant and subordinate stakeholders (Hofstede, 2001), further deepening information asymmetry and reducing organisational transparency in risk-related communications (Kashefi-Pour et al., 2020).

From an agency theory perspective, the principal-agent problem—arising from divergent interests between those in power and their stakeholders and compounded by information asymmetry (Watts and Zimmerman, 1978)—is particularly pronounced in high power distance cultures. Cultural norms in such environments tend to discourage board members from questioning or challenging the strategic decisions of powerful management, especially in risk-related contexts (Schramm-Nielsen, 1989). These limitations may weaken the effectiveness of

monitoring mechanisms, as upward communication is culturally constrained, reducing safeguards on authority and amplifying risks associated with agency problems.

Empirical studies underscore the relationship between power distance and risk-taking. Aren and Nayman Hamamci (2023) and Eljilany et al. (2023) document a positive association between power distance and risky investment decisions. Additionally, Ji et al. (2021) highlight that high power distance weakens the risk-reducing impact of board tenure diversity, underscoring the moderating role of governance mechanisms in such settings. Building on this foundation and addressing the lack of evidence regarding the impact of board diversity on risk-taking in the insurance sector, the fifth hypothesis is as follows:

H5: High power distance culture weakens the negative relationship between board diversity and firm risk-taking in the insurance industry.

d. Masculinity

Masculinity refers to the degree to which a society values and promotes traditionally masculine traits such as competitiveness, ambition, and material achievement over traditionally feminine qualities like caring and relationship-building (Hofstede, 2001). In masculine cultures, organisational decision-making tends to be individualistic rather than collective, strongly emphasising performance-based rewards rather than equality-based distribution (Hofstede, 2001). Managers in masculine societies often exhibit more decisive, assertive, and aggressive behaviours while placing less value on cooperative approaches (Gallego-Álvarez and Pucheta-Martínez, 2021). This cultural orientation manifests in greater managerial ambition and risk appetite (Kreiser et al., 2010), focusing on achievement and competitive success over relationship-building and conservative decision-making (Zheng et al., 2012). Research has further established connections between masculine cultural traits and increased organisational risk-taking (Ahmed et al., 2019; Kamiya et al., 2019; Mills and Hogan, 2020), including a higher propensity for high-risk investments (Kashefi-Pour et al., 2020).

In masculine societies, cultural norms prioritising competition, assertiveness, and achievement can overshadow the natural tendency of diverse boards to adopt balanced, risk-aware decision-making approaches (Ozdemir, 2021). While diverse boards can bring varied perspectives and promote cautious risk management practices (Bernile et al., 2018; Lu and Boateng, 2018), the cultural emphasis on masculinity may pressure board members to conform to aggressive, competition- orientated behaviours. This cultural pressure may diminish the beneficial effects

of board diversity on risk management practices, regardless of individual board members' characteristics or backgrounds.

Recent studies have underscored the moderating role of masculinity in corporate outcomes. For example, Bazel-Shoham et al. (2024) demonstrated that in highly masculine societies, board gender diversity negatively influences environmental sustainability outcomes. Similarly, Naghavi et al. (2021) found that masculinity negatively moderates the relationship between board gender diversity and financial performance. However, there remains limited empirical evidence regarding how masculinity moderates the relationship between board diversity and firm risk-taking in the insurance industry on a global scale. Therefore, based on relevant literature and empirical evidence, the sixth hypothesis is as follows:

H6: High masculinity culture weakens the negative relationship between board diversity and firm risk-taking in the insurance industry.

4.3 Data and methodology

4.3.1 Data sample

The sample comprises internationally listed life and non-life insurance companies for the period 2003–2019, contingent on data availability. The variables employed in this study are collected and constructed from multiple sources. Specifically, firm financial data is sourced from Worldscope within Thomson Reuters' Datastream. Board and governance information is accessed through the BoardEx database. Additionally, country-specific data is obtained from the World Bank and the Worldwide Governance Indicator (WGI) databases. Data on national cultural dimensions is derived from Hofstede (2001). Upon merging all data sources, the final dataset includes 3,187 firm-year observations spanning 17 years (2003–2019). Consistent with prior studies on board diversity and risk-taking (e.g., Ji et al., 2021; Li and He, 2023; Phuong et al., 2022), all continuous variables have been winsorised at the top and bottom 1% to mitigate the influence of outliers.

4.3.2 Dependent variables: Risk-taking

This study measures insurer risk through two primary metrics: insolvency risk and underwriting risk, both of which critically impact firm viability (Pasiouras and Gaganis, 2013; Adams and Jiang, 2017). These metrics serve as vital indicators for stakeholders by reflecting

business continuity (Caporale et al., 2017; Rubio-Misas, 2020) and provide boards with tools to optimise risk-return trade-offs through their monitoring and advisory roles (Ho et al., 2013; Akbar et al., 2017). Beyond these two main proxies, the study incorporates additional measures of risk-taking, i.e., portfolio risk and the combined ratio, in robustness tests.

Insolvency risk is captured using the Z-score (distance to default), which reflects the threshold at which losses deplete an insurer's equity (García-Sánchez et al., 2017). A higher Z-score indicates a lower likelihood of insolvency. The Z-score's relevance lies in its ability to measure an insurer's capacity to leverage equity to absorb unexpected losses (Delis et al., 2014). This metric has been widely used in insurance research (e.g., Akbar et al., 2017; Gaganis et al., 2019) and is calculated as:

$$\mathrm{Z-score} = [\mathrm{mean\ (ROA)} + \mathrm{mean\ (EA)}] / \sigma(\mathrm{ROA}) \quad (1)$$

where ROA represents return on assets, EA denotes the equity-to-assets ratio, and σ(ROA) is ROA's standard deviation. To mitigate fluctuations, these components are computed using five-year rolling windows, following Pasiouras and Gaganis (2013). For ease of interpretation, the natural logarithm of the Z-score is multiplied by -1, consistent with prior studies (Akbar et al., 2017; Gaganis et al., 2019). In this transformed form, higher values indicate increased risk.

Underwriting risk, a major source of uncertainty for insurers (Eling and Zhu, 2018), arises when actual losses exceed predicted values used for premium pricing, leading to volatile profits (Zou et al., 2012; Mankaï and Belgacem, 2016; Lei, 2019). While rapid premium growth often signals financial strength, it may also expose insurers to mispricing risk, where premiums are set too low to attract sales without sufficient reserves for future claims (Caporale et al., 2017; Lamm-Tennant and Starks, 1993). Consequently, an increase in the loss ratio during claims settlement heightens risk exposure. Loss payments represent the most fundamental risk that insurers must closely monitor and minimise to preserve solvency (Ng et al., 2013). This study measures underwriting risk through the standard deviation of the loss ratio over a five-year rolling window, consistent with Milidonis et al. (2019) and Shim (2017). The loss ratio, defined as incurred losses plus adjustment expenses divided by earned premiums, indicates a higher level of underwriting risk when its standard deviation increases.

4.3.3 Independent variables: Board diversity

A more comprehensive approach to diversity is essential to achieve the study's aim of examining how institutional factors moderate the relationship between board diversity and risk-

taking. Previous research on diversity underscores the importance of constructing an index to capture the joint impact of the multidimensional aspects of board diversity, as all dimensions operate simultaneously and interactively when a board performs its functions for the company (e.g., Ararat et al., 2015; Bernile et al., 2018; Harjoto et al., 2015; Miller and Triana, 2009). Building on prior literature (e.g., Kang et al., 2007; Bernile et al., 2018; Beji et al., 2021) and leveraging globally available data, this study focuses on four key aspects—gender, nationality, tenure, and age—to develop a composite index of board diversity *(BD_Index)*.

In accordance with established literature, each aspect of diversity is defined as follows: Gender diversity is represented by the proportion of women on the board of directors (Sila et al., 2016; Farag and Mallin, 2017). For nationality diversity, given the international scope of the sample, it is measured as the percentage of foreign directors on the board of directors (Sarhan et al., 2019; Adams and Baker, 2021). As tenure and age are continuous variables, the standard deviation is used to capture dispersions of tenure and age between board members (Bernile et al., 2018; Wahab et al., 2018). Therefore, tenure diversity is the standard deviation of the tenure lengths of the board's directors (Ji et al., 2021; Mollah et al., 2021), while age diversity is the standard deviation of the ages of the board's directors (Bernile et al., 2018; Talavera et al., 2018).

To construct the board diversity index *(BD_Index*), this study follows Bernile et al. (2018) and Mollah et al. (2021). Gender diversity, nationality diversity, tenure diversity, and age diversity are standardised using their respective means and standard deviations for scaling, referred to as their standardised forms (denoted as 'STDZ'). Each of the four diversity aspects is given equal weight in the calculation. Consequently, the board diversity index is defined as follows:

$$\text{BD\_Index} = \text{STDZ (gender diversity)} + \text{STDZ (nationality diversity)} + \text{STDZ (tenure diversity)} + \text{STDZ (age diversity)} \quad (2)$$

4.3.4 Moderator variables: Institutional factors

National governance quality. This study focuses on the role of national governance quality *(NGQ)* as a moderating variable across countries, assessed using the Worldwide Governance Indicators (WGIs) developed by Kaufmann et al. (2011). The WGIs, widely used in cross-national comparative research, evaluate six key dimensions of national governance quality: voice and accountability, control of corruption, government effectiveness, political stability, rule of law, and regulatory quality. Each indicator is scored between -2.5 and +2.5, where

higher values indicate superior governance quality. While theoretically, each WGI index measures a distinct aspect of governance, Langbein and Knack (2010) argued that these measures collectively represent a single overarching concept of governance quality. As such, this study employs Principal Component Analysis (PCA) to create a composite measure of NGQ from the six World Bank governance indicators, following prior research (e.g., Elamer et al., 2020; Ngobo and Fouda, 2012; Nguyen et al., 2015; Nguyen et al., 2021).

National culture. The literature has proposed various frameworks of national culture, with Hofstede's framework being the earliest, most prominent, and widely cited (Ji et al., 2021). Building on prior research (e.g., Gaganis et al., 2019; Ji et al., 2021; Mohsni et al., 2021), this study adopts Hofstede's dimensions of national culture. In his seminal work, Hofstede (1980) introduced four foundational dimensions for modelling national cultures: individualism *(INDI)*, uncertainty avoidance *(UA)*, power distance index *(PDI)*, and masculinity *(MAS)*. Each dimension is represented by a cultural index for each country, with scores ranging from 0 to 100. Scores above 50 are considered high within the corresponding dimension.

These dimensions are defined as follows: the individualism index gauges the strength of interpersonal ties, with higher scores reflecting greater individualism; the uncertainty avoidance index assesses a society's tolerance for uncertainty and ambiguity, where a higher score denotes lower tolerance; the power distance index reflects the extent of inequality and hierarchical acceptance within a society; and the masculinity index captures the degree of emotional and role differentiation between genders. As cultural shifts tend to be slow (Licht et al., 2005), Hofstede's scores can be considered relevant and reflective of the cultural context of the countries included in this study.

4.3.5 Control variables

This study, which investigates how board diversity affects insurers' risk-taking and how this relationship is moderated by institutional factors, incorporates three sets of control variables—board-level, firm-level, and country-level characteristics—following established risk-taking literature.

At the board level, the first control variable is board size *(B_Size)*, measured by the total number of directors on the board. Larger boards are associated with greater technical expertise and business knowledge, enabling more effective decision-making regarding financial strategies (Hardwick et al., 2011). The second variable, board independence *(B_Indep)*, represents the

proportion of non-executive directors on the board. Independent directors can strengthen monitoring, reduce information asymmetry, and prioritise shareholder interests (Boone et al., 2007; Linck et al., 2008). CEO duality *(CEO_Dul)* is a binary variable coded as 1 when the CEO also serves as the board chairperson and 0 otherwise. While CEO duality is linked to higher information asymmetry costs and lower firm performance (Duru et al., 2016), it can align firm risk-taking with the CEO's preferences, potentially leading to less risky investment projects (Ellstrand et al., 2002; Krause et al., 2014). The existence of a risk committee *(Risk_Comm)* is also controlled for using a binary variable coded as 1 when a risk committee exists and 0 otherwise, reflecting its role in risk management oversight (Walker, 2009).

Building on these board-level considerations, the study also incorporates firm-level characteristics, which capture the size, age, and financial structure of insurers. Firm size *(F_Size)* is measured as the natural logarithm of total assets. Well-established insurance companies often have a competitive edge over relatively new entrants, benefiting from their accumulated knowledge of product-market dynamics, existing customer base and well-built distribution channels (Giroud and Mueller, 2010). This advantage typically strengthens with firm age *(F_Age)*, measured as the natural logarithm of one plus the number of years since incorporation, as older firms tend to contribute more significantly to innovation, growth, and risk-taking (Coad et al., 2016; Faccio et al., 2016). Financial leverage *(Leverage)*, defined as the ratio of total debt to total assets, influences the likelihood of insurers purchasing reinsurance to hedge against downside risk (Akbar et al., 2017; Shiu, 2011). The study also controls for market-to-book value *(MTB)*, which is the ratio of the market value to the book value of shareholders' equity, as it serves as a predictor of market returns (Pontiff and Schall, 1998; Xie, 2010).

Furthermore, ownership structure, represented by the free float *(Float)* percentage, captures the proportion of shares available for public trading on the stock exchange (Uyar et al., 2022). To account for temporal influences, a dummy variable for the financial crisis *(Fin_Crisis)* is included, coded as 1 for the years 2007–2009 and 0 otherwise. This reflects the impact of economic downturns on CG and risk-taking (Abdoush et al., 2022; Mohsni et al., 2021). Lastly, business activity *(Bus_Act)* is represented by a binary variable coded as 0 for life insurers and 1 for non-life insurers, capturing the differing business models and risk profiles of these sectors (Eling and Marek, 2014; Gaganis et al., 2019).

Beyond firm-level characteristics, the study includes macroeconomic factors that may influence insurers' risk-taking. GDP growth *(GDPG)* reflects economic conditions and industry

growth opportunities in insurers' home markets (Eling and Jia, 2018), while the inflation rate *(INFL)* impacts insurers' systematic risk and performance through its effects on premium and bond pricing, it ultimately reduces profit margins (Bernoth and Pick, 2011; Shiu, 2004).

4.3.6 Empirical model

To examine the moderating role of institutional factors on the relationship between board diversity and firm risk-taking in the insurance sector, this study employs an ordinary least squares (OLS) regression with robust standard errors as the baseline model for hypothesis testing, as outlined in Section 4.2. The analysis begins with Equation (3), which estimates the effect of the composite board diversity index on insolvency and underwriting risk:

$$IR_{ijt}\ and\ UR_{ijt} = \alpha + \beta 1\ BD\_Index_{ijt} + \beta 2\ Controls_{ijt} + Year\ and\ Country\ FEs + \epsilon_{ijt} \quad (3)$$

in which IR and UR denote insolvency and the underwriting risk of the insurer i in country j at year t, respectively. The independent variable, BD_Index, represents the composite measure of board diversity. As mentioned above, the study includes three different sets of *Controls* at the board-, firm- and country levels to account for potential confounding factors.

Furthermore, to address the possibility that insurance industry-specific events over time might influence the relationship between board diversity and risk, Equation (3) includes year and country-fixed effects. Year-fixed effects capture unobservable time-varying factors, while country-fixed effects to account for time-invariant characteristics. Robust standard errors are applied to mitigate the impact of heteroskedasticity (Talavera et al., 2018).

After determining the direct effect of board diversity on insolvency and underwriting risks, the analysis extends to evaluate how NGQ and different cultural dimensions moderate this relationship. This is done in two steps: first, Equations (4) and (5) add standalone terms for NGQ and cultural dimensions, respectively. Then, Equations (6) and (7) incorporate the interaction terms between BD_Index and these institutional factors.

$$IR_{ijt}\ and\ UR_{ijt} = \alpha + \beta 1\ BD\_Index_{ijt} + \beta 2\ NGQ_{jt} + \beta 3\ Controls_{ijt} + Year\ and\ Country\ FEs + \epsilon_{ijt} \quad (4)$$

$$IR_{ijt}\ and\ UR_{ijt} = \alpha + \beta 1\ BD\_Index_{ijt} + \beta 2\ Cultural\ Dimension_{jt} + \beta 3\ Controls_{ijt} + Year\ and\ Country\ FEs + \epsilon_{ijt} \quad (5)$$

and

$$IR_{ijt}\ and\ UR_{ijt} = \alpha + \beta 1\ BD\_Index_{ijt} + \beta 2\ NGQ_{jt} + \beta 3\ BD\_Index_{ijt} \times NGQ_{jt}$$
$$+ \beta 4\ Controls_{ijt} + Year\ and\ Country\ FEs + \epsilon_{ijt} \quad (6)$$

$$IR_{ijt}\ and\ UR_{ijt} = \alpha + \beta 1\ BD\_Index_{ijt} + \beta 2\ Cultural\ Dimension_{jt} + \beta 3\ BD\_Index_{ijt} \times$$
$$Cultural\ Dimension_{jt} + \beta 4\ Controls_{ijt} + Year\ and\ Country\ FEs + \epsilon_{ijt} \quad (7)$$

All variables and the empirical setup follow the definitions provided for Equation (3). Specifically, NGQ is measured as a composite index encompassing six key areas of national governance quality, while cultural dimensions include individualism, uncertainty avoidance, power distance, and masculinity. Table 4.1 summarises the variable names, definitions, and measurements used in this study.

Table 4.1: Summary of the variable names, definitions and measurements used in this study

Variable	Symbol	Definition	Measurement and source
Dependent variables			
Insolvency risk	IR	A state in which an insurer's losses exceed equity	The natural logarithm's multiplication of the Z-score by minus one. The Z-score equals [mean (ROA) + mean (EA)] / σ(ROA)] within a five-year rolling time window (Akbar et al., 2017; Gaganis et al., 2019).
Underwriting risk	UR	A state in which an insurer's incurred losses and claimed expenses deviate from the predicted values that define the insurance premium	The standard deviation of the insurer's loss ratio is calculated as incurred losses and loss adjustment expenses divided by premiums earned within a five-year rolling time window (Ma and Ren, 2021; Milidonis et al., 2019).
Independent variables			
Board diversity	BD_Index	A composite index of board diversity	Following the approach of Bernile et al. (2018), the Board Diversity Index is constructed by normalising and equally weighting the four attributes: gender diversity, nationality diversity, tenure diversity, and age diversity. Each attribute is standardised using its mean and standard deviation to ensure consistent scaling across all components of the index.

Variable	Symbol	Definition	Measurement and source
National governance Quality	NGQ	Country's national governance quality	A composite measure was developed using principal component analysis (PCA) to integrate the World Bank's six governance indicators: (1) voice and accountability, (2) control of corruption, (3) government effectiveness, (4) political stability, (5) rule of law, and (6) regulatory quality. These indicators range from -2.5 to +2.5, with higher values signifying better governance quality in a country (Elamer et al., 2020; Nguyen et al., 2015).
Individualism	INDI	Measuring the strength of connections among people.	The country's ranking on individualism according to Hofstede (1984), Hofstede (2001), and Hofstede (2015).
Uncertainty avoidance	UA	Measuring how well people can deal with anxiety.	The country's ranking on uncertainty avoidance according to Hofstede (1984), Hofstede (2001), and Hofstede (2015).
Power distance index	PDI	Measuring the level of inequality in a country.	The country's ranking on power distance according to Hofstede (1984), Hofstede (2001), and Hofstede (2015).
Masculinity	Mas	Measuring the difference in emotional gender roles between male and female.	The country's ranking on masculinity according to Hofstede (1984), Hofstede (2001), and Hofstede (2015).
Control variables			
Board size	B_Size	Number of directors	The total number of directors sitting on the board (Bernile et al., 2018; Mollah et al., 2021).
Board independence	B_Indep	Presence of non-executive directors on the board	The percentage of non-executive directors sitting on the board of directors (Harjoto et al., 2018; Ji et al., 2021).
CEO duality	CEO_Dul	CEO who is also the board chairperson	A dummy variable that takes the value of one when the positions of CEO and board chairman are combined and takes the value of zero otherwise (Farag and Mallin, 2017; Talavera et al., 2018).
Risk committee	Risk_Comm	Presence of risk committee	A dummy variable that takes the value one if the insurer has a risk committee and zero otherwise (Akbar et al., 2017; Magee et al., 2019).
Firm size	F_Size	Insurers' size	The natural logarithm of total assets (Cheng et al., 2011; Eckles et al., 2014).
Firm age	F_Age	Insurers' age	The natural logarithm of one plus the age of the insurance firm (Faccio et al., 2016).
Financial leverage	Leverage	Insurers' leverage	The ratio of total debt to total assets (Akbar et al., 2017; Mohsni et al., 2021).

Variable	Symbol	Definition	Measurement and source
Market to book value	MTBV	Insurers' market value	The ratio of market to book value of equity (Akbar et al., 2017; Bernile et al., 2018).
Free float	Float	Available outstanding shares for trading	The proportion of outstanding shares that are available to investors for trading on the stock exchange (Uyar et al., 2022).
Financial crisis	Fin_Crisis	The years of the global financial crisis	A dummy variable that takes the value one for the time span of 2007–2009 and zero otherwise (Mohsni et al., 2021; Zhou et al., 2019).
Business activity	Bus_Act	Insurers' business activity	A dummy variable equal to zero if the firm is life insurance and one if the firm is non-life insurance (Eling and Marek, 2014; Pasiouras and Gaganis, 2013).
GDP growth	GDPG	Country's gross domestic product growth	The percentage of annual gross domestic product growth rate (Gaganis et al., 2019; Mohsni et al., 2021).
Inflation rate	INFL	Country's inflation rate	The percentage of annual inflation rate (Mühlnickel and Weiß, 2015).

4.4 Results and discussion

4.4.1 Descriptive statistics

Table 4.2 presents the descriptive statistics for the variables examined in this study. Insolvency risk *(IR)* has a mean of -0.952 and a standard deviation of 1.16, reflecting considerable variability, with values ranging from -6.871 to 5.493. This wide range indicates significant risk-taking behaviour among firms operating in different countries, aligning with prior findings (Mühlnickel and Weiß, 2015). In contrast, underwriting risk *(UR)* exhibits less volatility, fluctuating within the narrower range of [0.00 - 2.60], with a mean and standard deviation of 0.15 and 0.28, respectively. The comparatively lower volatility in underwriting risk measures is consistent with previous cross-country studies on the insurance sector (Fields et al., 2012).

The descriptive statistics for the board diversity index *(BD_Index)* align with those reported by Mollah et al. (2021). Constructed as the arithmetic mean of four standardised components, the index achieves a mean of 0.011 and a standard deviation of 1.012, validating the standardisation and normalisation processes employed in its construction. Similarly, the national governance quality index *(NGQ)*, representing governance quality across countries, has a mean of -0.078

and a standard deviation of 2.26. The index's wide range of [-10.96 - 3.38] highlights significant variations in governance quality between countries, consistent with other cross-country studies (Nguyen et al., 2022).

In terms of cultural dimensions, the mean values of individualism *(INDI)* and uncertainty avoidance *(UA)* are 78 and 50, respectively. individualism values range from a minimum of 14 to a maximum of 91, while uncertainty avoidance spans a slightly broader range [8 - 96]. The power distance index *(PDI)* has a mean of 43.65 and a standard deviation of 13.76, while masculinity *(MAS)* averages 60 with a standard deviation of 12.15. These findings align with country-specific cultural dimensions reported by Gaganis et al. (2019).

Table 4.2 also provides insights into the control variables used in this study. On average, the boards of insurance firms in the sample have 11 directors *(B_Size)* and approximately 75% of board members are non-executive directors *(B_Indep)*. These statistics are consistent with García-Sánchez et al. (2017), who argue that boards in financial firms tend to have higher levels of independence. The firms in the sample are relatively large, with an average total asset size equivalent to $7.5 million (*F_Size* = 15.83) and an average firm age of approximately 24 years (*F_Age* = 3.17). Finally, the macroeconomic control variables reveal that the average GDP growth rate *(GDPG)* is 2%, while the average inflation rate *(INFL)* is 2.3%, consistent with findings from Gaganis et al. (2019). These figures reflect stable macroeconomic conditions during the study period.

Table 4.2: Descriptive statistics

Variable	*N*	Mean	SD	Min.	Median	Max.
IR	3,344	-0.952	1.155	-6.871	-0.995	5.493
UR	3,402	0.146	0.278	0.000	0.065	2.595
BD_Index	3,690	0.011	1.012	-3.282	0.025	3.919
NGQ	3,690	-0.078	2.255	-10.96	0.315	3.379
INDI	3,608	77.61	21.15	14.00	90.00	91.00
UA	3,608	49.95	15.28	8.000	46.00	96.00
PDI	3,608	43.65	13.76	11.00	40.00	100.0
MAS	3,608	59.75	12.15	5.000	62.00	95.00
B_Size	3,934	10.70	3.922	4.000	10.00	25.00
B_Indep	3,934	0.752	0.151	0.333	0.750	1.000
CEO_Dul	3,934	0.314	0.464	0.000	0.000	1.000
Risk_Comm	3,934	0.159	0.366	0.000	0.000	1.000

Variable	*N*	Mean	SD	Min.	Median	Max.
F_Size	3,921	15.83	2.493	7.489	15.88	20.33
F_Age	3,934	3.173	0.577	0.693	3.219	4.043
Leverage	3,902	0.066	0.094	0.000	0.045	1.475
MTBV	3,523	0.016	0.012	0.002	0.013	0.064
Float	3,799	0.709	0.255	0.000	0.790	1.000
Fin_Crisis	3,934	0.174	0.379	0.000	0.000	1.000
Bus_Act	3,934	0.726	0.446	0.000	1.000	1.000
GDPG	3,934	0.019	0.024	-0.081	0.023	0.252
INFL	3,934	0.023	0.024	-0.154	0.019	0.196

Note: This table presents descriptive statistics for the variables used in this study, including the observation's number (*N*), mean, standard deviation (SD), minimum (Min.), median and maximum (Max.) values. The sample covers the period from 2003 to 2019. Definitions of the variables are reported in **Table 4.1.**

4.4.2 Correlation analysis

Prior to conducting regression analysis, the study performs a correlation analysis between the study's independent variables using Pearson correlation. Judge et al. (1991) and Kalnins (2018) indicate that a correlation value of 0.7 or above can represent a multicollinearity issue, which might induce spurious analysis. Table 4.3 presents the correlation matrix. All correlation coefficients are below the critical value (i.e., 0.7), with the most substantial correlation of 0.53 between firm size and board size. Therefore, multicollinearity is unlikely to represent a significant concern here.

Table 4.3: Pearson correlation

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. IR	1																				
2. UR	0.128	1																			
3. BD_Index	-0.093	-0.042	1																		
4. NGQ	-0.126	-0.105	0.126	1																	
5. INDI	0.178	0.084	-0.004	0.485	1																
6. UA	-0.142	-0.145	0.081	-0.072	-0.221	1															
7. PDI	0.184	0.093	-0.010	-0.727	-0.668	0.231	1														
8. MAS	0.089	0.044	-0.227	-0.151	0.098	0.036	-0.025	1													
9. B_Size	-0.080	-0.043	0.145	-0.101	-0.214	0.338	0.067	0.029	1												
10. B_Indep	-0.050	0.034	0.151	0.004	-0.008	0.011	0.006	-0.268	-0.049	1											
11. CEO_Dul	-0.018	-0.089	-0.006	0.021	0.174	-0.016	-0.052	-0.002	0.037	-0.188	1										
12. Risk_Comm	-0.069	0.193	0.071	-0.221	-0.253	-0.125	0.250	-0.087	-0.020	0.115	-0.076	1									
13. F_Size	-0.141	0.155	0.177	-0.079	-0.273	0.252	0.133	-0.020	0.536	-0.061	0.035	0.278	1								
14. F_Age	0.118	-0.042	0.292	0.265	0.252	0.030	-0.259	0.016	0.160	-0.047	0.125	-0.242	0.120	1							
15. Leverage	0.081	0.064	-0.018	-0.011	0.070	-0.056	-0.024	-0.060	-0.080	0.034	0.011	0.125	0.018	-0.062	1						
16. MTBV	-0.232	-0.066	0.037	-0.143	-0.125	-0.140	0.079	-0.061	0.034	-0.016	-0.107	0.133	-0.015	-0.158	-0.035	1					
17. Float	-0.010	0.133	0.047	0.120	0.227	-0.042	-0.126	0.073	-0.037	-0.075	0.072	0.125	0.262	0.087	0.042	-0.048	1				
18. Fin_Crisis	0.054	0.010	-0.087	0.044	0.101	-0.038	-0.089	0.032	0.007	-0.104	0.033	-0.116	-0.065	0.081	-0.005	-0.002	0.010	1			
19. Bus_Act	0.101	-0.295	0.036	0.109	0.104	0.121	-0.136	0.034	-0.062	0.036	-0.028	-0.242	-0.351	0.088	0.109	-0.001	-0.110	0.028	1		
20. GDPG	-0.072	-0.032	-0.022	-0.326	-0.266	-0.237	0.283	0.022	-0.074	0.016	0.007	0.210	0.043	-0.132	-0.000	0.187	-0.022	-0.404	-0.128	1	
21. INFL	0.022	0.022	-0.082	-0.169	-0.006	-0.154	0.072	-0.026	-0.061	-0.051	0.016	0.008	-0.076	-0.051	0.032	0.113	-0.026	0.001	-0.076	0.282	1

Note: This table shows the independent variables' correlation matrix. The variables are defined in detail in **Table 4.1.**

4.4.3 Regression analysis and discussion

4.4.3.1. Insolvency risk

a. Board diversity

The regression results demonstrate a strong and statistically significant negative relationship between board diversity and insolvency risk. Model 1 in Table 4.4 reveals that the board diversity index *(BD_Index)* has a statistically significant negative coefficient (β = -0.1187, $P <$ 0.01). Specifically, a one-standard-deviation increase in board diversity (σ_{BD_Index} = 1.012) reduces insolvency risk by 0.12 units[18], representing a substantial 12.6% decrease[19] relative to the mean insolvency risk of -0.952. These findings underscore the pivotal role of board diversity in mitigating insolvency risk and safeguarding the financial stability of insurance firms, consistent with prior studies in non-financial firms reporting a similar association (e.g., Bernile et al., 2018; Bhat et al., 2019).

These results support agency and resource dependence theories in the context of insurance firms' unique risk management challenges. From an agency theory perspective, diverse boards enhance monitoring effectiveness in the complex insurance environment, where risk management decisions directly affect firm stability and stakeholder interests (Adams and Jiang, 2016). The varied backgrounds and perspectives of board members can facilitate more thorough risk assessment and strengthen oversight of management's risk-taking decisions (Elnahass et al., 2023). This oversight is particularly vital in the insurance sector, where mispricing risks or inadequate reserves can critically undermine firm solvency (Eling and Marek, 2014; Ho et al., 2021). Similarly, resource dependence theory explains how board diversity reduces insolvency risk by enhancing advisory capabilities tailored to the insurance sector (Fan et al., 2019). Diverse boards bring complementary expertise in key areas such as underwriting, investment management, and regulatory compliance, enabling more effective governance (Uyar et al., 2022). Additionally, board members' diverse professional networks provide access to crucial industry knowledge and regulatory insights, supporting more informed and prudent risk management decisions (Talavera et al., 2018; Adams and Baker, 2021).

Overall, the risk-reducing effect of board diversity on insolvency risk is especially pertinent in the insurance industry, where balancing complex stakeholder interests and maintaining

[18] 0.12 = -0.1187*1.012.
[19] 12.6% = -0.1201/-0.952

financial stability are critical. Diverse boards are better positioned to evaluate multifaceted risks inherent in insurance operations, including underwriting, investment, regulatory compliance, and market dynamics (Chen et al., 2024). This comprehensive risk oversight ensures that insurers maintain prudent risk levels while pursuing strategic objectives, ultimately enhancing firm stability and protecting policyholders (Jouber, 2024). Accordingly, these results strongly support H1.

b. Moderating role of national governance quality

Building on the findings that highlight the significant risk-reducing effect of board diversity, this section examines how national governance quality *(NGQ)* moderates this relationship. The results presented in Models 2 and 7 of Table 4.4 demonstrate the significant moderating role of national governance quality *(NGQ)* in enhancing the risk-reducing effectiveness of board diversity on insolvency risk. As suggested by institutional theory, the effectiveness of firm-level governance mechanisms, such as board diversity, is influenced by the broader institutional context in which firms operate (Filatotchev et al., 2013). The significant negative coefficient of NGQ in Model 2 (β = -0.1847, $P < 0.05$) indicates that higher national governance quality directly reduces insolvency risk, underscoring the role of strong institutional frameworks in promoting financial stability.

The interaction term *(BD_Index × NGQ)* in Model 7 further confirms this relationship, with a significant negative coefficient (β = -0.0434, $P < 0.05$). This result highlights the pivotal role of national governance quality in enhancing the effectiveness of board diversity as a governance mechanism. Consistent with the second hypothesis, the results suggest that in environments with strong national governance quality, the ability of diverse boards to mitigate insolvency risk is amplified. This aligns with prior findings in non-financial firms, such as Nguyen et al. (2021), who report that gender-diverse boards significantly improve corporate performance in well-regulated environments. Institutional theory supports this dynamic, positing that strong governance frameworks provide critical infrastructure—such as transparency, enforcement, and accountability—that enables diverse boards to perform their monitoring and advisory roles more effectively (Claessens and Laeven, 2003; Kaufmann et al., 2011). For instance, effective regulatory environments improve boards' access to risk-relevant information (Fields et al., 2012), while strong legal systems enhance their capacity to enforce risk management policies (Lee and Lin, 2016).

The results also reveal an increased magnitude of the board diversity effect on insolvency risk in the presence of high NGQ. Comparing Model 2 to Model 7, the absolute value of the board diversity *(BD_Index)* coefficient increases from |-0.1187| to |-0.1230| when the moderating effect of NGQ is accounted for. This suggests that higher national governance quality directly reduces insolvency risk and complements board diversity, enhancing its efficacy in managing risks. Strong governance systems reduce agency costs and improve information flows, enabling diverse boards to perform optimally (Aslan and Kumar, 2013).

These findings emphasise the combined effect of board diversity and national governance quality in achieving more effective insolvency risk management within the insurance industry. Specifically, while board diversity contributes diverse perspectives and expertise to enhance risk oversight, strong national governance systems reinforce these efforts by providing a stable and transparent institutional framework. This synergy between firm-level and country-level governance mechanisms results in better risk estimation and management, reducing insolvency risk and supporting the resilience of insurers in a highly regulated industry. In summary, the results support H2, demonstrating that high national governance quality strengthens the negative relationship between board diversity and insolvency risk.

c. Moderating role of national culture

Following the analysis of national governance quality, this section explores how cultural dimensions shape the effectiveness of board diversity in mitigating insolvency risk. Similar to the analysis of national governance quality, this investigation involves regressing each cultural dimension individually and interacting it with the board diversity index to assess its moderating effect. The findings are presented in Models 3 to 6 and Models 8 to 11 in Table 4.4.

Interestingly, the results reveal a diverse impact of cultural dimensions on the relationship between board diversity and insolvency risk. Specifically, countries characterised by high levels of uncertainty avoidance *(UA)* experience a stronger risk-reducing effect of board diversity. In contrast, higher degrees of individualism *(INDI)*, power distance *(PDI)*, and masculinity *(MAS)* weaken the ability of board diversity to reduce insolvency risk. These findings highlight how cultural contexts influence the effectiveness of governance mechanisms, particularly in the insurance industry, where firms must navigate complex and multifaceted risks.

In cultures with high individualism, the study finds a reduced effectiveness of board diversity in lowering insolvency risk. The significant positive coefficients of individualism in both its standalone term *(INDI)* ($\beta = 0.0341$, $P < 0.01$) and its interaction with board diversity *(BD_Index × INDI)* ($\beta = 0.0134$, $P < 0.01$) in Models (3) and (8) of Table 4.4, respectively, suggest that higher individualism limits the ability of diverse boards to mitigate risk. This aligns with institutional theory, which posits that cultural norms influence organisational decision-making and governance structures (Denis and McConnell, 2003). In highly individualistic cultures, the emphasis on personal achievement and autonomy can impede effective collaboration, reducing the potential benefits of cognitive and demographic diversity (Gundlach et al., 2006). Thus, the risk-reducing benefit of board diversity is diminished. This finding is consistent with Mohsni et al. (2021), who document similar results regarding the moderating role of individualism on the relationship between gender diversity and risk-taking in non-financial firms in developed countries, attributing it to a higher tolerance for risk in individualistic cultures. These results support H3, confirming that in highly individualistic countries, board diversity has a weaker effect on reducing insurer insolvency risk.

Furthermore, the analysis quantifies this impact: a one-unit increase in individualism score leads to approximately a 7% reduction in the insolvency risk-reducing effect of board diversity[20]. This finding underscores the critical importance of cultural context in shaping the outcomes of governance practices. While board diversity generally enhances risk oversight, the cultural dimension of individualism can introduce challenges to collaboration, effective decision-making, and risk management—key factors in addressing the intricate risks faced by firms in the highly regulated and risk-intensive insurance industry.

Regarding uncertainty avoidance, the analysis reveals that it significantly moderates the relationship between board diversity and insolvency risk. Model 4 in Table 4.4 shows that uncertainty avoidance *(UA)* has a direct negative effect on insolvency risk ($\beta = -0.1138$, $P < 0.01$), while Model 9 demonstrates a significant negative interaction between uncertainty avoidance and board diversity *(BD_Index × UA)* ($\beta = -0.0125$, $P < 0.05$). These findings indicate that high uncertainty avoidance strengthens the risk-reducing effect of board diversity, consistent with prior studies (e.g., Li et al., 2013; Mourouzidou-Damtsa et al., 2019), which highlight the role of uncertainty avoidance in fostering risk-averse strategies. Institutional

[20] 7% = (0.0341/0.1947) × 100

theory further supports this relationship, which links uncertainty-avoiding cultures to structured approaches and predictable environments (Pillay and Dorasamy, 2010). Diverse boards are better equipped to implement effective risk management practices in such contexts. The preference for clear rules and procedures in high uncertainty avoidance societies complements the ability of diverse boards to assess and manage complex risks, particularly in the insurance industry where information uncertainty is inherent (Mihet, 2013).

In addition, the strengthening effect of uncertainty avoidance on board diversity's risk-reducing capabilities can be attributed to two key mechanisms. First, high uncertainty avoidance cultures promote conservative decision-making, encouraging diverse boards to exercise greater diligence in risk assessment and management (Li et al., 2013). Second, these cultural settings enhance board members' motivation to actively monitor management's risk-taking decisions, driven by a societal emphasis on stability and risk mitigation (Gaganis et al., 2019). This cultural dynamic is especially beneficial for insurance firms, where effective risk management is critical for maintaining solvency and fostering stakeholder trust. Overall, these findings support H4, demonstrating that high uncertainty avoidance culture strengthens the negative relationship between board diversity and insolvency risk.

Moving to the next cultural dimension, power distance, the analysis reveals that it significantly moderates the relationship between board diversity and insolvency risk. Model 5 in Table 4.4 shows that power distance *(PDI)* has a direct positive effect on insolvency risk ($\beta = 0.0747$, $P < 0.01$), while Model 10 demonstrates a significant positive interaction between power distance and board diversity *(BD_Index × PDI)* ($\beta = 0.0233$, $P < 0.01$). In economic terms, a one-unit increase in power distance reduces the effectiveness of board diversity for insolvency risk by approximately 12.7%. These findings indicate that high power distance weakens the risk-reducing effect of board diversity, consistent with recent findings by Ji et al. (2021), which show that high power distance undermines governance mechanisms' ability to foster robust oversight and balanced decision-making.

This weakening effect aligns with institutional theory and reflects the characteristics of high power distance cultures. In such societies, decision-making authority is typically centralised among top management, with organisational members more likely to conform to hierarchical structures rather than challenge authority (Hofstede, 1984; Newman and Nollen, 1996). This cultural context constrains the effectiveness of diverse boards, limiting their ability to fully leverage varied perspectives and expertise in the decision-making process, as lower-ranking

members may be reluctant to challenge the views of senior directors (Hodgetts and Luthans, 1993). Furthermore, in high power distance cultures, managers often engage in risk-taking behaviour to enhance the firm's position and status (Shane, 1993), potentially offsetting the risk-monitoring benefits that board diversity would otherwise provide.

To sum up, these results support H5, demonstrating that high power distance culture weakens the negative relationship between board diversity and insolvency risk. The findings suggest that the effectiveness of board diversity as a risk management mechanism could be improved in cultural contexts where hierarchical structures and power inequalities are deeply embedded in organisational practices.

The final cultural dimension examined in this study is masculinity and its moderating effect on the relationship between board diversity and insolvency risk. The results in Models 6 and 11 of Table 4.4 show that masculinity significantly weakens the risk-reducing benefits of board diversity. Model 6 documents a statistically significant positive coefficient for masculinity *(MAS)* ($\beta = 0.1112$, $P < 0.01$), while Model 11 highlights a significant positive interaction between masculinity and board diversity *(BD_Index × MAS)* ($\beta = 0.0216$, $P < 0.01$). These findings suggest that in countries with higher masculinity scores, the effectiveness of board diversity in reducing insolvency risk is reduced. Economically, a one-unit increase in masculinity reduces the risk-mitigating effect of board diversity by approximately 10.4%. The findings are also consistent with Bazel-Shoham et al. (2024), who demonstrated that in highly masculine societies, board gender diversity negatively influences environmental sustainability outcomes.

This weakening effect reflects the characteristics of masculine cultures and aligns with institutional theory. In such societies, organisational behaviour tends to be driven by competition, achievement, and monetary success (Gallego-Álvarez and Pucheta-Martínez, 2021; Hofstede, 2001). This cultural context can undermine the risk-reducing benefits of board diversity. Specifically, managers in masculine cultures are likely to be more risk-tolerant and aggressively pursue opportunities to achieve competitive advantages (Kashefi-Pour et al., 2020; Kreiser et al., 2010). Additionally, the cultural emphasis on achievement and competition may override the naturally cautious and comprehensive approach that diverse boards can bring to risk management decisions. These cultural dynamics present challenges for the insurance industry, where managing complex risks is crucial for solvency and trust. Firms in high

masculinity contexts may struggle to leverage board diversity fully, as aggressive managerial strategies conflict with the risk-averse benefits diverse boards typically provide.

Overall, these findings support H6, demonstrating that high masculinity culture weakens the negative relationship between board diversity and insolvency risk. The results underscore that the effectiveness of board diversity as a risk management mechanism diminishes in cultural contexts where competitive achievement and monetary success are prioritised over cautious and balanced decision-making.

Table 4.4: Baseline regression results of the impact on insolvency risk

Variable	IR										
	Model (1)	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**	**Model (7)**	**Model (8)**	**Model (9)**	**Model (10)**	**Model (11)**
BD_Index	-0.1187***	-0.1351***	-0.1665***	-0.1588***	-0.1348***	-0.1485***	-0.1230***	-0.1947***	-0.1459***	-0.1838***	-0.2069***
	(0.0270)	(0.0263)	(0.0302)	(0.0280)	(0.0312)	(0.0304)	(0.0269)	(0.0318)	(0.0295)	(0.0342)	(0.0328)
NGQ		-0.1847**					-0.1770**				
		(0.0846)					(0.0843)				
INDI			0.0341***					0.0311***			
			(0.0027)					(0.0029)			
UA				-0.1138***					-0.1123***		
				(0.0092)					(0.0093)		
PDI					0.0747***					0.0826***	
					(0.0060)					(0.0064)	
MAS						0.1112***					0.1090***
						(0.0070)					(0.0073)
BD_Index × NGQ							-0.0434**				
							(0.0174)				
BD_Index × INDI								0.0134***			
								(0.0042)			
BD_Index × UA									-0.0125**		
									(0.0062)		
BD_Index × PDI										0.0233***	
										(0.0069)	
BD_Index × MAS											0.0216***
											(0.0056)
B_Size	-0.0087	-0.0061	-0.0102	-0.0097	-0.0102	-0.0108	-0.0064	-0.0105	-0.0100	-0.0105	-0.0111
	(0.0081)	(0.0081)	(0.0083)	(0.0081)	(0.0083)	(0.0084)	(0.0081)	(0.0082)	(0.0082)	(0.0082)	(0.0082)
B_Indep	-0.0677	-0.1527	-0.0145	-0.0668	-0.0238	-0.0165	-0.1488	-0.0102	-0.0623	-0.0194	-0.0203
	(0.1956)	(0.1968)	(0.2010)	(0.2015)	(0.2012)	(0.2011)	(0.1970)	(0.2012)	(0.2018)	(0.2014)	(0.2013)
CEO_Dul	-0.1548***	-0.1440***	-0.1435***	-0.1495***	-0.1512***	-0.1475***	-0.1421***	-0.1483***	-0.1540***	-0.1555***	-0.1519***
	(0.0472)	(0.0465)	(0.0471)	(0.0471)	(0.0471)	(0.0471)	(0.0465)	(0.0473)	(0.0473)	(0.0473)	(0.0473)
Risk_Comm	-0.0546	-0.0633	-0.0685	-0.0702	-0.0672	-0.0652	-0.0683	-0.0647	-0.0665	-0.0635	-0.0615

	(0.0644)	(0.0644)	(0.0671)	(0.0669)	(0.0669)	(0.0671)	(0.0645)	(0.0671)	(0.0671)	(0.0671)	(0.0673)
F_Size	-0.0519***	-0.0596***	-0.0562***	-0.0495***	-0.0538***	-0.0578***	-0.0575***	-0.0606***	-0.0537***	-0.0581***	-0.0621***
	(0.0154)	(0.0151)	(0.0159)	(0.0158)	(0.0157)	(0.0157)	(0.0151)	(0.0161)	(0.0160)	(0.0159)	(0.0159)
F_Age	0.2622***	0.2810***	0.2615***	0.2642***	0.2665***	0.2638***	0.2774***	0.2577***	0.2603***	0.2626***	0.2599***
	(0.0541)	(0.0539)	(0.0542)	(0.0543)	(0.0542)	(0.0541)	(0.0539)	(0.0544)	(0.0545)	(0.0544)	(0.0543)
Leverage	0.0039	0.0043	0.0036	0.0039	0.0038	0.0036	0.0046	0.0033	0.0036	0.0035	0.0033
	(0.0029)	(0.0029)	(0.0028)	(0.0028)	(0.0028)	(0.0028)	(0.0028)	(0.0029)	(0.0029)	(0.0029)	(0.0029)
MTBV	-0.2321***	-0.2223***	-0.2308***	-0.2268***	-0.2285***	-0.2308***	-0.2229***	-0.235***	-0.2311***	-0.2327***	-0.2351***
	(0.0216)	(0.0213)	(0.0221)	(0.0220)	(0.0220)	(0.0220)	(0.0213)	(0.0223)	(0.0222)	(0.0222)	(0.0222)
Float	-0.1792*	-0.1528*	-0.1898*	-0.1892*	-0.2025*	-0.2025*	-0.1657*	-0.1941**	-0.1934**	-0.2067**	-0.2066**
	(0.0959)	(0.0912)	(0.0955)	(0.0960)	(0.0959)	(0.0952)	(0.0912)	(0.0957)	(0.0962)	(0.0961)	(0.0954)
Fin_Crisis	0.5226**	0.0019	0.5205**	0.5325**	0.5168**	0.5128**	0.0010	0.5164**	0.5282**	0.5126**	0.5087**
	(0.2254)	(0.1962)	(0.2259)	(0.2262)	(0.2258)	(0.2257)	(0.1962)	(0.2261)	(0.2264)	(0.2260)	(0.2259)
Bus_Act	0.2642***	0.2401***	0.2562***	0.2608***	0.2565***	0.2524***	0.2505***	0.2521***	0.2568***	0.2524***	0.2490***
	(0.0560)	(0.0554)	(0.0568)	(0.0569)	(0.0568)	(0.0568)	(0.0556)	(0.0570)	(0.0571)	(0.0570)	(0.0570)
GDPG	-0.0019	-0.0038	-0.0015	-0.0018	-0.0016	-0.0018	-0.0045	-0.0010	-0.0015	-0.0013	-0.0015
	(0.0177)	(0.0178)	(0.0177)	(0.0177)	(0.0176)	(0.0177)	(0.0178)	(0.0178)	(0.0178)	(0.0177)	(0.0178)
INFL	0.0104	0.0090	0.0102	0.0109	0.0099	0.0102	0.0121	0.0099	0.0106	0.0096	0.0099
	(0.0135)	(0.0137)	(0.0137)	(0.0137)	(0.0136)	(0.0136)	(0.0138)	(0.0138)	(0.0138)	(0.0137)	(0.0137)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,135	3,046	3,076	3,076	3,076	3,076	3,046	3,076	3,076	3,076	3,076
R-squared	0.190	0.198	0.196	0.194	0.195	0.196	0.200	0.201	0.200	0.203	0.200

Note: This table presents the baseline regression results of the impact of board diversity *(BD Index)* on insolvency risk *(IR)* and the moderating effects of national governance quality *(NGQ)* and national cultural dimensions—individualism *(INDI)*, uncertainty avoidance *(UA)*, power distance *(PDI)*, and masculinity *(MAS)*—on this relationship (Models 1 to 11). The analysis includes control variables at the board, firm, and country levels. Standard errors appear in parentheses.

∗∗∗ = Statistical significance at 1%; ∗∗ = statistical significance at 5%; ∗ = statistical significance at 10%. Definitions for all variables are reported in **Table 4.1**.

4.4.3.2. Underwriting risk

a. Board diversity

Consistent with the findings on insolvency risk, the regression results demonstrate that board diversity significantly reduces underwriting risk. Model 1 in Table 4.5 reveals a statistically significant negative relationship between the board diversity index *(BD_Index)* and underwriting risk (β = -0.1061, $P < 0.01$). This finding is particularly noteworthy as underwriting risk directly reflects insurers' ability to accurately estimate and price risk in policy design, a core function that significantly influences firm performance and stability. These results underscore the critical role of diverse boards in enhancing risk management through improved monitoring capabilities and strategic decision-making, providing further support for H1 regarding the negative relationship between board diversity and risk-taking in insurance firms.

b. Moderating role of national governance quality

The study next examines how national governance quality influences underwriting risk-taking. The results in Model 2 of Table 4.5 reveal that the NGQ coefficient is not statistically significant at conventional levels (β = -0.0096, $P > 0.10$), indicating that NGQ does not have a notable direct impact on underwriting risk management. While institutional theory suggests that firms operate within environments shaped by formal and informal constraints (North, 1990), the inherent complexity, knowledge intensity, and cross-border exposure of the insurance industry may reduce the direct influence of NGQ. A possible explanation is that insurance firms have developed governance mechanisms that effectively compensate for the advantages often associated with strong national governance quality. This interpretation is partially supported by the larger coefficient magnitude of the board diversity index *(BD_Index)* in Model 2 (|-0.1176|) compared to Model 1 (|-0.1061|).

However, the interaction term between the board diversity index and national governance quality *(BD_Index × NGQ)* is statistically significant at the 10% level (β = -0.0034, $P < 0.10$) in Model 7, highlighting the moderating role of the national context. This finding suggests that superior national governance quality amplifies the effectiveness of board diversity in mitigating underwriting risk. This finding suggests that superior national governance quality amplifies the effectiveness of board diversity in mitigating underwriting risk, providing support for H2.

Table 4.5: Baseline regression results of the impact on underwriting risk

Variable	UR										
	Model (1)	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**	**Model (7)**	**Model (8)**	**Model (9)**	**Model (10)**	**Model (11)**
BD_Index	-0.1061***	-0.1176***	-0.1382***	-0.1595***	-0.1185***	-0.1295***	-0.1656***	-0.2498***	-0.2588***	-0.2775***	-0.2332***
	(0.0399)	(0.0405)	(0.0415)	(0.0395)	(0.0442)	(0.0428)	(0.0440)	(0.0422)	(0.0402)	(0.0449)	(0.0435)
NGQ		-0.0096					-0.0069				
		(0.0154)					(0.0163)				
INDI			0.0030***					0.0041***			
			(0.0006)					(0.0007)			
UA				-0.0112***					-0.0124***		
				(0.0021)					(0.0023)		
PDI					0.0067***					0.0059***	
					(0.0013)					(0.0013)	
MAS						0.0102***					0.0115***
						(0.0019)					(0.0021)
BD_Index × NGQ							-0.0034*				
							(0.0019)				
BD_Index × INDI								0.0026***			
								(0.0009)			
BD_Index × UA									-0.0042***		
									(0.0013)		
BD_Index × PDI										0.0055***	
										(0.0014)	
BD_Index × MAS											0.0017***
											(0.0012)
B_Size	-0.0086***	-0.0083***	-0.0082***	-0.0079***	-0.0080***	-0.0083***	-0.0079***	-0.0085***	-0.0082***	-0.0083***	-0.0086***
	(0.0014)	(0.0014)	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0014)	(0.0014)	(0.0014)	(0.0014)	(0.0014)
B_Indep	0.1221***	0.1294***	0.1225***	0.1268***	0.1252***	0.1192***	0.1430***	0.1184***	0.1227***	0.1211***	0.1153***
	(0.0383)	(0.0387)	(0.0392)	(0.0390)	(0.0392)	(0.0392)	(0.0399)	(0.0394)	(0.0392)	(0.0394)	(0.0394)
CEO_Dul	-0.0287***	-0.0301***	-0.0248***	-0.0242***	-0.0255***	-0.0245***	-0.0329***	-0.0290***	-0.0285***	-0.0297***	-0.0289***
	(0.0072)	(0.0073)	(0.0069)	(0.0069)	(0.0069)	(0.0069)	(0.0075)	(0.0071)	(0.0071)	(0.0071)	(0.0071)
Risk_Comm	0.1012***	0.1008***	0.1025***	0.1018***	0.1018***	0.1018***	0.1044***	0.0984***	0.0976***	0.0978***	0.0978***

	(0.0205)	(0.0205)	(0.0211)	(0.0211)	(0.0211)	(0.0211)	(0.0209)	(0.0213)	(0.0213)	(0.0213)	(0.0213)
F_Size	0.0169***	0.0172***	0.0135***	0.0135***	0.0138***	0.0128***	0.0196***	0.0175***	0.0176***	0.0179***	0.0169***
	(0.0028)	(0.0028)	(0.0027)	(0.0026)	(0.0027)	(0.0027)	(0.0030)	(0.0029)	(0.0028)	(0.0029)	(0.0029)
F_Age	-0.0061	-0.0059	-0.0052	-0.0032	-0.0036	-0.0022	-0.0028	-0.0092	-0.0073	-0.0077	-0.0063
	(0.0118)	(0.0119)	(0.0117)	(0.0117)	(0.0117)	(0.0118)	(0.0128)	(0.0121)	(0.0119)	(0.0119)	(0.0120)
Leverage	0.0043***	0.0045***	0.0042***	0.0042***	0.0034***	0.0042***	0.0047***	0.0044***	0.0044***	0.0045***	0.0044***
	(0.0013)	(0.0014)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0014)	(0.0013)	(0.0013)	(0.0013)	(0.0013)
MTBV	-0.0238***	-0.0245***	-0.0172***	-0.0165***	-0.0170***	-0.0169***	-0.0240***	-0.0212***	-0.0207***	-0.0212***	-0.0211***
	(0.0038)	(0.0040)	(0.0033)	(0.0036)	(0.0036)	(0.0036)	(0.0040)	(0.0038)	(0.0038)	(0.0038)	(0.0038)
Float	0.0368***	0.0394***	0.0348**	0.0305**	0.0318**	0.0323**	0.0392***	0.0311**	0.0267**	0.0280**	0.0285**
	(0.0136)	(0.0140)	(0.0133)	(0.0133)	(0.0133)	(0.0133)	(0.0142)	(0.0135)	(0.0135)	(0.0135)	(0.0135)
Fin_Crisis	0.0126	0.0110	0.0232	0.0241	0.0234	0.0233	0.0145	0.0190	0.0199	0.0192	0.0191
	(0.0365)	(0.0404)	(0.0361)	(0.0363)	(0.0361)	(0.0362)	(0.0412)	(0.0365)	(0.0365)	(0.0363)	(0.0364)
Bus_Act	-0.1446***	-0.1429***	-0.1405***	-0.1369***	-0.1396***	-0.1396***	-0.1425***	-0.1447***	-0.1438***	-0.1438***	-0.1438***
	(0.0125)	(0.0124)	(0.0124)	(0.0124)	(0.0124)	(0.0124)	(0.0126)	(0.0126)	(0.0126)	(0.0126)	(0.0126)
GDPG	-0.0010	-0.0016	-0.0071	-0.0084	-0.0077	-0.0074	-0.0010	-0.0031	-0.0044	-0.0037	-0.0034
	(0.0027)	(0.0028)	(0.0025)	(0.0022)	(0.0025)	(0.0025)	(0.0029)	(0.0027)	(0.0027)	(0.0027)	(0.0027)
INFL	0.0034*	0.0028	0.0033**	0.0033**	0.0034**	0.0033**	0.0046**	0.0037**	0.0036**	0.0037**	0.0036**
	(0.0018)	(0.0018)	(0.0017)	(0.0016)	(0.0016)	(0.0017)	(0.0021)	(0.0018)	(0.0017)	(0.0017)	(0.0018)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,187	3,088	3,118	3,118	3,118	3,118	3,088	3,118	3,118	3,118	3,118
R-squared	0.283	0.292	0.291	0.289	0.290	0.292	0.294	0.293	0.291	0.292	0.294

Note: This table presents the baseline regression results of the impact of board diversity *(BD Index)* on underwriting risk *(UR)* and the moderating effects of national governance quality *(NGQ)* and national cultural dimensions—individualism *(INDI)*, uncertainty avoidance *(UA)*, power distance *(PDI)*, and masculinity *(MAS)*—on this relationship (Models 1 to 11). The analysis includes control variables at the board, firm, and country levels. Standard errors appear in parentheses.

∗∗∗ = Statistical significance at 1%; ∗∗ = statistical significance at 5%; ∗ = statistical significance at 10%. Definitions for all variables are reported in **Table 4.1**.

c. Moderating role of national culture

The last set of results concerns how culture shapes the effectiveness of board diversity on underwriting risk. Using a similar approach to the analysis of national governance quality, each cultural dimension is individually regressed and interacted with the board diversity index. The results are presented in Models 3–6 and 8–11 in Table 4.5.

First, directors in highly individualistic societies tend to underestimate uncertainty exposure (Van den Steen, 2004). This behaviour arises from self-enhancing perceptions of ability (Kreiser et al., 2010) and tendencies toward overconfidence and overoptimism (Chui et al., 2010). Results from Models 3 and 8 in Table 4.5 confirm this relationship, with significant positive coefficients for individualism and its interaction with board diversity *(BD_Index × INDI)* (β = 0.003, P < 0.01 and β = 0.0026, P < 0.01, respectively). These findings suggest that insurance firms in individualistic cultures face higher underwriting risk and that board diversity's risk-mitigating effect is reduced in such environments. Gaganis et al. (2019) explain that individuals in these societies prioritise personal achievement, which can elevate risk-taking in the inherently volatile insurance industry. Thus, these results support H3.

Conversely, societies with high uncertainty avoidance exhibit lower tolerance for unpredictability and prefer clear operational guidelines (Li et al., 2013). These cultures place greater trust in expert opinion (Pillay and Dorasamy, 2010), leading to more conservative risk-taking, particularly in complex industries with high information uncertainty, such as insurance (Mihet, 2013). Results from Models 4 and 9 in Table 4.5 validate this perspective, with significant negative coefficients for uncertainty avoidance and its interaction with board diversity *(BD_Index × UA)* (β = -0.0112, P < 0.01 and β = -0.0042, P < 0.01, respectively). Mourouzidou-Damtsa et al. (2019) observe that firms in high uncertainty avoidance countries make more conservative investment decisions due to concerns over information transparency. These findings align with H4, confirming that high uncertainty avoidance culture enhances board diversity's effectiveness in managing underwriting risk.

In high power distance societies, centralised decision-making, strict adherence to authority, and limited opportunities for lower-power members to voice dissent often weaken organisational risk oversight (Hodgetts and Luthans, 1993; Hofstede, 2001). Cultural norms in such environments discourage board members from challenging management's strategic decisions, particularly in risk-related matters (Schramm-Nielsen, 1989). Significant positive coefficients in Models 5 (β = 0.0067, P < 0.01) and 10 (β = 0.0055, P < 0.01) in Table 4.5 demonstrate that

high power distance weakens board diversity's *(BD_Index × PDI)* ability to mitigate underwriting risk. These findings support H5, emphasising that in high power distance societies, the effectiveness of board diversity in enhancing risk oversight may be undermined by hierarchical decision-making norms.

Finally, high masculinity cultures prioritise competition, ambition, and aggressive behaviour, driving risk-taking in pursuit of personal goals (Hofstede, 2001; Kreiser et al., 2010). The significant positive coefficient for masculinity *(MAS)* ($\beta = 0.0102$, $P < 0.01$) in Model 6 and the interaction term *(BD_Index × MAS)* ($\beta = 0.0017$, $P < 0.01$) in Model 11 in Table 4.5 reveal that high masculinity diminishes the risk-reducing effect of board diversity. These findings support H6, showing that high masculine cultures foster greater risk tolerance and competition, thereby limiting the effectiveness of governance mechanisms such as board diversity.

4.4.4 Robustness checks

First, to ensure risk measurement choices do not unduly influence the findings, this study employs alternative risk measures to validate the baseline results. Specifically, it employs portfolio risk *(PR)* and the combined ratio *(CR)* to capture the insurer's risk profile. Following Zou et al. (2012) and Gaganis et al. (2019), portfolio risk is calculated as negative one multiplied by the natural logarithm of the average return on assets divided by its standard deviation over a five-year rolling window, facilitating its interpretation as a risk measure. The combined ratio is computed as the sum of the loss ratio's standard deviation and the expense ratio over a five-year rolling window, where the expense ratio represents the ratio of underwriting expenses to written premiums.

Using the same set of control variables at board, firm, and country levels and maintaining the baseline econometric approach with year and country fixed effects, Models 1 and 2 in Table 4.6 confirm the main findings. The alternative risk measures reaffirm the moderating role of national governance quality and cultural dimensions on the effectiveness of board diversity in reducing insurer risk. These findings are consistent with the baseline results, demonstrating that insurance firms benefit from diversified boards, particularly in countries with strong governance environments. Additionally, the influence of cultural dimensions—individualism, power distance, masculinity, and uncertainty avoidance—remains consistent with the patterns observed in the baseline analysis.

Table 4.6: Robustness check employing alternative risk measures

Variable	Model (1) PR	Model (2) CR
BD_Index	-0.1892***	-0.1409***
	(0.0422)	(0.0180)
NGQ	-0.2724***	-0.1132***
	(0.0975)	(0.0378)
INDI	0.0221	0.0074
	(0.0308)	(0.0088)
UA	-0.0152	-0.0021
	(0.0147)	(0.0092)
PDI	0.0405	0.0051
	(0.0616)	(0.0165)
MAS	0.0213	0.0261**
	(0.1011)	(0.0111)
BD_Index × NGQ	-0.0486**	-0.0217***
	(0.0224)	(0.0073)
BD_Index × INDI	0.0223*	0.0193***
	(0.0121)	(0.0050)
BD_Index × UA	-0.0966***	-0.0339***
	(0.0169)	(0.0064)
BD_Index × PDI	0.0300*	0.0131*
	(0.0182)	(0.0074)
BD_Index × MAS	0.0524***	0.0179**
	(0.0181)	(0.0071)
B_Size	-0.0241**	-0.0108***
	(0.0095)	(0.0038)
B_Indep	-0.0082	0.0298
	(0.2426)	(0.0910)
CEO_Dul	-0.1327**	-0.0302
	(0.0549)	(0.0241)
Risk_Comm	-0.0083	0.0311
	(0.0554)	(0.0331)
F_Size	-0.0633***	0.0438***
	(0.0185)	(0.0077)
F_Age	0.3756***	-0.0973***
	(0.0626)	(0.0247)
Leverage	0.0041	0.0098***
	(0.0039)	(0.0017)
MTBV	-0.2782***	-0.0757***
	(0.0268)	(0.0102)
Float	-0.2234**	0.0560
	(0.1046)	(0.0466)
Fin_Crisis	0.5664**	0.0517
	(0.2312)	(0.0942)
Bus_Act	0.2648***	-0.1015***
	(0.0700)	(0.0248)
GDPG	-0.0096	-0.0081
	(0.0171)	(0.0104)

Variable	Model (1) PR	Model (2) CR
INFL	0.0098	0.00414
	(0.0164)	(0.0066)
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Observations	2,970	2,058
R-squared	0.192	0.307

Note: This table presents the results of a robustness check using alternative risk measures to examine the moderating effects of national governance quality *(NGQ)* and four cultural dimensions—individualism *(INDI)*, uncertainty avoidance *(UA)*, power distance *(PDI)* and masculinity *(MAS)*—on the relationship between board diversity *(BD_Index)* and risk-taking in insurance firms. Model 1 investigates the moderating role of these institutional factors on the relationship between board diversity and portfolio risk *(PR)*, while Model 2 assesses their moderating effect on the relationship between board diversity and combined ratio *(CR)*. Standard errors appear in parentheses. ***, **, and * corresponds to 1%, 5% and 10% significance level. Definitions for all variables are reported in **Table 4.1.**

Second, despite accounting for potential omitted variables at board, firm, and country levels, along with year and country fixed effects, the simultaneous measurement of dependent and independent variables may introduce endogeneity concerns. For example, insurers with higher risk profiles might proactively diversify their boards to enhance risk management capabilities. Conversely, insurers with more diverse boards might adopt strategies that, intentionally or unintentionally, increase their risk profile, such as expanding into new markets or engaging in more complex activities. These scenarios suggest that the relationship between board diversity and risk might be driven by reverse causality, potentially rendering the observed association spurious.

To address this concern, the study re-estimates the baseline models using a lagged structure, introducing a one-year time gap between the independent and dependent variables (Adams and Jiang, 2020). This approach helps mitigate reverse causality concerns and reduces potential endogeneity issues. Employing the same set of control variables and fixed-effects framework, the results of the lagged model, presented in Models 1 and 2 of Table 4.7, remain consistent with the baseline findings. This consistency reinforces the robustness of the study's conclusions, indicating that the results are not significantly influenced by potential endogeneity arising from reverse causality between board diversity, risk measures, and the moderating variables.

Table 4.7: Robustness check using a one-year-lagged structure model

Variable	Model (1) IR	Model (2) UR
BD_Index	-0.2024***	-0.2897***
	(0.0391)	(0.0639)
NGQ	-0.1101	-0.0191
	(0.0873)	(0.0242)
INDI	0.0198	0.0237***
	(0.0204)	(0.0054)
UA	-0.0116	-0.0070
	(0.0215)	(0.0051)
PDI	0.0136	0.0194**
	(0.0386)	(0.0098)
MAS	0.0737***	0.0577***
	(0.0255)	(0.0081)
BD_Index × NGQ	-0.0339*	-0.0674**
	(0.0181)	(0.0263)
BD_Index × INDI	0.0198***	0.0061***
	(0.0070)	(0.0019)
BD_Index × UA	-0.0695***	-0.0094**
	(0.0143)	(0.0042)
BD_Index × PDI	0.0297*	0.0081***
	(0.0166)	(0.0030)
BD_Index × MAS	0.0366***	0.0167***
	(0.0134)	(0.0041)
B_Size	-0.0143*	-0.0063***
	(0.0084)	(0.0016)
B_Indep	-0.0589	0.0576
	(0.2233)	(0.0484)
CEO_Dul	-0.1069**	-0.0347***
	(0.0516)	(0.0082)
Risk_Comm	-0.0348	0.1474***
	(0.0697)	(0.0257)
F_Size	-0.0885***	0.0061
	(0.0173)	(0.0043)
F_Age	0.3657***	-0.0024
	(0.0577)	(0.0171)
Leverage	0.0013	0.0060***
	(0.0033)	(0.0016)
MTBV	-0.2241***	-0.0296***
	(0.0231)	(0.0056)
Float	-0.2013**	0.0463***
	(0.0948)	(0.0163)
Fin_Crisis	0.0147	0.0489
	(0.2174)	(0.0305)
Bus_Act	0.2736***	-0.1418***
	(0.0626)	(0.0155)
GDPG	-0.0038	-0.0044
	(0.0181)	(0.0033)
INFL	0.0095	0.0042*
	(0.0136)	(0.0024)

Variable	Model (1) IR	Model (2) UR
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Observations	2,981	2,754
R-squared	0.193	0.310

Note: This table presents the results of a robustness check using a one-year-lagged structure model to investigate the moderating effects of national governance quality *(NGQ)* and four cultural dimensions—individualism *(INDI)*, uncertainty avoidance *(UA)*, power distance *(PDI)* and masculinity *(MAS)*—on the relationship between board diversity *(BD_Index)* and risk-taking in insurance firms. Model 1 examines the moderating role of these institutional factors on the relationship between board diversity and insolvency risk *(IR)*, while Model 4 assesses their moderating effect on the relationship between board diversity and underwriting risk *(UR)*. Standard errors appear in parentheses. ***, **, and * corresponds to 1%, 5% and 10% significance level. Definitions for all variables are reported in **Table 4.1.**

Third, while the study includes year and country fixed effects to account for annual events and country-specific characteristics that may influence insurers' risk-taking behaviour, endogeneity issues from omitted variables could still persist (Ji et al., 2021). To address this, the analysis follows Phuong et al. (2022) by incorporating firm fixed effects into the econometric model. Firm fixed effects control for unobserved, time-invariant factors unique to each insurer that may affect risk-taking. For example, an insurer's corporate culture, internal governance structure, historical risk management practices, or established business relationships could simultaneously influence its board composition and risk-taking decisions. These unobserved firm characteristics, if not controlled for, could bias the estimated relationship between board diversity and risk-taking.

This approach facilitates year-over-year comparisons within the same firm, thereby mitigating potential interference from omitted variables. The results of the firm fixed-effects model, presented in Models 1 and 2 of Table 4.8, remain consistent with the baseline findings. Board diversity continues to show a negative association with insurer risk-taking. The moderating effects also persist, with national governance quality and uncertainty avoidance strengthening the risk-reducing impact of board diversity, while individualism, power distance, and masculinity weaken it. These findings confirm that the study's conclusions are robust even after addressing potential endogeneity through firm fixed effects.

Table 4.8: Robustness check using a firm fixed effect model

Variable	Model (1) IR	Model (2) UR

Variable	Model (1) IR	Model (2) UR
BD_Index	-0.0617***	-0.1048**
	(0.0326)	(0.0521)
NGQ	-0.0251	-0.0104
	(0.0814)	(0.0092)
INDI	0.0242	0.0067***
	(0.0246)	(0.0022)
UA	-0.0437***	-0.0013
	(0.0164)	(0.0011)
PDI	0.0682**	0.0163***
	(0.0310)	(0.0034)
MAS	0.0414	0.0012
	(0.0437)	(0.0047)
BD_Index × NGQ	-0.0178*	-0.0498***
	(0.0347)	(0.0166)
BD_Index × INDI	0.0804***	0.0053***
	(0.0251)	(0.0012)
BD_Index × UA	-0.0283*	-0.0048***
	(0.0230)	(0.0017)
BD_Index × PDI	0.0758***	0.0073***
	(0.0292)	(0.0024)
BD_Index × MAS	0.0338*	0.0039**
	(0.0205)	(0.0017)
B_Size	-0.0171	-0.0043***
	(0.0132)	(0.0013)
B_Indep	-0.0442	0.0267
	(0.2776)	(0.0250)
CEO_Dul	-0.1081	-0.0073
	(0.0827)	(0.0054)
Risk_Comm	-0.1173	0.0052
	(0.1001)	(0.0148)
F_Size	-0.1712**	0.0048
	(0.0852)	(0.0095)
F_Age	1.575***	-0.0750
	(0.5832)	(0.0540)
Leverage	0.0038	0.0021**
	(0.0065)	(0.0094)
MTBV	-0.0636***	-0.0019
	(0.0238)	(0.0037)
Float	-0.4804**	0.0246
	(0.1980)	(0.0165)
Fin_Crisis	0.0824	0.0085
	(0.1954)	(0.0132)
Bus_Act	0.0027	-0.0649***
	(0.4307)	(0.0203)
GDPG	-0.0167	-0.0014
	(0.0157)	(0.0014)
INFL	0.0071	0.0016
	(0.0119)	(0.0011)

Variable	Model (1) IR	Model (2) UR
Year fixed effect	Yes	Yes
Firm fixed effect	Yes	Yes
Observations	2,987	3,019
R-squared	0.550	0.665

Note: This table presents the results of a robustness check using a firm fixed effect model to investigate the moderating effects of national governance quality *(NGQ)* and four cultural dimensions—individualism *(INDI)*, uncertainty avoidance *(UA)*, power distance *(PDI)* and masculinity *(MAS)*—on the relationship between board diversity *(BD_Index)* and risk-taking in insurance firms. Model 1 examines the moderating role of these institutional factors on the relationship between board diversity and insolvency risk *(IR)*, while Model 2 assesses their moderating effect on the relationship between board diversity and underwriting risk *(UR)*. Standard errors appear in parentheses. ***, **, and * corresponds to 1%, 5% and 10% significance level. Definitions for all variables are reported in **Table 4.1.**

Fourth, to ensure the findings are not driven by specific measures of national governance and cultural dimensions, the study employs alternative proxies. National governance quality is assessed using the arithmetic mean of the six governance indicators (Beltratti and Stulz, 2012). For cultural dimensions, the study utilises GLOBE project measures (House et al., 2004), aligning with Kashefi-Pour et al. (2020). Specifically, it substitutes Hofstede's dimensions with GLOBE's inverse of institutional collectivism (representing individualism), uncertainty avoidance, power distance, and gender egalitarianism (representing masculinity). Models 1 and 2 in Table 4.9 demonstrate results consistent with the baseline analysis. This consistency shows that the findings are robust to alternative specifications of governance and cultural variables. The stability of results across different measures further underscores the moderating influence of national governance quality and cultural dimensions on the relationship between board diversity and risk-taking in insurance firms.

Table 4.9: Robustness check using alternative measures of national governance and culture

Variable	Model (1) IR	Model (2) UR
BD_Index	-1.020**	-0.3933***
	(0.1342)	(0.1003)
NGQI	-0.4634	-0.1813
	(0.1441)	(0.0912)
INDI_GLOBE	0.4496	0.5593***
	(0.1152)	(0.2044)
UA_GLOBE	-0.5500**	-1.072***
	(0.1324)	(0.1221)
PDI_GLOBE	0.6478	1.545***
	(0.1471)	(0.1153)
MAS_GLOBE	1.783*	1.260***

Variable	Model (1) IR	Model (2) UR
	(1.046)	(0.2894)
BD_Index × NGQI	-0.5259***	-0.2334***
	(0.1030)	(0.1038)
BD_Index × INDI_GLOBE	0.2928**	0.2364**
	(0.1080)	(0.1055)
BD_Index × UA_GLOBE	-0.2763***	-0.4334***
	(0.0592)	(0.1143)
BD_Index × PDI_GLOBE	1.368***	0.6483***
	(0.2069)	(0.1204)
BD_Index × MAS_GLOBE	0.1377*	0.1801***
	(0.0631)	(0.0720)
B_Size	-0.0097	-0.0087***
	(0.0082)	(0.0016)
B_Indep	-0.1403	0.1112**
	(0.1248)	(0.0526)
CEO_Dul	-0.0916*	-0.0288***
	(0.0511)	(0.0082)
Risk_Comm	-0.0332	0.1261***
	(0.0685)	(0.0249)
F_Size	-0.0945***	0.0232***
	(0.0181)	(0.0040)
F_Age	0.3641***	-0.0262
	(0.0584)	(0.0188)
Leverage	0.0018	0.0019
	(0.0033)	(0.0014)
MTBV	-0.2527***	-0.0353***
	(0.0238)	(0.0057)
Float	-0.1821*	0.0471***
	(0.0939)	(0.0170)
Fin_Crisis	0.2667	0.0080
	(0.1938)	(0.0480)
Bus_Act	0.3009***	-0.1872***
	(0.0614)	(0.0181)
GDPG	-0.0020	-0.0037
	(0.0180)	(0.0035)
INFL	0.0235	0.0080**
	(0.0203)	(0.0038)
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Observations	2,960	2,990
R-squared	0.203	0.302

Note: This table presents the results of a robustness check using alternative measures of national governance and culture—on the relationship between board diversity *(BD_Index)* and risk-taking in insurance firms. Model 1 investigates the moderating role of these institutional factors on the relationship between board diversity and insolvency risk *(IR)*, while Model 2 assesses their moderating effect on the relationship between board diversity and underwriting risk *(UR)*. Standard errors appear in parentheses. ***, **, and * corresponds to 1%, 5% and 10% significance level. Definitions for all variables are reported in **Table 4.1.**

Finally, given the significant representation of U.S.-based firms in the sample, the study examines whether the findings might be disproportionately driven by these firms. To test this, the baseline analysis is re-estimated after excluding all U.S. observations. Despite the reduced sample size, the results, presented in Models 1 and 2 of Table 4.10, remain consistent with the main findings. Board diversity continues to show a significant negative association with both risk measures. Similarly, the moderating effects persist: national governance quality and uncertainty avoidance enhance the risk-reducing impact of board diversity, while individualism, power distance, and masculinity weaken this relationship.

Collectively, these findings demonstrate robustness across multiple dimensions: alternative measures for both dependent and independent variables are used, different econometric models are applied to address potential endogeneity issues, and sample sensitivity is tested.

Table 4.10: Robustness check testing sample sensitivity

Variable	Model (1) IR	Model (2) UR
BD_Index	-0.3364***	-0.1980***
	(0.0572)	(0.0255)
NGQ	-0.0542	-0.0866*
	(0.1064)	(0.0472)
INDI	0.0528	0.0044
	(0.0094)	(0.0055)
UA	-0.0099	-0.0082
	(0.0129)	(0.0056)
PDI	0.0991***	0.0554
	(0.0357)	(0.0338)
MAS	0.0360***	0.0491**
	(0.0105)	(0.0231)
BD_Index × NGQ	-0.0478**	-0.0218**
	(0.0193)	(0.0085)
BD_Index × INDI	0.0360**	0.0121*
	(0.0141)	(0.0063)
BD_Index × UA	-0.0734***	-0.0284***
	(0.0173)	(0.0078)
BD_Index × PDI	0.0385**	0.0105*
	(0.0191)	(0.0087)
BD_Index × MAS	0.0125*	0.0247***
	(0.0189)	(0.0086)
B_Size	-0.0035	-0.0042
	(0.0103)	(0.0046)
B_Indep	-0.1560	0.1014
	(0.3081)	(0.1201)
CEO_Dul	-0.0641	-0.0646*

Variable	Model (1) IR	Model (2) UR
	(0.0421)	(0.0380)
Risk_Comm	-0.0978	0.0425
	(0.0828)	(0.0375)
F_Size	-0.0940***	0.0304***
	(0.0245)	(0.0103)
F_Age	0.3316***	-0.0991***
	(0.0707)	(0.0315)
Leverage	0.0022	0.0054***
	(0.0034)	(0.0015)
MTBV	-0.2748***	-0.1041***
	(0.0266)	(0.0111)
Float	-0.2391**	0.1306**
	(0.1216)	(0.0536)
Fin_Crisis	0.2216	0.2173**
	(0.2363)	(0.1013)
Bus_Act	0.3119***	-0.1311***
	(0.0852)	(0.0373)
GDPG	-0.0089	-0.0049
	(0.0195)	(0.0085)
INFL	0.0262	0.0028
	(0.0234)	(0.0105)
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Observations	1,533	1,534
R-squared	0.291	0.407

Note: This table presents the results of a robustness check testing sample sensitivity by excluding US data to investigate the moderating effects of national governance quality *(NGQ)* and four cultural dimensions—individualism *(INDI)*, uncertainty avoidance *(UA)*, power distance *(PDI)* and masculinity *(MAS)*—on the relationship between board diversity *(BD_Index)* and risk-taking in insurance firms. Model 1 investigates the moderating role of these institutional factors on the relationship between board diversity and insolvency risk *(IR)*, while Model 2 assesses their moderating effect on the relationship between board diversity and underwriting risk *(UR)*. Standard errors appear in parentheses. ***, **, and * corresponds to 1%, 5% and 10% significance level. Definitions for all variables are reported in **Table 4.1.**

4.4.5 Further analyses

4.4.5.1 Board diversity and risk-taking during the global financial crisis of (2007–2009)

Previous research has established that firms typically respond to economic challenges by implementing risk management strategies and enhancing operational efficiency (Hoang and Wu, 2024; Pathan and Faff, 2013). This tendency becomes particularly pronounced during periods of economic decline when organisational survival takes precedence. Recent economic downturns, specifically the global financial crisis (2007-2009), have highlighted the critical importance of effective risk management strategies, compelling firms to reassess their risk exposure and governance mechanisms (Baluch et al., 2011; Zhou et al., 2019). In the insurance

industry, risk reduction is a core component of such strategies, making the crisis period a compelling context to examine the impact of board diversity on risk-taking behaviours. The 2008 financial crisis, characterised by significant market volatility and institutional failures, provides an ideal quasi-natural experimental setting to test the validity of the arguments regarding board diversity's impact on risk-taking behaviour. Specifically, if board diversity indeed reduces risk-taking as previously posited, its effect should be more pronounced during crisis periods when risk management becomes paramount.

To investigate the role of board diversity during the crisis, the generalised difference-in-differences model (DID) was employed to mitigate endogeneity concerns, such as reverse causality and omitted variable bias (Liao et al., 2022), by estimating the following model:

$$IR_{ijt}\ and\ UR_{ijt} = \alpha + \beta 1\ BD\_Index\_Dummy + \beta 2\ Fin\_Crisis +$$

$$\beta 3\ BD\_Index\_Dummy \times Fin\_Crisis + \beta 4\ Controls_{ijt} + Year\ and\ Country\ FEs + \epsilon_{ijt} \quad (6)$$

Where the interaction term, *BD_Index_Dummy* × *Fin_Crisis*, representing the key variable of interest, captures the impact of the exogenous shock in board diversity, resulting from the financial crisis, on insurance firms' risk-taking. *BD_Index_Dummy* is a binary variable that equals one if a company's board diversity index exceeds the sample median (the treatment group), and zero otherwise (control group). *Fin_Crisis* is another binary variable that takes the value of one for the years 2007–2009 and 0 otherwise. The model incorporates the same control variables, country and year fixed effects, and follows the econometric approach outlined in Equation (3). Hence, the interaction term between *BD_Index_Dummy* and *Fin_Crisis* enables comparison of board diversity's risk-reduction effectiveness before and after the 2008 global financial crisis across treatment and control groups, while controlling for both time-varying and time-invariant country characteristics.

Models 1 and 2 in Table 4.11 present the empirical results. The positive and statistically significant coefficient of *Fin_Crisis* (β = 0.4693, $P < 0.05$) confirms that insurance firms experienced deteriorating financial conditions during 2007-2009. Notably, board diversity demonstrates significant risk-reduction effects during non-crisis periods for both insolvency and underwriting risk (β = -0.2058, $P < 0.01$ and β = -0.0816, $P < 0.01$, respectively). These findings align with the baseline results, suggesting that diverse boards leverage their varied perspectives and experiences to enhance risk management during stable periods.

The interaction term *BD_Index_Dummy* × *Fin_Crisis* yields particularly compelling results, indicating additional risk-reduction effects during periods of financial turmoil. Specifically, while diverse boards reduced insolvency risk by 0.2058 units in normal times, they provided an additional 0.0935 unit reduction during the crisis period, leading to a total risk reduction of 0.2993 units. Similarly for underwriting risk, the base reduction of 0.0816 units was supplemented by an additional 0.0261 unit reduction during the crisis, resulting in a total reduction of 0.1077 units. Economically, these results indicate that firms with above-median board diversity experienced enhanced risk-mitigation capabilities during the financial crisis, beyond their already beneficial effects during normal economic conditions. These findings demonstrate that board diversity's impact on risk management is not only persistent but extends further during times of economic distress, highlighting its crucial role in strengthening insurance firms' resilience.

Table 4.11: Regressions results for the influence of the global financial crisis (2007–2009) using difference-in-differences approach

Variable	Model (1) IR	Model (2) UR
BD_Index_Dummy	-0.2058***	-0.0816***
	(0.0582)	(0.0118)
Fin_Crisis	0.4693**	0.0114
	(0.2442)	(0.0404)
BD_Index_Dummy × Fin_Crisis	-0.0935**	-0.0261**
	(0.0080)	(0.0135)
B_Size	-0.0076	-0.0081***
	(0.0079)	(0.0015)
B_Indep	0.0662	0.0617***
	(0.1902)	(0.0455)
CEO_Dul	-0.1599***	-0.0239***
	(0.0464)	(0.0077)
Risk_Comm	0.0805	0.1060***
	(0.0634)	(0.0204)
F_Size	-0.0548***	0.0160***
	(0.0149)	(0.0028)
F_Age	0.2641***	-0.0108
	(0.0535)	(0.0147)
Leverage	-0.0049	0.0043***
	(0.0035)	(0.0013)
MTBV	-0.2242***	-0.0247***
	(0.0215)	(0.0039)
Float	-0.1419*	0.0359**
	(0.0920)	(0.0135)

Variable	Model (1) IR	Model (2) UR
Bus_Act	0.2443***	-0.1460***
	(0.0549)	(0.0126)
GDPG	-0.0137	0.0036
	(0.0180)	(0.0028)
INFL	0.0118	0.0036*
	(0.0128)	(0.0017)
Year fixed effect	Yes	Yes
Country fixed effect	Yes	Yes
Observations	3,135	3,187
R-squared	0.198	0.287

Note: This table presents the results of the impact of board diversity on the risk-taking of insurance firms during the global financial crisis (2007–2009). Model 1 explores the impact of the crisis on the relationship between board diversity and insolvency risk *(IR)*, while Model 2 examines the impact on the relationship between board diversity and underwriting risk *(UR)*. Standard errors appear in parentheses. ***, **, and * corresponds to 1%, 5% and 10% significance level. Definitions for all variables are reported in **Table 4.1.**

4.5 Conclusion

Motivated by the theoretical and empirical evidence suggesting that diversity among board members can mitigate corporate risk, and recognising the influence of institutional factors on CG practices, this study investigates the impact of board diversity on risk-taking in the insurance industry. Specifically, it examines how board diversity affects insurers' insolvency and underwriting risks while exploring the moderating roles of national governance quality and cultural dimensions. Using a composite index of board diversity and analysing a global dataset of 3,187 firm-year observations from publicly listed life and non-life insurance companies over 17 years (2003-2019), the baseline results indicate that board diversity significantly reduces both insolvency and underwriting risk within insurance firms. Furthermore, the beneficial impact of board diversity on risk-taking is more pronounced for insurers operating in countries with high national governance quality. Cultural dimensions further shape this relationship: drawing on Hofstede's (1980) framework, cultures with high uncertainty avoidance amplify the risk-reducing effects of board diversity, while those characterised by high individualism, power distance, and masculinity tend to weaken this effect. These results remain robust across various measures and econometric models designed to address potential issues. Further analyses focusing on the global financial crisis (2007-2009) reveal that the risk-mitigating effects of diverse boards are particularly pronounced during periods of economic stress.

The findings yield important implications for shareholders, regulators, and other stakeholders regarding risk management in insurance companies. First, the empirical analysis demonstrates

that comprehensive board diversity—encompassing gender, nationality, tenure, and age—significantly reduces both insolvency and underwriting risk. This evidence suggests that shareholders should adopt a holistic approach to board appointments, extending beyond gender diversity considerations. Such comprehensive diversity enhances board monitoring effectiveness, thereby reducing principal-agent conflicts while improving decision quality through diverse perspectives, experiences, and expertise. Although regulatory initiatives predominantly focus on gender representation (Ozdemir et al., 2021), the evidence indicates that regulatory frameworks should expand to promote diversity across multiple dimensions.

Second, the identified moderating role of national governance quality underscores the significance of formal institutional frameworks in CG design. The effectiveness of governance approaches varies substantially with institutional context. For example, ownership concentration proves beneficial in countries with weak governance yet becomes costly in strong governance environments, thus challenging "one-size-fits-all" approaches (Nguyen et al., 2015). This pattern indicates that investors should calibrate governance mechanisms according to local institutional contexts, carefully balancing associated costs and benefits. For policymakers, the empirical evidence emphasises the necessity of strengthening national governance frameworks to enhance transparency, accountability, and stakeholder protection. These measures not only enhance the effectiveness of diverse boards but also contribute to broader economic stability by fostering trust and reducing risk in financial institutions (Phuong et al., 2022).

Last, the empirical investigation reveals distinct influences of cultural dimensions on board diversity's effectiveness in risk mitigation. In high uncertainty avoidance cultures, board diversity demonstrates enhanced risk-mitigating effects, indicating that investors in these contexts should prioritise diverse board composition. Within societies characterised by high individualism and masculinity, stakeholders should implement mechanisms linking executive compensation to broader stakeholder outcomes, including employee welfare and environmental performance. In high power distance cultures, governance mechanisms should incorporate structures facilitating employee participation in decision-making processes. Policymakers can support these objectives by developing regulations that align corporate goals with societal interests and promote inclusive decision-making practices.

Despite the significance and contributions of this study, it has certain limitations that present opportunities for future research. First, while the international sample used in this study

enhances its generalisability, variations in institutional characteristics between developed and emerging countries may influence the moderating roles of national governance quality and culture on the relationship between board diversity and risk measures. Market size variations and regulatory heterogeneity across countries may further affect result interpretation. Future research could address this limitation by focusing on subsets of either developed or emerging markets, allowing for a more nuanced understanding of how institutional contexts shape these dynamics. Second, this study focuses on board diversity as a governance mechanism influencing risk-taking. Future research could examine how board diversity interacts with other governance mechanisms, particularly in countries with low national governance quality where alternative control mechanisms might be more prevalent. Such research could provide insights into the relative effectiveness of different governance approaches across varying institutional environments.

Third, the increasing prevalence of cross-border trade and internationalisation may lead to evolutionary changes in cultural dimensions as host countries experience demographic shifts through foreign immigration (Song et al., 2020). These cultural transformations present valuable research opportunities to examine how evolving cultural frameworks influence the relationship between board diversity and risk profiles within the insurance industry. Finally, while this study focuses specifically on insurance companies, future research could expand the scope to encompass other financial sectors, including banking. Such expansion would provide a more comprehensive understanding of how national governance quality and cultural factors moderate the relationship between board diversity and risk-taking across the broader financial services industry.

Chapter 5: Concluding remarks and implications

5.1 Introduction

This thesis set out to explore the multifaceted role of CG within the insurance industry, with a particular emphasis on how board diversity influences risk-taking across various institutional contexts. The overarching aim was to provide a comprehensive understanding of CG mechanisms in this highly regulated and risk-sensitive sector, focusing on both their direct effects on risk and their interplay with external institutional factors. The research's significance is rooted in the critical role of the insurance industry in global financial stability and its unique operational challenges, including high regulatory oversight, complex risk management needs, and the presence of diverse stakeholders. In this context, the thesis sought to bridge existing gaps in CG research by systematically reviewing the field, empirically examining board diversity's influence on risk-taking, and contextualising these relationships within broader institutional environments.

The thesis was structured around three interrelated papers, each addressing specific objectives that collectively contribute to achieving the overarching aim. The first paper (Chapter 2) provided an SLR of CG in the insurance industry, synthesising theoretical perspectives and empirical findings across a wide array of governance mechanisms and outcomes. This comprehensive analysis revealed critical gaps in existing research, particularly the limited exploration of diversity-related mechanisms and their impact on corporate performance. The SLR also identified a lack of cross-country studies, highlighting the importance of understanding institutional influences on governance practices.

Building on the insights from the SLR, the second paper (Chapter 3) focused on the empirical relationship between board diversity and risk-taking. Using a global dataset, this study examined how multiple facets of board diversity (gender, nationality, tenure, and age) influence two critical aspects of risk-taking: insolvency and underwriting risk. This analysis was contextualised within the unique operational and regulatory environment of the insurance sector, offering novel insights into gender quota regulations, the mechanisms through which diverse boards shape risk management and implications for financial performance. The findings underscored the importance of board diversity as a strategic asset for enhancing risk oversight and balancing risk and return without compromising financial performance.

The third paper (Chapter 4) expanded this investigation by considering how institutional factors moderate the relationship between board diversity and risk-taking. Drawing on institutional theory, this study explored the role of formal institutional structures, such as national governance quality, and informal cultural dimensions, including individualism, uncertainty avoidance, power distance and masculinity, in shaping the effectiveness of board diversity in mitigating risk. By constructing a composite board diversity index, the research moved beyond isolated dimensions to offer a holistic understanding of how diverse boards operate within varying governance environments. This study provided critical insights into the context-dependent nature of CG mechanisms, challenging one-size-fits-all governance models and advocating for more adaptive and institutionally sensitive frameworks.

Through these three interconnected papers, the thesis advances a cohesive investigation into the role of CG in the insurance industry, integrating theoretical perspectives, empirical evidence, and contextual analysis. Together, they provide a robust foundation for understanding the complexities of governance mechanisms in a sector that is both essential to global economic stability and uniquely exposed to systemic risks. This chapter synthesises the insights gained across these studies, offering an integrated summary of findings, discussing their broader implications for theory and practice, and proposing directions for future research.

5.2 Summary of key findings

This thesis, through its three interconnected studies, has provided several findings that collectively advance our understanding of CG in the insurance industry.

The first paper (Chapter 2) systematically reviewed the state of CG research in the insurance industry, synthesising findings from 130 peer-reviewed articles across 63 journals published over a 40-year period (1980–2021). The review highlighted the dominance of agency theory in existing literature, emphasising the need for multi-theoretical approaches to address the unique dual principal-agent relationship among shareholders, managers, and policyholders. These complexities, especially pronounced in risk-sensitive industries such as insurance, demand governance frameworks capable of balancing diverse stakeholder interests with regulatory and operational requirements. The review also underscored critical gaps in the exploration of governance mechanisms such as board diversity, actuarial oversight, reinsurer monitoring, and Shariah compliance—mechanisms essential for understanding CG beyond traditional frameworks. Furthermore, the significant reliance on single-country studies, predominantly in

developed markets, revealed a lack of cross-country analyses, limiting insights into how governance practices vary across institutional contexts. These findings highlighted the pressing need for comprehensive, nuanced, and context-sensitive research to deepen understanding and inform governance practices in the insurance sector.

Responding to these identified gaps, the second paper (Chapter 3) examined the empirical relationship between board diversity and risk-taking through an international analysis of 3,333 firm-years from insurers spanning 44 countries between 2003 and 2019. The findings revealed that diversity in gender, nationality, and age significantly reduces both insolvency and underwriting risks, reflecting the value of diverse perspectives in enhancing oversight and decision-making in risk-sensitive environments. However, tenure diversity displayed more complex dynamics: while tenure-diverse boards effectively mitigated insolvency risk, likely reflecting stronger consensus on regulatory compliance, they simultaneously showed a greater propensity for underwriting risk, revealing varying preferences in operational decision-making. This nuanced finding underscores the importance of understanding industry-specific governance dynamics.

The study also identified a notable reduction in insurer risks following the implementation of gender quotas on corporate boards. It further explores the dynamics of tokenism versus critical mass in gender-diverse boardrooms, demonstrating that the presence of even a single female director can mitigate risk, while the risk-reducing effects increase significantly with three or more female directors. This critical mass effect underscores the importance of achieving meaningful representation to fully maximise the benefits of board diversity. Furthermore, the analysis uncovered mechanisms through which diverse boards influence risk management, showing that they adopt conservative financial and investment policies, such as lower leverage and stable portfolios. Crucially, this approach to risk management does not compromise financial returns, challenging assumptions about trade-offs between diversity and performance. These findings reinforce the strategic importance of board diversity in fostering resilience and balancing risk and return within the insurance industry.

The third paper (Chapter 4) extended this analysis by exploring how institutional factors moderate the relationship between board diversity and risk-taking. Drawing on institutional theory, this study employed a composite board diversity index encompassing gender, nationality, tenure, and age to provide a holistic view of board diversity's impact on risk. Using a global dataset of 3,187 firm-year observations from insurers over a 17-year period, the study

demonstrated that increased board diversity significantly reduces insolvency and underwriting risks. This suggests that the combined effect of multiple diversity dimensions surpasses their individual impacts, indicating that these aspects work together to enhance board effectiveness. However, the effectiveness of diverse boards in reducing risk is context-dependent and significantly influenced by institutional factors. Specifically, high national governance quality amplifies the risk-mitigating benefits of diversity, likely by fostering greater accountability and transparency within corporate decision-making processes.

Cultural dimensions had more nuanced effects: high uncertainty avoidance enhances diversity's risk-reducing impact, likely due to its emphasis on structured and cautious decision-making approaches. Conversely, traits such as high individualism, power distance, and masculinity diminished diversity's effectiveness, potentially hindering the collaborative dynamics essential for diverse boards to perform optimally. Additional analyses during the global financial crisis (2007–2009) highlighted that diverse boards were particularly effective in mitigating risks during periods of economic turbulence, emphasising their critical role in navigating volatile market conditions. These findings demonstrate the necessity of tailoring governance frameworks to specific institutional environments, recognising that governance mechanisms operate within, and are deeply influenced by, regulatory and cultural contexts.

Collectively, the findings of these three studies advance the field of CG by addressing critical gaps in the insurance industry and beyond. This thesis contributes to a comprehensive understanding of CG mechanisms, establishes board diversity as a vital factor in insurer risk management, and highlights the influence of institutional factors on governance effectiveness. These insights offer valuable guidance for future research, policy development, and governance practices in the insurance sector and other highly regulated industries.

5.3 Thesis implications

This thesis presents important implications for various stakeholders, including academics, industry practitioners, regulators, policymakers and insurance firms. It enables these groups to gain a comprehensive understanding and make informed decisions about the impact of CG mechanisms in the insurance industry.

For academics, this thesis provides a comprehensive foundation for understanding CG in the insurance industry. The SLR provides an in-depth analysis of existing research on CG's

influence on insurance firm outcomes. This analysis serves as a foundation for further investigations into a broad range of internal and external governance mechanisms and their effects on diverse financial and non-financial outcomes in the insurance sector. By addressing the research gaps highlighted in the literature, this thesis promotes the advancement of knowledge in these critical areas, ultimately contributing to the field's growth.

For practitioners, particularly those in the insurance industry, this thesis highlights the strategic value of board diversity in enhancing governance outcomes. The empirical findings demonstrate that diverse boards (encompassing gender, nationality, tenure, and age diversity) significantly improve risk management practices while maintaining financial performance. These insights emphasise that balanced board representation is not merely a compliance measure but a critical factor in promoting financial solvency and reducing insolvency risk. Moreover, the research underscores the importance of meaningful representation, particularly gender diversity. Boards with three or more female directors outperform those with token representation in risk oversight, illustrating the critical value of substantive rather than symbolic inclusion. These findings guide board appointment strategies, urging insurers to adopt a holistic approach to diversity that integrates multiple dimensions to strengthen governance and operational outcomes.

For regulators and policymakers, the thesis offers robust evidence supporting the effectiveness of diversity initiatives in the insurance sector. Gender quota regulations, for example, are shown to reduce risk-taking and improve oversight quality. These findings highlight the potential for policy interventions promoting diversity to achieve desirable regulatory outcomes. Moreover, the thesis advocates extending diversity requirements beyond gender to include dimensions such as nationality and age, further enhancing governance effectiveness. The cross-country evidence presented in this research underscores the need for internationally harmonised diversity standards to ensure consistent governance practices for multinational insurers.

The thesis also highlights the moderating role of institutional and cultural contexts in shaping the effectiveness of governance mechanisms. For example, the findings challenge “one-size-fits-all” regulatory approaches by demonstrating that the effectiveness of governance mechanisms, such as board diversity, varies with the strength of national governance frameworks. Policymakers are encouraged to consider these contextual nuances when designing regulations, tailoring their approaches to local institutional conditions. Strengthened

national governance frameworks amplify the effectiveness of diverse boards and bolster financial stability by fostering transparency, accountability, and stakeholder trust.

Cultural dimensions further enrich the findings, revealing distinct influences on board diversity's risk-mitigating effects. For example, in high uncertainty avoidance cultures, board diversity enhances risk oversight, suggesting that stakeholders in these contexts should prioritise inclusive board compositions. In high individualism and masculinity cultures, governance mechanisms should link executive incentives to broader stakeholder outcomes, such as environmental and social goals. Meanwhile, in high power distance cultures, promoting employee participation in governance structures fosters inclusive decision-making and governance. These insights provide a roadmap for policymakers to design culturally informed regulations that align governance practices with societal values, fostering financial resilience and economic stability.

For insurance firms, the thesis highlights the importance of transparency and communication regarding board composition. Publicly disclosing detailed information about directors' qualifications and diversity measures in annual reports or on corporate websites signals strong governance practices to investors and stakeholders. By emphasising their commitment to inclusive and effective governance, firms can enhance their reputation and attract clients and investors who value ethical practices. Furthermore, adopting diversity policies as a marketing tool can demonstrate corporate responsibility and foster trust among stakeholders.

Overall, this thesis advances the academic understanding of CG, informs industry practices, and guides regulatory frameworks in the insurance sector. By bridging theoretical insights with practical applications, it offers a foundation for more effective and resilient governance systems. These contributions have far-reaching implications for advancing stability and sustainability in the insurance industry and beyond, supporting a more inclusive and adaptive approach to CG in an increasingly interconnected global economy.

5.4 Thesis limitations and suggestions for future research

Although this thesis seeks to address the limitations identified in previous research, it also has its own limitations that should be acknowledged. One key limitation lies in the SLR conducted as part of this thesis. The SLR is restricted to peer-reviewed articles and excludes other sources, such as conference papers and chapters from edited books. While this review criterion may

appear stringent, it is essential for ensuring the quality of the research reviewed (Podsakoff et al., 2005; Ibrahim et al., 2021). Moreover, the reliance on articles listed in the ABS ranking guide may restrict the representation of CG knowledge specific to the insurance industry. Future research could enhance understanding by directly evaluating the quality of the existing literature rather than depending solely on journal rankings such as ABS.

The empirical analysis in this thesis also has its limitations, primarily in its scope and the dimensions of board diversity examined. The research is confined to publicly listed insurance firms; future studies could explore how board diversity affects private insurers' risk-taking. Given that private firms operate under different management dynamics and face distinct governance challenges, such research could provide valuable comparative insights and enhance our understanding of how ownership structure may moderate the relationship between board diversity and risk management. Additionally, while the study focuses on gender, nationality, tenure, and age diversity due to data availability constraints, future research could examine other dimensions of board diversity. Specifically, investigations into directors' educational backgrounds, ethnicity, and professional experience could offer novel insights into how different forms of cognitive and demographic diversity influence risk-taking in insurance firms. Such research could help develop a more comprehensive framework for understanding the multifaceted nature of board diversity and its implications for CG.

Another important avenue for future research involves conducting comparative studies between conventional insurance markets and Islamic insurance (takaful) markets. These analyses could provide insights into how different business models, regulatory frameworks, and cultural influences affect the relationship between board diversity and risk-taking. With the growing prominence of Islamic finance globally, such research would be especially relevant for both conventional and Islamic insurers. Furthermore, while this thesis primarily focuses on risk-taking, future researchers could expand their scope to examine how board diversity impacts other corporate outcomes in insurance firms, such as loss reserves, market share, product innovation, customer satisfaction, and operational efficiency. These areas could broaden our understanding of the strategic implications of board diversity beyond risk management.

Despite the international sample used in this thesis, variations in institutional characteristics between developed and emerging markets present a potential limitation. Differences in market size, regulatory environments, and governance standards may influence the generalisability of

the findings. Future research could address this by focusing on subsets of either developed or emerging markets to gain a more nuanced understanding of how these contexts shape governance dynamics. Additionally, this thesis emphasises board diversity as a standalone governance mechanism but does not explore its interactions with other governance mechanisms, such as executive compensation structures or shareholder activism. Investigating these interactions, especially in countries with low governance quality where alternative control mechanisms might be more prevalent, could provide valuable insights into the relative effectiveness of different governance approaches across varying institutional environments.

Cultural evolution, driven by cross-border trade and demographic shifts through foreign immigration, also represents an area for future research. As cultural frameworks evolve, their influence on board diversity and its effectiveness in mitigating risk within the insurance industry may change. These transformations present an opportunity for researchers to examine how evolving cultural dimensions impact governance outcomes, particularly in increasingly diverse and internationalised markets. Moreover, while this thesis focuses on the insurance sector, expanding the scope to include other financial industries, such as banking, could provide a broader perspective on how governance mechanisms operate across financial services. Comparative studies of different financial sectors could deepen our understanding of how national governance quality and cultural factors influence the relationship between board diversity and risk-taking.

By addressing these limitations and exploring the suggested directions for future research, scholars can advance the understanding of CG mechanisms and their implications in the insurance sector and across diverse industries and institutional contexts. This continued exploration will help refine governance frameworks, foster financial stability, and promote resilience in an ever-evolving global financial landscape.

References

Abbasi, K., Alam, A. and Bhuiyan, M.B.U. (2020) 'Audit committees, female directors and the types of female and male financial experts: Further evidence', *Journal of Business Research*, 114, pp.186-197.

Abdoush, T., Hussainey, K. and Albitar, K. (2022) 'Corporate Governance and Performance in the UK Insurance Industry Pre, during and Post the Global Financial Crisis', *International Journal of Accounting and Information Management*, 30(5), pp. 617–640.

Abinzano, I., Martinez, B. and Poletti-Hughes, J. (2023) 'Women in power with power: The influence of meaningful board representation on default risk', *International Review of Financial Analysis*, 89, p.102-771.

Abou-El-Sood, H. (2021) 'Board gender diversity, power, and bank risk taking', *International Review of Financial Analysis*, 75, pp.101-733.

Adams, M. and Baker, P.L. (2021) 'Does boardroom nationality affect the performance of UK insurers?' *The British Accounting Review*, 53(5), p.100-923.

Adams, M. and Buckle, M. (2003) 'The determinants of corporate financial performance in the Bermuda insurance market', *Applied Financial Economics*, 13(2), pp.133-143.

Adams, M. and Jiang, W. (2016) 'Do outside directors influence the financial performance of risk-trading firms? Evidence from the United Kingdom (UK) insurance industry', *Journal of Banking and Finance*, 64, pp.36-51.

Adams, M. and Jiang, W. (2017) 'Do chief executives' traits affect the financial performance of risk-trading firms? Evidence from the UK insurance industry', *British Journal of Management*, 28(3), pp.481-501.

Adams, M. and Jiang, W. (2020) 'Do financial experts on the board matter? An empirical test from the United Kingdom's non-life insurance industry', *Journal of Accounting, Auditing and Finance*, 35(1), pp.168-195.

Adams, M., Hoejmose, S. and Kastrinaki, Z. (2017) 'Corporate philanthropy and risk management: An investigation of reinsurance and charitable giving in insurance firms', *Business Ethics Quarterly*, 27(1), pp.1-37.

Adams, M., Jiang, W. and Ma, T. (2024) 'CEO power, corporate risk management, and dividends: disentangling CEO managerial ability from entrenchment', *Review of Quantitative Finance and Accounting*, 62(2), pp.683-717.

Adams, M., Sherris, M. and Hossain, M. (1997) 'The determinants of external audit costs in the New Zealand life insurance industry', *Journal of International Financial Management and Accounting*, 8(1), pp.69-86.

Adams, R.B. and Ferreira, D. (2009) 'Women in the boardroom and their impact on governance and performance', *Journal of Financial Economics*, 94(2), pp.291-309.

Adams, R.B. and Funk, P. (2012) 'Beyond the glass ceiling: Does gender matter?', *Management Science*, 58(2), pp.219-235.

Adams, R.B., de Haan, J., Terjesen, S. and van Ees, H. (2015) 'Board diversity: Moving the field forward', *Corporate Governance: An International Review*, 23(2), pp.77-82.

Adams, R.B., Hermalin, B.E. and Weisbach, M.S. (2010) 'The role of boards of directors in corporate governance: A conceptual framework and survey', *Journal of Economic Literature*, 48(1), pp.58-107.

Adiel, R. (1996) 'Reinsurance and the management of regulatory ratios and taxes in the property–casualty insurance industry', *Journal of Accounting and Economics*, 22(1-3), pp.207-240.

Afifa, M.A., Saleh, I. and Haniah, F. (2021). 'Direct and Mediated Associations Among Ownership Structure, Cash Holdings and Firm Value: The Case of Jordanian Insurance Firms', *Vision*, pp.471-482.

Aguilera, R. et al. (2016) 'Advancing the corporate governance research agenda', *Corporate Governance: An International Review*. 24(3), pp.172–180.

Aguilera, R. V., Filatotchev, I., Gospel, H., and Jackson, G. (2008). An organizational approach to comparative corporate governance: Costs, contingencies, and complementarities. *Organization science*, *19*(3), 475-492.

Aguilera, R.V. and Jackson, G. (2010) 'Comparative and international corporate governance', *Academy of Management Annals*, 4(1), pp. 485–556.

Aguilera, R.V. et al. (2015) 'Connecting the dots: Bringing external corporate governance into the corporate governance puzzle', *Academy of Management Annals*, 9(1), pp. 483–573.

Aguilera, R.V., Marano, V. and Haxhi, I. (2019) 'International corporate governance: A review and opportunities for future research', *Journal of International Business Studies*, 50(4), pp. 457–498.

Agyei-Boapeah, H., Ntim, C.G. and Fosu, S. (2019) 'Governance structures and the compensation of powerful corporate leaders in financial firms during M&As', *Journal of International Accounting, Auditing and Taxation*, 37, p.100-285.

Ahmed, S., Sihvonen, J., and Vähämaa, S. (2019). CEO facial masculinity and bank risk-taking. *Personality and Individual Differences*, *138*, 133-139.

Akbar, S., Kharabsheh, B., Poletti-Hughes, J. and Shah, S.Z.A. (2017) 'Board structure and corporate risk taking in the UK financial sector', *International Review of Financial Analysis*, 50, pp.101-110.

Akhigbe, A. and Martin, A.D. (2006) 'Valuation impact of Sarbanes–Oxley: Evidence from disclosure and governance within the financial services industry'. *Journal of Banking and Finance*, 30(3), pp.989-1006.

Akhigbe, A. and Whyte, A.M. (2012) 'Does the use of stock incentives influence the payout policy of financial institutions?', *The Quarterly Review of Economics and Finance*, 52(1), pp.63-71.

Akhter, W. and Hussain, T. (2012) 'Takāful standards and customer perceptions affecting takāful practices in Pakistan: a survey', *International Journal of Islamic and Middle Eastern Finance and Management*, 5(3), pp.229-240.

Aldamen, H., Hollindale, J. and Ziegelmayer, J.L. (2018) 'Female audit committee members and their influence on audit fees', *Accounting and Finance*, 58(1), pp.57-89.

Alhassan, A.L. and Biekpe, N. (2018) 'Competition and risk-taking behaviour in the non-life insurance market in South Africa', *The Geneva Papers on Risk and Insurance-Issues and Practice*, 43(3), pp.492-519.

Alhassan, A.L. and Boakye, M.A.A. (2020) 'Board characteristics and life insurance efficiency in South Africa', *Pacific Accounting Review*, 32(2), pp.217-237.

Alhassan, A.L., Zyambo, K. and Boakye, M.A.A. (2021) '"Welcome on board": resource dependency and agency theoretic evidence from the South African life insurance market', Corporate Governance: *The International Journal of Business in Society*, 21(4), pp.626-644.

Alhossini, M.A. et al. (2021) 'Corporate board committees and corporate outcomes: An international systematic literature review and agenda for future research', *The International Journal of Accounting*, 56(1), p. 2150001.

Alhussayen, H., Shabou, R., Medhioub, I. and Samontaray, D.P. (2020) 'Corporate governance in Saudi Arabia: what happens to firm value when the board of directors and ownership structure interact?', *International Journal of Business Innovation and Research*, 23(2), pp. 205–249.

Ali, F., Gang, B., and Zahid, Z. (2023). Does board diversity mitigate firm risk-taking? Empirical evidence from China. *Journal of Operational Risk*.

Ali, M., Ng, Y.L. and Kulik, C.T. (2014) 'Board age and gender diversity: A test of competing linear and curvilinear predictions', *Journal of Business Ethics*, 125(3), pp.497-512.

Ali, M.S. and Hashmi, S.H. (2018) 'Impact of institutional ownership on stock liquidity: Evidence from Karachi Stock Exchange, Pakistan', *Global Business Review*, 19(4), pp. 939–951.

Ali, S., Yuan, W., Ahmad, M.I. and Ali, R. (2022) 'Does foreign institutional ownership mediate the nexus between board diversity and the risk of financial distress? A case of an emerging economy of China', *Eurasian Business Review*, 12(3), pp.553-581.

Alkhan, A.M. and Hassan, M.K. (2020) 'Takaful operators: analysing segregated accounts between operator/participants', *Journal of Islamic Accounting and Business Research*, 11(9), pp.1649-1664.

Alkhawaja, A., Hu, F., Johl, S. and Nadarajah, S. (2023) 'Board gender diversity, quotas, and ESG disclosure: Global evidence', *International Review of Financial Analysis*, 90, p.102-823.

Alnori, F. (2020) 'Cash holdings: Do they boost or hurt firms' performance? Evidence from listed non-financial firms in Saudi Arabia', *International Journal of Islamic and Middle Eastern Finance and Management*.

Alzayed, N., Batiz-Lazo, B. and Eskandari, R. (2024) 'Does board diversity mitigate risk? The effect of homophily and social ties on risk-taking in financial institutions', *Research in International Business and Finance*, 70, p.102-306.

Ames, D.A., Hines, C.S. and Sankara, J. (2018) 'Board risk committees: Insurer financial strength ratings and performance', *Journal of Accounting and Public Policy*, 37(2), pp.130-145.

Anderson, R.C., Reeb, D.M., Upadhyay, A. and Zhao, W. (2011) 'The economics of director heterogeneity', *Financial Management*, 40(1), pp.5-38.

Angkinand, A. and Wihlborg, C. (2010) 'Deposit insurance coverage, ownership, and banks' risk-taking in emerging markets', *Journal of International Money and Finance*, 29(2), pp. 252–274.

Apergis, N. and Poufinas, T. (2020) 'The role of insurance growth in economic growth: Fresh evidence from a panel of OECD countries', *The North American Journal of Economics and Finance*, 53, p.101217.

Ararat, M., Aksu, M. and Tansel Cetin, A. (2015) 'How board diversity affects firm performance in emerging markets: Evidence on channels in controlled firms', *Corporate Governance: An International Review*, 23(2), pp.83-103.

Archer, S., Karim, R.A.A. and Al-Deehani, T. (1998) 'Financial contracting, governance structures and the accounting regulation of Islamic banks: an analysis in terms of agency theory and transaction cost economics', *Journal of Management and Governance*, 2(2), pp.149-170.

Aren, S., and Nayman Hamamci, H. (2023). The effect of individual cultural values and phantasy on risky investment intention. *Journal of Economic and Administrative Sciences*, *39*(4), 847-866.

Arnaboldi, F., Casu, B., Kalotychou, E. and Sarkisyan, A. (2020) 'Board diversity reforms: Do they matter for EU bank performance?', *European Financial Management*, 26(2), pp.416-454.

Arnaboldi, F., Casu, B., Kalotychou, E. and Sarkisyan, A. (2020) 'The performance effects of board heterogeneity: What works for EU banks?', *The European Journal of Finance*, 26(10), pp.897-924.

Asad, M., Akbar, S., Li, J. and Shah, S.Z.A. (2023) 'Board diversity and corporate propensity to R&D spending', *International Review of Financial Analysis*, 89, p.102-802.

Ashraf, B.N., Zheng, C. and Arshad, S. (2016) 'Effects of national culture on bank risk-taking behavior', *Research in international business and finance*, 37, pp.309-326.

Aslan, H., and Kumar, P. (2014). National governance bundles and corporate agency costs: A cross-country analysis. *Corporate Governance: An International Review*, *22*(3), 230-251.

Atchinson, B.K. (2004) 'Ethics, governance, trust, transparency and customer relations', *The Geneva Papers on Risk and Insurance-Issues and Practice*, 29(1), pp.40-44.

Attah-Boakye, R., Adams, K., Kimani, D. and Ullah, S. (2020) 'The impact of board gender diversity and national culture on corporate innovation: A multi-country analysis of multinational corporations operating in emerging economies', *Technological Forecasting and Social Change*, 161, p.120247.

Aviva, (2021). Aviva Annual Report, https://www.annualreports.com/HostedData/AnnualReportArchive/A/LSE_AV_2021.pdf.

AXA, (2022). AXA Annual Report, https://www-axa-com.cdn.axa-contento-118412.eu/www-axa-com/83f21a68-30a9-47ef-938b-a8b2519c4ae8_axa_urd2022_accessibleb_va.pdf.

Backes-Gellner, U. and Veen, S. (2013) 'Positive effects of ageing and age diversity in innovative companies: Large-scale empirical evidence on company productivity', *Human Resource Management Journal*, 23(3), pp.279-295.

Bailey, C., Collins, D.L. and Abbott, L.J. (2018) 'The impact of enterprise risk management on the audit process: Evidence from audit fees and audit delay', *Auditing: A Journal of Practice and Theory*, 37(3), pp.25-46.

Baker, H.K., Pandey, N., Kumar, S. and Haldar, A. (2020) 'A bibliometric analysis of board diversity: Current status, development, and future research directions', *Journal of Business Research*, 108, pp.232-246.

Ballester, L., González-Urteaga, A. and Martínez, B. (2020) 'The role of internal corporate governance mechanisms on default risk: A systematic review for different institutional settings', *Research in International Business and Finance*, 54, p.101-293.

Balsmeier, B., Fleming, L. and Manso, G. (2017) 'Independent boards and innovation', *Journal of Financial Economics*, 123(3), pp.536-557.

Baluch, F., Mutenga, S. and Parsons, C. (2011) 'Insurance, systemic risk and the financial crisis', *The Geneva Papers on Risk and Insurance-Issues and Practice*, 36, pp.126-163.

Baran, L. and Forst, A. (2015) 'Disproportionate insider control and board of director characteristics', *Journal of Corporate Finance*, 35, pp.62-80.

Baranoff, E. and Sager, T. (2003) 'The relations among organizational and distribution forms and capital and asset risk structures in the life insurance industry', *Journal of Risk and Insurance*, 70(3), pp.375-400.

Barroso, C., Villegas, M.M. and Pérez-Calero, L. (2011) 'Board influence on a firm's internationalization', *Corporate Governance: An International Review*, 19(4), pp.351-367.

Bazel-Shoham, O., Lee, S. M., Munjal, S., and Shoham, A. (2024). Board gender diversity, feminine culture, and innovation for environmental sustainability. *Journal of Product Innovation Management*, *41*(2), 293-322.

Beare, D., Buslovich, R. and Searcy, C. (2014) 'Linkages between corporate sustainability reporting and public policy', *Corporate Social Responsibility and Environmental Management*, 21(6), pp.336-350.

Beasley, M.S. and Petroni, K.R. (2001) 'Board independence and audit-firm type', *Auditing: A Journal of Practice and Theory*, 20(1), pp.97-114.

Beasley, M.S., Clune, R. and Hermanson, D.R. (2005) 'Enterprise risk management: An empirical analysis of factors associated with the extent of implementation', *Journal of Accounting and Public Policy*, 24(6), pp.521-531.

Bebchuk, L.A. and Fried, J.M. (2006) 'Pay without performance: Overview of the issues', *Academy of Management Perspectives*, 20(1), pp.5-24.

Bebchuk, L.A. and Weisbach, M.S. (2010) 'The State of Corporate Governance Research', *Review of Financial Studies*, 23(3), pp. 939–961.

Becker, B. and Ivashina, V. (2015) 'Reaching for yield in the bond market', *The Journal of Finance*, 70(5), pp.1863-1902.

Behlau, H., Wobst, J., and Lueg, R. (2024). Measuring board diversity: A systematic literature review of data sources, constructs, pitfalls, and suggestions for future research. *Corporate Social Responsibility and Environmental Management*, *31*(2), 977-992.

Beji, R., Yousfi, O., Loukil, N., and Omri, A. (2021). Board diversity and corporate social responsibility: Empirical evidence from France. *Journal of Business Ethics*, *173*, 133-155.

Beltratti, A. and Stulz, R.M. (2012) 'The credit crisis around the globe: Why did some banks perform better?', *Journal of Financial Economics*, 105(1), pp.1-17.

Ben-Amar, W., Francoeur, C., Hafsi, T. and Labelle, R. (2013) 'What makes better boards? A closer look at diversity and ownership', *British Journal of Management*, 24(1), pp.85-101.

Berger, A.N., Kick, T. and Schaeck, K. (2014) 'Executive board composition and bank risk taking', *Journal of Corporate Finance*, 28, pp.48-65.

Bernile, G., Bhagwat, V. and Yonker, S. (2018) 'Board diversity, firm risk, and corporate policies', *Journal of Financial Economics*, 127(3), pp.588-612.

Bernoth, K., and Pick, A. (2011). Forecasting the fragility of the banking and insurance sectors. *Journal of Banking and Finance*, *35*(4), 807-818.

Berry-Stölzle, T.R., Eastman, E.M. and Xu, J. (2018) 'CEO overconfidence and earnings management: Evidence from property-liability insurers' loss reserves', *North American Actuarial Journal*, 22(3), pp.380-404.

Bhagat, S., Bolton, B. and Lu, J. (2015) 'Size, leverage, and risk-taking of financial institutions', *Journal of Banking and Finance*, 59, pp.520-537.

Bhat, K.U., Chen, Y., Jebran, K. and Memon, Z.A. (2019) 'Board diversity and corporate risk: Evidence from China', *Corporate Governance: The International Journal of Business in Society*, 20(2), pp.280–293.

Bhuyan, R., Butchey, D., Haar, J. and Talukdar, B. (2020) 'CEO compensation and firm performance in the insurance industry', *Managerial Finance*.

Boone, A. L., Field, L. C., Karpoff, J. M., and Raheja, C. G. (2007). The determinants of corporate board size and composition: An empirical analysis. *Journal of financial Economics*, *85*(1), 66-101.

Boubakri, N. (2011) 'Corporate governance and issues from the insurance industry', *Journal of Risk and Insurance*.

Boubakri, N. (2013) 'Corporate governance in the insurance industry: a synthesis', In Handbook of Insurance (pp. 729-743). Springer, New York, NY.

Boubakri, N., Dionne, G. and Triki, T. (2008) 'Consolidation and value creation in the insurance industry: The role of governance', *Journal of Banking and Finance*, 32(1), pp. 56–68.

Brennan, N.M. and Solomon, J. (2008) 'Corporate governance, accountability and mechanisms of accountability: An overview', *Accounting, Auditing and Accountability Journal*, 21(7), pp. 885–906.

Brenner, S. (2011) 'On the irrelevance of insider trading for managerial compensation', *European Economic Review*, 55(2), pp.293-303.

Brewer, P., and Venaik, S. (2011). Individualism–collectivism in Hofstede and GLOBE.

Brockett, P.L., Cooper, W.W., Golden, L.L. and Pitaktong, U. (1994) 'A neural network method for obtaining an early warning of insurer insolvency', *Journal of Risk and Insurance*, pp.402-424.

Brown, J.A., Anderson, A., Salas, J.M. and Ward, A.J. (2017) 'Do investors care about director tenure? Insights from executive cognition and social capital theories', *Organization Science*, 28(3), pp.471-494.

Brown, P., Beekes, W. and Verhoeven, P. (2011) 'Corporate governance, accounting and finance: A review', *Accounting and Finance*, 51(1), pp. 96–172.

Buck, T. and Shahrim, A. (2005 'The translation of corporate governance changes across national cultures: The case of Germany', *Journal of International Business Studies*, 36, pp.42-61.

Bushman, R.M. and Smith, A.J. (2001) 'Financial accounting information and corporate governance', *Journal of Accounting and Economics*, 32(1–3), pp. 237–333.

Bushman, R.M., Piotroski, J.D. and Smith, A.J. (2004) 'What determines corporate transparency?', *Journal of accounting research*, 42(2), pp.207-252.

Cadbury, A. (1992) Report of the committee on the financial aspects of corporate governance (Vol. 1). Gee.

Caporale GM, Cerrato M and Zhang X. (2017) 'Analysing the determinants of insolvency risk for general insurance firms in the UK', *Journal of Banking and Finance* 84.107–122.

Cardillo, G., Onali, E. and Torluccio, G. (2021) 'Does gender diversity on banks' boards matter? Evidence from public bailouts', *Journal of Corporate Finance*, 71, p.101.

Carter, D.A., D'Souza, F., Simkins, B.J. and Simpson, W.G. (2010) 'The gender and ethnic diversity of US boards and board committees and firm financial performance', *Corporate Governance: An International Review*, 18(5), pp.396-414.

Carter, D.A., Simkins, B.J. and Simpson, W.G. (2003) 'Corporate governance, board diversity, and firm value', *Financial Review*, 38(1), pp.33-53.

Castro, C.B., De La Concha, M.D., Gravel, J.V. and Periñan, M.M.V. (2009) 'Does the team leverage the board's decisions?', *Corporate Governance: An International Review*, 17(6), pp.744-761.

Catalyst, 2018a. Regulatory Board Diversity. https://www.catalyst.org/regulatory-board-diversity.

Catalyst, 2018b. Legislative Board Diversity. https://www.catalyst.org/legislative-board-diversity.

Chang, C.C. and Chen, C.W. (2018) 'Directors' and officers' liability insurance and the trade-off between real and accrual-based earnings management', *Asia-Pacific Journal of Accounting and Economics*, 25(1–2), pp. 199–217.

Chattopadhyay, P., George, E. and Shulman, A.D. (2008) 'The asymmetrical influence of sex dissimilarity in distributive vs. colocated work groups', *Organization Science*, 19(4), pp.581-593.

Chen, C.R., Steiner, T.L. and White, A.M. (2001) 'Risk taking behaviour and managerial ownership in the United States life insurance industry', *Applied Financial Economics*, 11(2), pp.165-171.

Chen, I.J., Lin, W.C., Lo, H.C. and Chen, S.S. (2023) 'Board diversity and corporate innovation', *Review of Quantitative Finance and Accounting*, 61(1), pp.63-123.

Chen, J., Dedman, E., Kim, J. R., Metwally, T., and Stark, A. W. (2024). Board Nationality Diversity and Firm Value. *British Journal of Management*.

Chen, J., Leung, W.S., Song, W. and Goergen, M. (2019) 'Why female board representation matters: The role of female directors in reducing male CEO overconfidence', *Journal of Empirical Finance*, 53, pp.70-90.

Chen, L. and Pottier, S.W. (2017) 'The impact of a rating agency's private information and disclosed causes of rating downgrades on insurer stock returns', *North American Actuarial Journal*, 21(2), pp.297-304.

Chen, R. and Wong, K.A. (2004) 'The determinants of financial health of Asian insurance companies', *Journal of Risk and Insurance*, 71(3), pp.469-499.

Chen, T., Kamiya, S., Lou, P. and Milidonis, A. (2023) 'Analyst coverage, executive compensation and corporate risk-taking: Evidence from property–casualty insurance firms', *Journal of Risk and Insurance*, 90(4), pp.899-939.

Chen, Y., Eshleman, J.D. and Soileau, J.S. (2016) 'Board gender diversity and internal control weaknesses', *Advances in accounting*, 33, pp.11-19.

Chen, Y.L., Chuang, Y.W., Huang, H.G. and Shih, J.Y. (2020) 'The value of implementing enterprise risk management: Evidence from Taiwan's financial industry', *The North American Journal of Economics and Finance*, 54, p.100-926.

Cheng, J., Cummins, J.D. and Lin, T. (2017) 'Organizational form, ownership structure, and CEO turnover: Evidence from the property–casualty insurance industry', *Journal of Risk and Insurance*, 84(1), pp.95-126.

Cheng, J., Cummins, J.D. and Lin, T. (2021) 'Are all mutuals the same? Evidence from CEO turnover in the US property–casualty insurance industry', *The Geneva Risk and Insurance Review*, 46(2), pp.175-205.

Cheng, J., Cummins, J.D. and Lin, T. (2021) 'Earnings management surrounding forced CEO turnover: evidence from the US property-casualty insurance industry', *Review of Quantitative Finance and Accounting*, 56(3), pp.819-847.

Cheng, J., Elyasiani, E. and Jia, J. (2011) 'Institutional ownership stability and risk taking: Evidence from the life–health insurance industry', *Journal of Risk and Insurance*, 78(3), pp.609-641.

Chidambaran, N.K., Liu, Y. and Prabhala, N. (2022) 'Director diversity and inclusion: At the table but in the game?', *Financial Management*, 51(1), pp.193-225.

Chiu, H.H., Oxelheim, L., Wihlborg, C. and Zhang, J. (2016) 'Macroeconomic fluctuations as sources of luck in CEO compensation', *Journal of Business Ethics*, 136(2), pp.371-384.

Cho, K., Cho, J. and Bian, Y. (2024) 'A better start: board diversity matters in assessing stock price crash risk', *Corporate Governance: The International Journal of Business in Society*, 24(2), pp.365-389.

Chong, G., (2015) 'International insurance audits and governance', *International Journal of Accounting and Information Management*, 23(2), pp.152-168.

Chui, A. C., Titman, S., and Wei, K. J. (2010). Individualism and momentum around the world. *The Journal of Finance*, *65*(1), 361-392.

Claessens, S. and Laeven, L. (2003) 'Financial development, property rights, and growth', *the Journal of Finance*, 58(6), pp.2401-2436.

Claessens, S. and Yurtoglu, B.B. (2013) 'Corporate governance in emerging markets: A survey', *Emerging markets review*, 15, pp.1-33.

CLIC, (2020). China Life Insurance Company Annual Report, https://www.annualreports.com/HostedData/AnnualReportArchive/c/NYSE_LFC_2020.pdf.

Coad, A., Segarra, A., and Teruel, M. (2016). Innovation and firm growth: does firm age play a role?. *Research policy*, *45*(2), 387-400.

Coffey, B.S. and Wang, J. (1998) 'Board diversity and managerial control as predictors of corporate social performance', *Journal of Business Ethics*, 17(14), pp.1595-1603.

Cole, C.R., He, E., McCullough, K.A., Semykina, A. and Sommer, D.W. (2011) 'An empirical examination of stakeholder groups as monitoring sources in corporate governance', *Journal of Risk and Insurance*, 78(3), pp.703-730.

Conger, J.A., Finegold, D. and Lawler, E.E. (1998) 'Appraising boardroom performance', *Harvard business review*, 76, pp.136-164.

Cook, D.J. (1997) 'Systematic reviews: Synthesis of best evidence for clinical decisions', *Annals of Internal Medicine*, 126(5), p. 376.

Cordeiro, J.J., Profumo, G. and Tutore, I. (2020) 'Board gender diversity and corporate environmental performance: The moderating role of family and dual-class majority ownership structures', *Business Strategy and the Environment*, 29(3), pp.1127-1144.

Courbage, C. and Nicolas, C. (2021) 'Trust in insurance: The importance of experiences', *Journal of Risk and Insurance*, 88(2), pp.263-291.

Cummins, J.D. and Sommer, D.W. (1996) 'Capital and risk in property-liability insurance markets', *Journal of Banking and Finance*, 20(6), pp.1069-1092.

Cummins, J.D. and Xie, X. (2009) 'Market values and efficiency in US insurer acquisitions and divestitures' *Managerial Finance*, 35(2), pp.128-155.

Cuomo, F., Mallin, C. and Zattoni, A. (2016) 'Corporate governance codes: A review and research agenda', *Corporate governance: an international review*, 24(3), pp.222-241.

Daily, C.M., Dalton, D.R. and Cannella Jr, A.A. (2003) 'Corporate governance: Decades of dialogue and data' *Academy of management review*, 28(3), pp.371-382.

Daiser, P., Ysa, T. and Schmitt, D. (2017) 'Corporate governance of state-owned enterprises: a systematic analysis of empirical literature', *International Journal of Public Sector Management*, 30(5), pp.447-466.

Davis, J.H., Schoorman, F.D. and Donaldson, L. (1997) 'Toward a stewardship theory of management', *Academy of Management review*, 22(1), pp.20-47.

De Andres, P. and Vallelado, E. (2008) 'Corporate governance in banking: The role of the board of directors', *Journal of banking and finance*, 32(12), pp.2570-2580.

De Bakker, F. G. A., Den Hond, F., King, B. G., and Weber, K. (2013). 'Social movements, civil society and corporations: Taking stock and looking ahead', *Organization Studies*, 34(5–6), 573–593.

DeAngelo, L.E. (1981) 'Auditor size and audit quality', *Journal of Accounting and Economics*, 3(3), pp.183-199.

Del Prete, S., Papini, G. and Tonello, M. (2024) 'Gender quotas, board diversity and spillover effects. Evidence from Italian banks', *Journal of Economic Behavior and Organization*, 221, pp.148-173.

Delis, M. D., Hasan, I., and Tsionas, E. G. (2014). The risk of financial intermediaries. *Journal of Banking and Finance*, *44*, 1-12.

Deloitte, 2017. Women in the boardroom: a global perspective.

Demirgüç-Kunt, A. and Detragiache, E. (1998) 'The determinants of banking crises in developing and developed countries', Staff Papers, 45(1), pp.81-109.

Demsetz, H. and Lehn, K. (1985) 'The structure of corporate ownership: Causes and consequences', *Journal of political economy*, 93(6), pp.1155-1177.

Denis, D.K. (2001) ‘Twenty-five years of corporate governance research … and counting’, *Review of Financial Economics*, 10(3), pp. 191–212.

Denis, D.K. and McConnell, J.J. (2003) ‘International corporate governance’, *Journal of financial and quantitative analysis*, 38(1), pp.1-36.

Desender, K.A., Aguilera, R.V., Crespi, R. and GarcÍa-cestona, M. (2013) ‘When does ownership matter? Board characteristics and behavior’, *Strategic Management Journal*, 34(7), pp.823-842.

Devos, E., Ong, S.E., Spieler, A.C. and Tsang, D. (2013) ‘REIT institutional ownership dynamics and the financial crisis’, *The Journal of Real Estate Finance and Economics*, 47(2), pp. 266–288.

Dheera-aumpon, S. (2018). Culture and corruption in bank lending revisited. *International Journal of Monetary Economics and Finance*, *11*(4), 345-353.

Diacon, S.R. and O’Sullivan, N. (1995) ‘Does corporate governance influence performance? Some evidence from UK insurance companies’, *International Review of Law and Economics*, 15(4), pp.405-424.

DiMaggio, P.J. and Powell, W.W. (1983) ‘The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields’, *American sociological review*, 48(2), pp.147-160.

Dinh, T.Q. and Calabro, A. (2019) ‘Asian family firms through corporate governance and institutions: A systematic review of the literature and agenda for future research’, *International Journal of Management Reviews*, 21(1), pp.50-75.

Doidge, C. (2004) ‘US cross-listings and the private benefits of control: evidence from dual-class firms’, *Journal of financial economics*, 72(3), pp.519-553.

Doidge, C., Karolyi, G.A. and Stulz, R.M. (2007) ‘Why do countries matter so much for corporate governance?’, *Journal of financial economics*, 86(1), pp.1-39.

Donaldson, T. and Preston, L.E. (1995) ‘The stakeholder theory of the corporation: Concepts, evidence, and implications’, *Academy of management Review*, 20(1), pp.65-91.

Dong, Y., Girardone, C. and Kuo, J.M. (2017) ‘Governance, efficiency and risk taking in Chinese banking’, *The British Accounting Review*, 49(2), pp.211-229.

Dorff, M. (2014) Indispensable and other myths. University of California Press.

Downs, D.H. and Sommer, D.W. (1999) ‘Monitoring, ownership, and risk-taking: the impact of guaranty funds’, *Journal of Risk and Insurance*, pp.477-497.

Dupire, M. and Slagmulder, R. (2019) ‘Risk governance of financial institutions: The effect of ownership structure and board independence’, *Finance Research Letters*, 28, pp.227-237.

Dupire, M., Haddad, C. and Slagmulder, R. (2021) ‘The importance of board risk oversight in times of crisis’, *Journal of Financial Services Research*, pp.1-47.

Duru, A., Iyengar, R. J., and Zampelli, E. M. (2016). The dynamic relationship between CEO duality and firm performance: The moderating role of board independence. *Journal of business research*, *69*(10), 4269-4277.

Eastman, E.M., Ehinger, A.C. and Xu, J. (2024) ‘Enterprise risk management and corporate tax planning’, *Journal of Risk and Insurance*.

Eccles, R.G., Ioannou, I. and Serafeim, G. (2014) 'The impact of corporate sustainability on organizational processes and performance', *Management science*, 60(11), pp.2835-2857.

Eckbo, B.E., Nygaard, K. and Thorburn, K.S. (2022) 'Valuation effects of Norway's board gender-quota law revisited', *Management Science*, 68(6), pp.4112-4134.

Eckles, D. L., Halek, M., and Zhang, R. (2014). Information risk and the cost of capital. *Journal of Risk and Insurance*, *81*(4), 861-882.

Eckles, D.L. and Halek, M. (2010) 'Insurer reserve error and executive compensation', *Journal of Risk and Insurance*, 77(2), pp.329-346.

Eckles, D.L., Halek, M., He, E., Sommer, D.W. and Zhang, R. (2011) 'Earnings smoothing, executive compensation, and corporate governance: Evidence from the property–liability insurance industry', *Journal of Risk and Insurance*, 78(3), pp.761-790.

Eckles, D.L., Hoyt, R.E. and Miller, S.M. (2014) Reprint of: 'The impact of enterprise risk management on the marginal cost of reducing risk: Evidence from the insurance industry', *Journal of Banking and Finance*, 49, pp.409-423.

Edmondson, A. C. and McManus, S. E. (2007) 'Methodological fit in management field research'. *Academy of Management Review*, 32(4), pp. 1246–1264.

Eisenhardt, K.M. (1989) 'Agency theory: An assessment and review', *Academy of Management Review*, 14(1), pp.57-74.

Elamer, A.A., AlHares, A., Ntim, C.G. and Benyazid, I. (2018) 'The corporate governance–risk-taking nexus: Evidence from insurance companies', *International Journal of Ethics and Systems*, 34(4), pp.493–509.

Elamer, A.A., Ntim, C.G. and Abdou, H.A., 2020. Islamic governance, national governance, and bank risk management and disclosure in MENA countries. *Business and Society, 59(5),* pp.914-955.

Eling, M. and Jia, R. (2018) 'Business failure, efficiency, and volatility: Evidence from the European insurance industry', *International Review of Financial Analysis*, 59, pp.58-76.

Eling, M. and Marek, S.D. (2012) 'Internal and external drivers for risk taking in UK and German insurance markets', *International Journal of Banking, Accounting and Finance*, 4(1), pp.48-76.

Eling, M. and Marek, S.D. (2014) 'Corporate governance and risk taking: Evidence from the UK and German insurance markets', *Journal of Risk and Insurance*, 81(3), pp.653-682.

Eling, M., and Zhu, J. (2018). Which insurers write cyber insurance? Evidence from the US property and casualty insurance industry. *Journal of Insurance Issues*, *41*(1), 22-56.

Eljilany, S. M., Hegazy, I. R., and Elbayoumi, A. F. (2023). Risk-taking in the banking sector: Do cultural differences matter?. *Journal of Accounting and Management Information Systems*, *22*(3), 464-489.

Ellstrand, A. E., Tihanyi, L., and Johnson, J. L. (2002). Board structure and international political risk. *Academy of Management Journal*, *45*(4), 769-777.

Elmagrhi, M.H., Ntim, C.G., Elamer, A.A. and Zhang, Q. (2019) 'A study of environmental policies and regulations, governance structures, and environmental performance: The role of female directors', *Business Strategy and the Environment*, 28(1), pp.206-220.

Elnahass, M., Alharbi, R., Mohamed, T.S. and McLaren, J. (2023) 'The Nexus among board diversity and bank stability: Implications from gender, nationality and education', *Emerging Markets Review*, 57, p.101-071.

Elyasiani, E., Staikouras, S.K. and Dontis-Charitos, P. (2016) 'Cross-industry product diversification and contagion in risk and return: The case of bank-insurance and insurance-bank takeovers', *Journal of Risk and Insurance*, 83(3), pp.681-718.

Epermanis, K. and Harrington, S.E. (2006) 'Market discipline in property/casualty insurance: Evidence from premium growth surrounding changes in financial strength ratings', *Journal of Money, Credit and Banking*, pp.1515-1544.

Erhardt, N.L., Werbel, J.D. and Shrader, C.B. (2003) 'Board of director diversity and firm financial performance', *Corporate Governance: An International Review*, 11(2), pp.102-111.

Erkens, D.H., Hung, M. and Matos, P. (2012) 'Corporate governance in the 2007–2008 financial crisis: Evidence from financial institutions worldwide', *Journal of Corporate Finance*, 18(2), pp.389-411.

Estélyi, K.S. and Nisar, T.M. (2016) 'Diverse boards: Why do firms get foreign nationals on their boards?', *Journal of Corporate Finance*, 39, pp.174-192.

Faccio, M., Marchica, M.T. and Mura, R. (2016) 'CEO gender, corporate risk-taking, and the efficiency of capital allocation', *Journal of corporate finance*, 39, pp.193-209.

Fama, E.F. and Jensen, M.C. (1983) 'Separation of ownership and control', *The Journal of Law and Economics*, 26(2), pp. 301–325.

Fan, D.K., So, R.W. and Yeh, J.J., 2006. 'Analyst earnings forecasts for publicly traded insurance companies'. *Review of Quantitative Finance and Accounting*, 26(2), pp.105-136.

Fan, Y., Jiang, Y., Zhang, X. and Zhou, Y. (2019) 'Women on boards and bank earnings management: From zero to hero,' *Journal of Banking and Finance*, 107, p.105.

Farag, H. and Mallin, C. (2017) 'Board diversity and financial fragility: Evidence from European banks', *International Review of Financial Analysis*, 49, pp.98-112.

Farah, B. et al. (2021) 'Corporate governance in the Middle East and North Africa: A systematic review of current trends and opportunities for future research', *Corporate Governance: An International Review*.

Farrell, K.A. and Hersch, P.L. (2005) 'Additions to corporate boards: The effect of gender', *Journal of Corporate finance*, 11(1-2), pp.85-106.

Fauver, L., Hung, M., Taboada, A.G. and Wang, E.J. (2022) 'Boardroom gender diversity reforms and institutional monitoring: Global evidence', *Review of Accounting Studies*, pp.1-44.

Fazio, D.M., Tabak, B.M. and Cajueiro, D.O. (2015) 'Inflation targeting: Is IT to blame for banking system instability?', *Journal of Banking and Finance*, 59, pp.76-97.

Fernández-Temprano, M.A. and Tejerina-Gaite, F. (2020) 'Types of director, board diversity and firm performance', Corporate Governance: *The International Journal of Business in Society*, 20(2), pp.324–342.

Ferrari, G., Ferraro, V., Profeta, P. and Pronzato, C. (2022) 'Do board gender quotas matter? Selection, performance, and stock market effects', *Management Science*, 68(8), pp.5618-5643.

Fields, L.P., Gupta, M. and Prakash, P. (2012) 'Risk taking and performance of public insurers: An international comparison', *Journal of Risk and Insurance*, 79(4), pp.931-962.

Filatotchev, I. and Boyd, B.K. (2009) 'Taking stock of corporate governance research while looking to the future', Corporate Governance: An International Review, 17(3), pp.257-265.

Filatotchev, I., Jackson, G., and Nakajima, C. (2013). Corporate governance and national institutions: A review and emerging research agenda. *Asia Pacific Journal of Management*, *30*, 965-986.

Financial Stability Board. (2023) 'Total assets of insurance companies worldwide from 2002 to 2022 (in trillion U.S. dollars)', Statista. Statista Inc.

Flynn, B. B., Sakakibara, S., Schroeder, R. G., Bates, K. A. and Flynn, E. J. (1990) 'Empirical research methods in operations management'. *Journal of Operations Management*, 9(2), pp. 250–284.

Forbes, D.P. and Milliken, F.J. (1999) 'Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups', *Academy of Management Review*, 24(3), pp.489-505.

Fortin, S. and Pittman, J.A. (2007) 'The role of auditor choice in debt pricing in private firms', *Contemporary Accounting Research*, 24(3), pp.859-896.

Frijns, B., Dodd, O. and Cimerova, H. (2016) 'The impact of cultural diversity in corporate boards on firm performance,' *Journal of Corporate Finance*, 41, pp.521-541.

Gaganis, C., Hasan, I. and Pasiouras, F. (2016) 'Regulations, institutions and income smoothing by managing technical reserves: International evidence from the insurance industry', *Omega*, 59, pp.113-129.

Gaganis, C., Hasan, I., Papadimitri, P. and Tasiou, M. (2019) 'National culture and risk-taking: Evidence from the insurance industry', Journal of Business Research, 97, pp.104-116.

Gaganis, C., Liu, L. and Pasiouras, F. (2015) 'Regulations, profitability, and risk-adjusted returns of European insurers: An empirical investigation', *Journal of Financial Stability*, 18, pp.55-77.

Galia, F. and Zenou, E. (2012) 'Board composition and forms of innovation: Does diversity make a difference?', *European Journal of International Management*, 6(6), pp.630-650.

Gallego-Álvarez, I., and Pucheta-Martínez, M. C. (2021). Hofstede's cultural dimensions and RandD intensity as an innovation strategy: A view from different institutional contexts. *Eurasian Business Review*, *11*(2), 191-220.

García-Meca, E., García-Sánchez, I.M. and Martínez-Ferrero, J. (2015) 'Board diversity and its effects on bank performance: An international analysis', *Journal of Banking and Finance*, 53, pp.202-214.

García-Sánchez, I.M., García-Meca, E. and Cuadrado-Ballesteros, B. (2017) 'Do financial experts on audit committees matter for bank insolvency risk-taking? The monitoring role of bank regulation and ethical policy', *Journal of Business Research*, 76, pp.52-66.

Gardiner, E. (2022) 'What's age got to do with it? The effect of board member age diversity: A systematic review', *Management Review Quarterly*, pp.1-28.

Gardner, L.A. and Grace, M.F. (1993) 'X-efficiency in the US life insurance industry', *Journal of Banking and Finance*, 17(2-3), pp.497-510.

Gaver, J.J. and Paterson, J.S. (2001) 'The association between external monitoring and earnings management in the property-casualty insurance industry', *Journal of Accounting Research*, 39(2), pp.269-282.

Gaver, J.J. and Paterson, J.S. (2007) 'The influence of large clients on office-level auditor oversight: Evidence from the property-casualty insurance industry', *Journal of Accounting and Economics*, 43(2-3), pp.299-320.

Gaver, J.J. and Paterson, J.S. (2014) 'The association between actuarial services and audit quality', *Auditing: A Journal of Practice and Theory*, 33(1), pp.139-159.

Gielnik, M.M., Zacher, H. and Schmitt, A. (2017) 'How small business managers' age and focus on opportunities affect business growth: A mediated moderation growth model', *Journal of Small Business Management*, 55(3), pp.460-483.

Gillan, S.L. (2006) 'Recent developments in corporate governance: An overview', *Journal of corporate finance*, 12(3), pp.381-402.

Giroud, X. and Mueller, H.M. (2010) 'Does corporate governance matter in competitive industries?', *Journal of financial economics*, 95(3), pp.312-331.

Gold, A., Hunton, J.E. and Gomaa, M.I. (2009) 'The impact of client and auditor gender on auditors' judgments', *Accounting Horizons*, 23(1), pp.1-18.

Grace, E. (2004) 'Contracting incentives and compensation for property-liability insurer executives', *Journal of Risk and Insurance*, 71(2), pp.285-307.

Grace, M.F., Leverty, J.T., Phillips, R.D. and Shimpi, P. (2015) 'The value of investing in enterprise risk management', *Journal of Risk and Insurance*, 82(2), pp.289-316.

Grant, E. (2012) 'The social and economic value of insurance', *The Geneva Association*.

Greenwood, R. and Hinings, C.R. (1996) 'Understanding radical organizational change: Bringing together the old and the new institutionalism', *Academy of management review*, 21(4), pp.1022-1054.

Grosvold, J., and Brammer, S. (2011) 'National institutional systems as antecedents of female board representation: An empirical study', *Corporate Governance: An International Review*, *19*(2), 116-135.

Guest, P.M. (2019) 'Does board ethnic diversity impact board monitoring outcomes?', *British Journal of Management*, 30(1), pp.53-74.

Guillen, M.F. (2000) 'Business groups in emerging economies: A resource-based view', *Academy of Management Journal*, 43(3), pp.362-380.

Gul, F.A., Hutchinson, M. and Lai, K.M. (2013) 'Gender-diverse boards and properties of analyst earnings forecasts', *Accounting horizons*, 27(3), pp.511-538.

Gul, F.A., Srinidhi, B. and Ng, A.C. (2011) 'Does board gender diversity improve the informativeness of stock prices?', *Journal of Accounting and Economics*, 51(3), pp.314-338.

Gundlach, M., Zivnuska, S. and Stoner, J. (2006) 'Understanding the relationship between individualism–collectivism and team performance through an integration of social identity theory and the social relations model', *Human relations*, 59(12), pp.1603-1632.

Gupta, M., Prakash, P. and Rangan, N. (2012) 'Governance and shareholder response to chief risk officer appointments', *The Geneva Papers on Risk and Insurance-Issues and Practice*, 37(1), pp.108-124.

Hagendorff, J. and Keasey, K. (2012) 'The value of board diversity in banking: Evidence from the market for corporate control', *The European Journal of Finance*, 18(1), pp.41-58.

Hail, L. and Leuz, C. (2006) 'International differences in the cost of equity capital: Do legal institutions and securities regulation matter?', *Journal of accounting research*, 44(3), pp.485-531.

Halek, M. and Eckles, D.L. (2010) 'Effects of analysts' ratings on insurer stock returns: evidence of asymmetric responses', *Journal of Risk and Insurance*, 77(4), pp.801-827.

Hall, P. A., and Soskice, D. (2003). Varieties of capitalism and institutional change: A response to three critics. *Comparative European Politics*, *1*(2), 241-250.

Hambrick, D.C., Cho, T.S. and Chen, M.J. (1996) 'The influence of top management team heterogeneity on firms' competitive moves', *Administrative Science Quarterly*, pp.659-684.

Hambrick, D.C., Misangyi, V.F. and Park, C.A. (2015) 'The quad model for identifying a corporate director's potential for effective monitoring: Toward a new theory of board sufficiency', *Academy of Management Review*, 40(3), pp.323-344.

Han, S., Lai, G.C. and Ho, C.L. (2018) 'Corporate transparency and reserve management: Evidence from US property-liability insurance companies', *Journal of Banking and Finance*, 96, pp.379-392.

Haniffa, R.M. and Cooke, T.E. (2005) 'The impact of culture and governance on corporate social reporting', *Journal of accounting and public policy*, 24(5), pp.391-430.

Hardwick, P., Adams, M. and Zou, H. (2011) 'Board characteristics and profit efficiency in the United Kingdom life insurance industry', *Journal of Business Finance and Accounting*, 38(7-8), pp.987-1015.

Harjoto, M., Laksmana, I., and Lee, R. (2015). Board diversity and corporate social responsibility. *Journal of Business Research*, *132*, 641-660.

Harjoto, M.A., Laksmana, I. and Yang, Y.W. (2018) 'Board diversity and corporate investment oversight', *Journal of Business Research*, 90, pp.40-47.

Hasan, I. and Xie, R. (2013) 'Foreign bank entry and bank corporate governance in China', *Emerging Markets Finance and Trade*, 49(2), pp.4-18.

Hassan, M.K. (2012) 'A disclosure index to measure the extent of corporate governance reporting by UAE listed corporations', *Journal of Financial Reporting and Accounting*, 10(1), pp.4-33.

Hawley, J.P. and Williams, A.T. (2000) The rise of fiduciary capitalism: How institutional investors can make corporate America more democratic. Philadelphia: University of Pennsylvania Press.

Haynes, K.T. and Hillman, A. (2010) 'The effect of board capital and CEO power on strategic change', *Strategic management journal*, 31(11), pp.1145-1163.

He, E. and Sommer, D.W. (2011) 'CEO turnover and ownership structure: Evidence from the US property–liability insurance industry', *Journal of Risk and Insurance*, 78(3), pp.673-701.

Healy, P.M. and Palepu, K.G. (2001) 'Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature', *Journal of accounting and economics*, 31(1-3), pp.405-440.

Hemrit, W. (2018) 'Risk reporting appraisal in post-revolutionary Tunisia', *Journal of Financial Reporting and Accounting*. 16(4), pp.522-542.

Hemrit, W. (2020) 'Determinants driving Takaful and cooperative insurance financial performance in Saudi Arabia', *Journal of Accounting and Organizational Change*, 16(1), pp.123-143.

Hemrit, W. (2021) 'Does insurance demand react to economic policy uncertainty and geopolitical risk? Evidence from Saudi Arabia', *The Geneva Papers on Risk and Insurance-Issues and Practice*, pp.1-33.

Higgins, J.P., Thomas, J., Chandler, J., Cumpston, M., Li, T., Page, M.J. and Welch, V.A. (2019) Cochrane Handbook for Systematic Reviews of Interventions. John Wiley & Sons.

Hillman, A. J., Withers, M. C., and Collins, B. J. (2009). Resource dependence theory: A review. *Journal of management*, *35*(6), 1404-1427.

Hillman, A.J. and Dalziel, T. (2003) 'Boards of directors and firm performance: Integrating agency and resource dependence perspectives', *Academy of Management Review*, 28(3), pp.383-396.

Hillman, A.J., Cannella, A.A. and Paetzold, R.L. (2000) 'The resource dependence role of corporate directors: Strategic adaptation of board composition in response to environmental change', *Journal of Management Studies*, 37(2), pp.235-256.

Hillman, A.J., Shropshire, C. and Cannella Jr, A.A. (2007) 'Organizational predictors of women on corporate boards', *Academy of Management Journal*, 50(4), pp.941-952.

Ho, C.L., Lai, G., Han, S. and Jin, L. (2021) 'Organisational structure, corporate governance and reinsurance decisions in the US property-liability insurance industry', *The Geneva Papers on Risk and Insurance-Issues and Practice*, pp.1-48.

Ho, C.L., Lai, G.C. and Lee, J.P. (2013) 'Organizational structure, board composition, and risk taking in the US property casualty insurance industry', *Journal of Risk and Insurance*, 80(1), pp.169-203.

Hoang, A. and Wu, Q. (2024) 'Could "Lehman Sisters" reduce bank risk-taking? International evidence', *Corporate Governance: An International Review*, 32(2), pp.297-321.

Hodgetts, R. M., Luthans, F., and Doh, J. P. (2006) *International Management: Culture, Strategy and Behaviour.* New York: McGraw-Hill.

Hodgetts, R.M. and Luthans, F. (1993) 'US multinationals' compensation strategies for local management: Cross-cultural implications', *Compensation and Benefits Review*, 25(2), pp.42-48.

Hofstede, G. (1980) 'Culture's consequences', *Sage Publications*, Beverly Hills.

Hofstede, G. (1984). *Culture's consequences: International differences in work-related values* (Vol. 5). sage.

Hofstede, G. (2001). Culture's consequences: Comparing values, behaviors, institutions and organizations across nations. *Thousand Oaks*.

Hofstede, G., 2015. Chapter one national differences in communication styles geert hofstede. *Culture's software: Communication styles, 1.*

Homer, P.M. and Kahle, L.R. (1988) 'A structural equation test of the value-attitude-behavior hierarchy', *Journal of Personality and social Psychology*, 54(4), p.638.

Hong, H.A., Lobo, G.J. and Ryou, J.W. (2019) 'Financial market development and firm investment in tax avoidance: Evidence from credit default swap market', *Journal of Banking and Finance*, 107, p.105608.

Hooghiemstra, R., Hermes, N., Oxelheim, L. and Randøy, T. (2019) 'Strangers on the board: The impact of board internationalization on earnings management of Nordic firms', *International Business Review*, 28(1), pp.119-134.

Horwitz, S.K. and Horwitz, I.B. (2007) 'The effects of team diversity on team outcomes: A meta-analytic review of team demography', *Journal of Management*, 33(6), pp.987-1015.

Hosny, K. and Elgharbawy, A. (2021) 'Board diversity and financial performance: Empirical evidence from the United Kingdom', *Accounting Research Journal*, 35(4), pp.561–580.

House, R. J. (2004). Culture, leadership, and organizations: The GLOBE study of 62 societies. *Thousand Oaks, CA*.

Howton, S.W. (2006) 'Effect of governance characteristics on the state of the firm after an initial public offering', *Financial Review*, 41(3), pp.419-433.

Hsu, W.Y. and Petchsakulwong, P. (2010) 'The impact of corporate governance on the efficiency performance of the Thai non-life insurance industry', *The Geneva Papers on Risk and Insurance-Issues and Practice*, 35(1), pp.S28-S49.

Hsu, W.Y., Huang, Y. and Lai, G. (2015) 'Corporate governance and cash holdings: Evidence from the US property–liability insurance industry', *Journal of Risk and Insurance*, 82(3), pp.715-748.

Hsu, W.Y., Huang, Y. and Lai, G. (2019) 'Reserve management and audit committee characteristics: evidence from US property–liability insurance companies', *Journal of Risk and Insurance*, 86(4), pp.1019-1043.

Huang, J. and Kisgen, D.J. (2013) 'Gender and corporate finance: Are male executives overconfident relative to female executives?', *Journal of Financial Economics*, 108(3), pp.822-839.

Huang, L.Y., Lai, G.C., McNamara, M. and Wang, J. (2011) 'Corporate governance and efficiency: evidence from US property–liability insurance industry', *Journal of Risk and Insurance*, 78(3), pp.519-550.

Huang, S. and Hilary, G. (2018) 'Zombie board: Board tenure and firm performance', *Journal of Accounting Research*, 56(4), pp.1285-1329.

Huang, Y.S. and Wang, C.J. (2015) 'Corporate governance and risk-taking of Chinese firms: The role of board size', *International Review of Economics and Finance*, 37, pp.96-113.

Huse, M. and Solberg, A.G. (2006) 'Gender-related boardroom dynamics: How Scandinavian women make and can make contributions on corporate boards', *Women in Management Review*.

Hutchinson, M., Mack, J. and Plastow, K. (2015) 'Who selects the 'right' directors? An examination of the association between board selection, gender diversity and outcomes', *Accounting and Finance*, 55(4), pp.1071-1103.

Ibrahim, A.E.A., Ali, H.M.H.O. and Aboelkheir, H.N.E.R. (2021) 'Cost stickiness: A systematic literature review of 27 years of research and a future research agenda', *Journal of International Accounting, Auditing and Taxation*, p. 100-439.

Islam, R., French, E. and Ali, M. (2022) 'Evaluating board diversity and its importance in the environmental and social performance of organizations', *Corporate Social Responsibility and Environmental Management*, 29(5), pp.1134–1145.

Issa, A., Sahyouni, A. and Mateev, M. (2024) 'A path to success: educational board diversity and its influence on MENA banks' efficiency and stability', *Corporate Governance: The International Journal of Business in Society*.

Jackson, G. (2010). *Understanding corporate governance in the United States: An historical and theoretical reassessment*(No. 223). Arbeitspapier.

Jackson, S.E. and Schuler, R.S. (1995) 'Understanding human resource management in the context of organizations and their environments', *Human Resource Management: Critical Perspectives on Business and Management*, 2(1), pp.45-74.

Jamali, D., Safieddine, A. and Daouk, M. (2007) 'Corporate governance and women: An empirical study of top and middle women managers in the Lebanese banking sector', *Corporate Governance: The International Journal of Business in Society*, 7(5), pp.574–585.

James, H.L., Ngo, T. and Wang, H. (2021) 'Independent director tenure and corporate transparency', *The North American Journal of Economics and Finance*, 57, p.101.

Janahi, M., Millo, Y. and Voulgaris, G. (2022) 'Age diversity and the monitoring role of corporate boards: Evidence from banks', *Human Relations*.

Jebran, K., Chen, S. and Zhang, R. (2020) 'Board diversity and stock price crash risk', *Research in International Business and Finance*, 51.

Jensen, M.C. (1984) 'Takeovers: Folklore and science', *Harvard Business Review*, 62(6), pp.109-121.

Jensen, M.C. (1993) 'The modern industrial revolution, exit, and the failure of internal control systems', *Journal of Finance*, 48(3), pp.831-880.

Jensen, M.C. and Meckling, W.H. (1976) 'Theory of the firm: Managerial behavior, agency costs and ownership structure', *Journal of Financial Economics*, 3(4), pp.305-360.

Ji, J., Peng, H., Sun, H. and Xu, H. (2021) 'Board tenure diversity, culture and firm risk: Cross-country evidence', *Journal of International Financial Markets, Institutions and Money*, 70.

Jia, J. (2019) 'Does risk management committee gender diversity matter? A financial distress perspective', *Managerial Auditing Journal*, 34(8), pp.1050–1072.

Jia, M. and Zhang, Z. (2013) 'Critical mass of women on BODs, multiple identities, and corporate philanthropic disaster response: Evidence from privately owned Chinese firms', *Journal of Business Ethics*, 118, pp.303-317.

Jia, N. and Tang, X. (2018) 'Directors' and officers' liability insurance, independent director behavior, and governance effect', *Journal of Risk and Insurance*, 85(4), pp.1013-1054.

Jianakoplos, N.A. and Bernasek, A. (1998) 'Are women more risk averse?', *Economic inquiry*, 36(4), pp.620-630.

John, K. and Senbet, L.W. (1998) 'Corporate governance and board effectiveness', *Journal of banking and Finance,* 22(4), pp.371-403.

John, K., Litov, L. and Yeung, B. (2008) 'Corporate governance and risk-taking', *The journal of finance*, 63(4), pp.1679-1728.

Jouber, H. (2024) 'Boardroom gender diversity and risk-taking in the insurance industry: do organizational form and ownership structure matter?', *Corporate Governance: The International Journal of Business in Society*, 24(2), pp.278-302.

Judge, G. G., Griffiths, W. E., Hill, R. C., Lütkepohl, H., and Lee, T. C. (1991). *The theory and practice of econometrics* (Vol. 49). John Wiley and Sons.

Kader, H.A., Adams, M. and Hardwick, P. (2010) 'The cost efficiency of takaful insurance companies', *The Geneva Papers on Risk and Insurance-Issues and Practice*, 35(1), pp.161-181.

Kader, H.A., Adams, M., Hardwick, P. and Kwon, W.J. (2014) 'Cost efficiency and board composition under different takaful insurance business models', *International Review of Financial Analysis*, 32, pp.60-70.

Kagzi, M. and Guha, M. (2018) 'Board demographic diversity: A review of literature', *Journal of Strategy and Management*, 3, pp.1028-1058.

Kallamu, B.S. and Saat, N.A.M. (2015) 'Audit committee attributes and firm performance: evidence from Malaysian finance companies', *Asian Review of Accounting*. 23(3), pp.206-231.

Kalnins, A. (2018). Multicollinearity: How common factors cause Type 1 errors in multivariate regression. *Strategic Management Journal*, *39*(8), 2362-2385.

Kamiya, S. and Milidonis, A. (2018) 'Actuarial independence and managerial discretion'. *Journal of Risk and Insurance*, 85(4), pp.1055-1082.

Kamiya, S., Kim, Y. H., and Park, S. (2019). The face of risk: CEO facial masculinity and firm risk. *European Financial Management*, *25*(2), 239-270.

Kanagaretnam, K., Lim, C. Y., and Lobo, G. J. (2011). Effects of national culture on earnings quality of banks. *Journal of International Business Studies*, *42*, 853-874.

Kang, H., Cheng, M. and Gray, S.J. (2007) 'Corporate governance and board composition: Diversity and independence of Australian boards', *Corporate Governance: An international Review*, 15(2), pp.194-207.

Kang, J.K., Kim, S. and Oh, S. (2022) 'Does Board Demographic Diversity Enhance Cognitive Diversity and Monitoring?', *The Accounting Review*, 97(6), pp.385-415.

Kang, M., Lee, H.Y., Mande, V. and Woo, Y.S. (2019) 'Audit firm attributes and auditor litigation risk', *Abacus*, 55(4), pp. 639–675.

Kanter, R. M. (1977) 'Some effects of proportions on group life: Skewed sex ratios and responses to token women'. *American Journal of Sociology*, 82, pp. 965–990.

Karbhari, Y., Muye, I., Hassan, A.F.S. and Elnahass, M. (2018) 'Governance mechanisms and efficiency: Evidence from an alternative insurance (Takaful) market', *Journal of International Financial Markets, Institutions and Money*, 56, pp.71-92.

Kaserer, C. and Klein, C. (2019) 'Systemic risk in financial markets: How systemically important are insurers?', *Journal of Risk and Insurance*, 86(3), pp.729-759.

Kashefi-Pour, E., Amini, S., Uddin, M. and Duxbury, D., 2020. Does cultural difference affect investment–cash flow sensitivity? Evidence from OECD countries. *British Journal of Management*, 31(3), pp.636-658.

Kasim, N.A.A. (2012) 'Disclosure of Shariah compliance by Malaysian takaful companies', *Journal of Islamic Accounting and Business Research*.

Katmon, N., Mohamad, Z.Z., Norwani, N.M. and Farooque, O.A. (2019) 'Comprehensive board diversity and quality of corporate social responsibility disclosure: Evidence from an emerging market', *Journal of Business Ethics*, 157(2), pp.447-481.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2011) 'The worldwide governance indicators: Methodology and analytical issues', *Hague Journal on the Rule of Law*, 3(2), pp.220-246.

Kavadis, N. and Thomsen, S. (2023) 'Sustainable corporate governance: A review of research on long-term corporate ownership and sustainability', *Corporate Governance: An International Review*, 31(1), pp.198-226.

Ke, B., Petroni, K. and Safieddine, A. (1999) 'Ownership concentration and sensitivity of executive pay to accounting performance measures: Evidence from publicly and privately-held insurance companies', *Journal of Accounting and Economics*, 28(2), pp.185-209.

Khan, A., Hassan, M.K., Paltrinieri, A., Dreassi, A. and Bahoo, S. (2020) 'A bibliometric review of takaful literature'*, International Review of Economics and Finance*, 69, pp.389-405.

Khan, W.A. and Vieito, J.P. (2013) 'CEO gender and firm performance', *Journal of Economics and Business*, 67, pp.55-66.

Khatib, S.F., Abdullah, D.F., Elamer, A., Yahaya, I.S. and Owusu, A. (2023) 'Global trends in board diversity research: A bibliometric view', *Meditari Accountancy Research*, 31(2), pp.441-469.

Khatib, S.F., Abdullah, D.F., Elamer, A.A. and Abueid, R. (2021) 'Nudging toward diversity in the boardroom: A systematic literature review of board diversity of financial institutions', *Business Strategy and the Environment*, 30(2), pp.985-1002.

Khidmat, W.B. and Awan, S. (2021) 'Board diversity, financial flexibility and corporate innovation: Evidence from China', *Eurasian Business Review*, 11(2), pp.303-326.

Kim, D. and Starks, L.T. (2016) 'Gender diversity on corporate boards: Do women contribute unique skills?' *American Economic Review*, 106(5), pp.267-71.

Kim, K.H. and Buchanan, R. (2008) 'CEO duality leadership and firm risk-taking propensity', *Journal of Applied Business Research* (JABR), 24(1).

Kinateder, H., Choudhury, T., Zaman, R., Scagnelli, S.D. and Sohel, N. (2021) 'Does boardroom gender diversity decrease credit risk in the financial sector? Worldwide evidence', *Journal of International Financial Markets, Institutions and Money*, 73.

Kiptoo, I.K., Kariuki, S.N. and Ocharo, K.N. (2021) 'Corporate governance and financial performance of insurance firms in Kenya', *Cogent Business and Management*, 8(1), p.1938350.

Kirkpatrick, G. (2009) 'The corporate governance lessons from the financial crisis', OECD *Journal: Financial Market Trends*, 2009(1), pp.61-87.

Knights, D. and Vurdubakis, T. (1993) 'Calculations of risk: Towards an understanding of insurance as a moral and political technology', *Accounting, Organizations and Society*. 18(7–8), pp.729–764.

Konrad, A.M., Kramer, V. and Erkut, S. (2008) 'The impact of three or more women on corporate boards', *Organizational dynamics*, 37(2), pp.145-164.

Kor, Y.Y. (2006) 'Direct and interaction effects of top management team and board compositions on R&D investment strategy', *Strategic Management Journal*, 27(11), pp.1081-1099.

Krause, R., Semadeni, M., and Cannella Jr, A. A. (2014). CEO duality: A review and research agenda. *Journal of Management*, *40*(1), 256-286.

Kreiser, P. M., Marino, L. D., Dickson, P., and Weaver, K. M. (2010). Cultural influences on entrepreneurial orientation: The impact of national culture on risk taking and proactiveness in SMEs. *Entrepreneurship theory and practice*, *34*(5), 959-984.

Kweh, Q.L., Lu, W.M., Azizan, N.A. and Ting, W.K.I. (2015) 'Strategically integrating risk management into intellectual capital management', *International Journal of Learning and Intellectual Capital*, 12(2), pp.193-209.

Kwon, W.J. (2013) 'The significance of regulatory orientation, political stability and culture on consumption and price adequacy in insurance markets', *The Journal of Risk Finance*, 14(4), pp.320-343.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. (2000) 'Investor protection and corporate governance', *Journal of financial economics*, 58(1-2), pp.3-27.

Laeven, L. and Levine, R. (2009) 'Bank governance, regulation and risk taking', *Journal of Financial Economics*, 93(2), pp.259-275.

LaFond, R. and You, H. (2010) 'The federal deposit insurance corporation improvement act, bank internal controls and financial reporting quality', *Journal of Accounting and Economics*, 49(1–2), pp. 75–83.

Lambalk, S. and de Graaf, F.J. (2017) 'Explaining the relationship between firm performance and corporate governance of Dutch non-life insurance companies: Dutch mutual and commercial companies compared', *Journal of Sustainable Finance and Investment*, 7(2), pp.197-231.

Lamm-Tennant, J. and Starks, L.T. (1993) 'Stock versus mutual ownership structures: The risk implications', *Journal of Business*, pp.29-46.

Lang, M., Lins, K.V. and Maffett, M. (2012) 'Transparency, liquidity, and valuation: International evidence on when transparency matters most', *Journal of Accounting Research*, 50(3), pp.729-774.

Langbein, L. and Knack, S., 2010. The worldwide governance indicators: six, one, or none?. *The Journal of Development Studies, 46(2),* pp.350-370.

Lee, C.C. and Lin, C.W. (2016) 'Globalization, political institutions, financial liberalization, and performance of the insurance industry', *The North American Journal of Economics and Finance*, 36, pp.244-266.

Lee, H.S., Cheng, F.F., Har, W.M., Nassir, A.M. and Ab Razak, N.H. (2019) 'Efficiency, firm-specific and corporate governance factors of the Takaful insurance', *International Journal of Islamic and Middle Eastern Finance and Management*. 12(3), pp.368–387.

Lei, Y. (2019). Reinsurance and insurers' risk-return profile. *Journal of Insurance Issues*, *42*(1), 37-65.

Lepetit, L., Nys, E., Rous, P. and Tarazi, A. (2008) 'Bank income structure and risk: An empirical analysis of European banks', *Journal of Banking and Finance*, 32(8), pp.1452-1467.

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

Li, H. et al. (2018) 'Corporate governance in entrepreneurial firms: A systematic review and research agenda', *Small Business Economics*, 54(1), pp. 43–74.

Li, J. and Cheng, J. (2023) 'Are female CEOs associated with lower insolvency risk? Evidence from the US property-casualty insurance industry', *Journal of Risk and Insurance*, 90(4), pp.941-973.

Li, J. and Harrison, J.R. (2008) 'National culture and the composition and leadership structure of boards of directors', *Corporate Governance: An International Review*, 16(5), pp.375-385.

Li, K., Griffin, D., Yue, H., and Zhao, L. (2013). How does culture influence corporate risk-taking?. *Journal of corporate finance*, *23*, 1-22.

Li, N. and Wahid, A.S. (2018) 'Director tenure diversity and board monitoring effectiveness', *Contemporary Accounting Research*, 35(3), pp.1363-1394.

Li, Y. and Singal, M. (2021) 'Corporate Governance in the Hospitality and Tourism Industry: Theoretical Foundations and Future Research', *Journal of Hospitality and Tourism Research*, p.109.

Li, Z., Li, Y. and Long, D. (2021) 'Research on the improvement of technical efficiency of China's property insurance industry: a fuzzy-set qualitative comparative analysis', *International Journal of Emerging Markets*. 16(6), pp.1077-1104.

Liao, R.C., Loureiro, G. and Taboada, A.G. (2022) 'Gender quotas and bank risk', *Journal of Financial Intermediation*, 52, p.100-998.

Licht, A.N., Goldschmidt, C. and Schwartz, S.H. (2005) 'Culture, law, and corporate governance', *International review of law and economics*, 25(2), pp.229-255.

Liedtke, P.M. (2007) 'What's insurance to a modern economy?', *The Geneva Papers on Risk and Insurance-Issues and Practice*, 32, pp.211-221.

Lin, L., Tai, V.W., Hsu, C.L. and Yang, C.C. (2016) 'Who is more visionary in mergers: Commercial vs. investment banks?' *The North American Journal of Economics and Finance*, 35, pp.133-152.

Linck, J. S., Netter, J. M., and Yang, T. (2008). The determinants of board structure. *Journal of financial economics*, *87*(2), 308-328.

Lipton, M. and Lorsch, J.W. (1992) 'A modest proposal for improved corporate governance', *The Business Lawyer*, pp.59-77.

Liu, C. (2018) 'Are women greener? Corporate gender diversity and environmental violations', *Journal of Corporate Finance*, 52, pp.118-142.

Liu, W.C. and Hsu, C.M. (2014) 'Profit performance of financial holding companies: Evidence from Taiwan', *Emerging Markets Finance and Trade*, 50(sup3), pp.190-200.

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

Loukil, N. and Yousfi, O.. (2016) 'Does gender diversity on corporate boards increase risk-taking?', *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, 33(1), pp.66-81.

Lu, J. and Boateng, A. (2018) 'Board composition, monitoring and credit risk: Evidence from the UK banking industry', *Review of Quantitative Finance and Accounting*, 51(4), pp.1107-1128.

Lu, Y., Ntim, C.G., Zhang, Q. and Li, P. (2022) 'Board of directors' attributes and corporate outcomes: A systematic literature review and future research agenda', *International Review of Financial Analysis*, p.102-424.

Ma, Y.L. and Ren, Y. (2012) 'Do publicly traded property–casualty insurers cater to the stock market?' *Journal of Risk and Insurance*, 79(2), pp.415-430.

Ma, Y.L. and Ren, Y. (2021) 'Insurer risk and performance before, during, and after the 2008 financial crisis: The role of monitoring institutional ownership', *Journal of Risk and Insurance*, 88(2), pp.351-380.

Magee, S., Schilling, C. and Sheedy, E. (2019) 'Risk governance in the insurance sector—determinants and consequences in an international sample', *Journal of Risk and Insurance*, 86(2), pp.381-413.

Mahadeo, J.D., Soobaroyen, T. and Hanuman, V.O. (2012) 'Board composition and financial performance: Uncovering the effects of diversity in an emerging economy', *Journal of Business Ethics*, 105(3), pp.375-388.

Makni Fourati, Y., Zalila, M., and Alqatan, A. (2024). Does culture still matter post-IFRS?. *Journal of Financial Reporting and Accounting*.

Malagila, J.K., Zalata, A.M., Ntim, C.G. and Elamer, A.A. (2021) 'Corporate governance and performance in sports organisations: The case of UK premier leagues', *International Journal of Finance & Economics*, 26(2), pp.2517-2537.

Mankai, S. and Belgacem, A. (2016) 'Interactions between risk taking, capital, and reinsurance for property–liability insurance firms', *Journal of Risk and Insurance*, 83(4), pp.1007-1043.

Mankaï, S., and Belgacem, A. (2016). Interactions between risk taking, capital, and reinsurance for property–liability insurance firms. *Journal of risk and insurance*, *83*(4), 1007-1043.

Mardjono, A. (2005) 'A tale of corporate governance: Lessons why firms fail', *Managerial Auditing Journal*. 20(3), pp.272-283.

Mardnly, Z., Badran, Z. and Mouselli, S. (2021) 'Earnings management and audit quality at Damascus securities exchange: Does managerial ownership matter?' *Journal of Financial Reporting and Accounting*. 19(5), pp.725-741.

Marsden, A. and Prevost, A.K. (2005) 'Derivatives use, corporate governance, and legislative change: An empirical analysis of New Zealand listed companies', *Journal of Business Finance and Accounting*, 32(1-2), pp.255-295.

Masulis, R.W., Wang, C. and Xie, F. (2012) 'Globalizing the boardroom–The effects of foreign directors on corporate governance and firm performance', *Journal of Accounting and Economics*, 53(3), pp.527-554.

Matsa, D.A. and Miller, A.R. (2013) 'A female style in corporate leadership? Evidence from quotas', *American Economic Journal: Applied Economics*, 5(3), pp.136-169.

Mayers, D. and Smith, C.W. (2010) 'Compensation and board structure: Evidence from the insurance industry', *Journal of Risk and Insurance*, 77(2), pp.297-327.

McGahan, A.M. and Porter, M.E. (1997) 'How much does industry matter, really?', *Strategic management journal*, 18(S1), pp.15-30.

McNulty, T., Florackis, C. and Ormrod, P. (2013) 'Boards of directors and financial risk during the credit crisis', *Corporate Governance: An International Review*, 21(1), pp.58-78.

McNulty, T., Zattoni, A. and Douglas, T. (2013) 'Developing corporate governance research through qualitative methods: A review of previous studies'. *Corporate Governance: An International Review*, 21(2), pp.183-198.

Merkin, R. S. (2006). Uncertainty avoidance and facework: A test of the Hofstede model. *International journal of Intercultural relations*, *30*(2), 213-228.

Miao, H., Ramchander, S. and Wang, T. (2014) 'The response of bond prices to insurer ratings changes', *The Geneva Papers on Risk and Insurance-Issues and Practice*, 39(2), pp.389-413.

Mihet, R. (2013). Effects of culture on firm risk-taking: a cross-country and cross-industry analysis. *Journal of Cultural Economics*, *37*(1), 109-151.

Miletkov, M., Poulsen, A. and Wintoki, M.B. (2017) 'Foreign independent directors and the quality of legal institutions', *Journal of International Business Studies*, 48(2), pp.267-292.

Milidonis, A. (2013) 'Compensation incentives of credit rating agencies and predictability of changes in bond ratings and financial strength ratings', *Journal of Banking and Finance*, 37(9), pp.3716-3732.

Milidonis, A. and Stathopoulos, K. (2011) 'Do US insurance firms offer the "wrong" incentives to their executives?' *Journal of Risk and Insurance*, 78(3), pp.643-672.

Milidonis, A., Nishikawa, T. and Shim, J. (2019) 'CEO inside debt and risk taking: Evidence from property–liability insurance firms', *Journal of Risk and Insurance*, 86(2), pp.451-477.

Miller, S.M. (2011) 'Managerial discretion and corporate governance in publicly traded firms: evidence from the property–liability insurance industry', *Journal of Risk and Insurance*, 78(3), pp.731-760.

Miller, T. and del Carmen Triana, M. (2009) 'Demographic diversity in the boardroom: Mediators of the board diversity–firm performance relationship', *Journal of Management studies*, 46(5), pp.755-786.

Mills, J., and Hogan, K. M. (2020). CEO facial masculinity and firm financial outcomes. *Corporate Board: Role, Duties and Composition*, *16*(1), 39-46.

Minichilli, A., Zattoni, A., Nielsen, S. and Huse, M. (2012) 'Board task performance: An exploration of micro-and macro-level determinants of board effectiveness', *Journal of organizational behavior*, 33(2), pp.193-215.

Minton, B.A., Taillard, J.P. and Williamson, R. (2014) 'Financial expertise of the board, risk taking, and performance: Evidence from bank holding companies', *Journal of Financial and Quantitative Analysis*, 49(2), pp.351-380.

Mitchell, R.K., Agle, B.R. and Wood, D.J. (1997) 'Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts', *Academy of management review*, 22(4), pp.853-886.

Moher, D., Liberati, A., Tetzlaff, J. & Altman, D. G. (2009) 'Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement', *Annals of Internal Medicine*, 151, pp. 264–269.

Mohsni, S., Otchere, I. and Shahriar, S. (2021) 'Board gender diversity, firm performance and risk-taking in developing countries: The moderating effect of culture', *Journal of International Financial Markets, Institutions and Money*, pp.101-360.

Mollah, S. and Zaman, M. (2015) 'Shari'ah supervision, corporate governance and performance: Conventional vs. Islamic banks', *Journal of Banking and Finance*, 58, pp.418-435.

Mollah, S., Hassan, M.K., Al Farooque, O. and Mobarek, A. (2017) 'The governance, risk-taking, and performance of Islamic banks', *Journal of financial services research*, 51(2), pp.195-219.

Mollah, S., Liljeblom, E. and Mobarek, A. (2021) 'Heterogeneity in independent non-executive directors' attributes and risk-taking in large banks', *Journal of Corporate Finance*, 70, p.102074.

Monks, R.A. and Minow, N. (2011) Corporate Governance. John Wiley & Sons.

Mourouzidou-Damtsa, S., Milidonis, A., and Stathopoulos, K. (2019). National culture and bank risk-taking. *Journal of Financial Stability*, *40*, 132-143.

Mühlnickel, J. and Weiß, G.N. (2015) 'Consolidation and systemic risk in the international insurance industry', *Journal of Financial Stability*, 18, pp.187-202.

Myers, R. H. (1990) Classical and Modern Regression with Applications. 2nd edn. Belmont, CA: Duxbury Press.

Nadeem, M., Suleman, T. and Ahmed, A., (2019) 'Women on boards, firm risk and the profitability nexus: Does gender diversity moderate the risk and return relationship?', *International Review of Economics and Finance*, 64, pp.427-442.

Naghavi, N., Pahlevan Sharif, S., & Iqbal Hussain, H. B. (2021). The role of national culture in the impact of board gender diversity on firm performance: evidence from a multi-country study. *Equality, Diversity and Inclusion: An International Journal*, *40*(5), 631-650.

Nainggolan, Y.A., Prahmila, D.I. and Syaputri, A.R. (2022) 'Do board characteristics affect bank risk-taking and performance? Evidence from Indonesian and Malaysian Islamic banks', *Journal of Management and Governance*, pp.1-31.

Nekhili, M., Gull, A.A., Chtioui, T. and Radhouane, I. (2020) 'Gender-diverse boards and audit fees: What difference does gender quota legislation make?' *Journal of Business Finance and Accounting*, 47(1-2), pp.52-99.

Newman, K. L., and Nollen, S. D. (1996). Culture and congruence: The fit between management practices and national culture. *Journal of international business studies*, *27*, 753-779.

Ng, T.H., Chong, L.L. and Ismail, H. (2013) 'Firm size and risk taking in Malaysia's insurance industry', *The Journal of Risk Finance*, 14(4), pp.378–391.

Ng, T.H., Chong, L.L. and Ismail, H. (2013) 'Is the risk management committee only a procedural compliance? An insight into managing risk taking among insurance companies in Malaysia', *The Journal of Risk Finance*. 14(1), pp.71-86.

Ngobo, P. V., and Fouda, M. (2012). Is 'Good'governance good for business? A cross-national analysis of firms in African countries. *Journal of World Business*, *47*(3), 435-449.

Nguyen, A., Nguyen, T., and Hoang, P. (2022). The impact of corporate governance quality on capital structure choices: does national governance quality matter?. *Cogent Economics and Finance*, *10*(1), 2073003.

Nguyen, T., Locke, S., and Reddy, K. (2015) 'Ownership concentration and corporate performance from a dynamic perspective: Does national governance quality matter?', *International review of financial analysis*, *41*, 148-161.

Nguyen, T., Nguyen, A., Nguyen, M. and Truong, T. (2021) 'Is national governance quality a key moderator of the boardroom gender diversity–firm performance relationship? International evidence from a multi-hierarchical analysis', *International Review of Economics and Finance*, 73, pp.370-390.

Nguyen, T.H.H., Ntim, C.G. and Malagila, J.K. (2020) 'Women on corporate boards and corporate financial and non-financial performance: A systematic literature review and future research agenda', *International review of financial analysis*, 71, p.101-554.

Nicholson, G., and Newton, C. (2010). The role of the board of directors: Perceptions of managerial elites. *Journal of Management and Organization*, *16*(2), 204-218.

Nielsen, B.B. and Nielsen, S. (2013) 'Top management team nationality diversity and firm performance: A multilevel study', *Strategic Management Journal*, 34(3), pp.373-382.

North, D. C. (1990). *Institutions, institutional change and economic performance* (Vol. 332). Cambridge university press.

Nwaeze, E. and Kalelkar, R. (2014) 'Directors and officers liability insurance: An analysis of determinants of disclosure', *Asia-Pacific Journal of Accounting and Economics*, 21(4), pp. 389–411.

O'Sullivan, N. (1998) 'Ownership and governance in the insurance industry: A review of the theory and evidence', *Service Industries Journal*. 18(4), pp.145–161.

O'Sullivan, N. and Diacon, S. (1999) 'Internal and external governance mechanisms: evidence from the UK insurance industry', *Corporate Governance: An International Review*, 7(4), pp.363-373.

O'Sullivan, N. and Diacon, S.R. (1994) 'Audit fee determination and governance structure: Empirical evidence from UK insurance companies', *Geneva Papers on Risk and Insurance. Issues and Practice*, 19(70), pp.70-84.

O'Sullivan, N. and Diacon, S.R. (2002) 'The impact of ownership, governance and non-audit services on audit fees: Evidence from the insurance industry', *International Journal of Auditing*, 6(1), pp.93-107.

O'Sullivan, N. and Diacon, S.R. (2003) 'Board composition and performance in life insurance companies', *British Journal of Management*, 14(2), pp.115-129.

Oliver, C. (1997) 'Sustainable competitive advantage: combining institutional and resource-based views', *Strategic management journal*, 18(9), pp.697-713.

Ongsakul, V., Jaroenjitrkam, A., Treepongkaruna, S., & Jiraporn, P. (2022). Does board gender diversity reduce 'CEO luck'?. *Accounting and Finance*, *62*(1), 243-260.

Oxelheim, L. and Randøy, T. (2003) 'The impact of foreign board membership on firm value', *Journal of Banking and Finance*, 27(12), pp.2369-2392.

Oxelheim, L., Gregorič, A., Randøy, T. and Thomsen, S. (2013) 'On the internationalization of corporate boards: The case of Nordic firms', *Journal of International Business Studies*, 44(3), pp.173-194.

Ozdemir, O. (2020) 'Board diversity and firm performance in the US tourism sector: The effect of institutional ownership', *International Journal of Hospitality Management*, 91, p.102693.

Ozdemir, O., Erkmen, E. and Binesh, F. (2021) 'Board diversity and firm risk-taking in the tourism sector: Moderating effects of board independence, CEO duality, and free cash flows', *Tourism Economics*.

Paige Fields, L., Fraser, D.R. and Kolari, J.W. (2007) 'Is bancassurance a viable model for financial firms?' *Journal of Risk and Insurance*, 74(4), pp.777-794.

Pandey, N., Andres, C. and Kumar, S. (2023) 'Mapping the corporate governance scholarship: Current state and future directions', *Corporate Governance: An International Review*, 31(1), pp.127-160.

Pandey, N., Baker, H.K., Kumar, S., Gupta, P. and Ali, S. (2023) 'Board diversity and firm performance: The role of contextual variables', *British Journal of Management*, 34(4), pp.1920-1947.

Park, H. (2003). Determinants of corruption: A cross-national analysis. *Multinational Business Review*, *11*(2), 29-48.

Pasiouras, F. and Gaganis, C. (2013) 'Regulations and soundness of insurance firms: International evidence', *Journal of Business Research*, 66(5), pp.632-642.

Pathan, S. (2009) 'Strong boards, CEO power and bank risk-taking', *Journal of Banking and Finance*, 33(7), pp.1340-1350.

Pathan, S. and Faff, R. (2013) 'Does board structure in banks really affect their performance?', *Journal of Banking and Finance*, 37(5), pp.1573-1589.

Patro, S., Zhang, L.Y. and Zhao, R. (2018) 'Director tenure and corporate social responsibility: The tradeoff between experience and independence', *Journal of Business Research*, 93, pp.51-66.

Pavić Kramarić, T., Aleksic, A. and Pejic-Bach, M. (2018) 'Measuring the impact of board characteristics on the performance of Croatian insurance companies', *International Journal of Engineering Business Management*, 10, p.1847979018765864.

Petroni, K. and Beasley, M. (1996) 'Errors in accounting estimates and their relation to audit firm type', *Journal of Accounting Research*, 34(1), pp.151-171.

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

Pfeffer, J. (1972). 'Size and composition of corporate boards of directors: The organization and its environment', *Administrative Science Quarterly*, pp.218-228.

Phuong, T.T., Le, A.T. and Ouyang, P. (2022) 'Board tenure diversity and investment efficiency: A global analysis', *Journal of International Financial Markets, Institutions and Money*, p.101657.

Pierce, J. and Zahra, S. (1992), 'Board composition from a strategic contingency perspective', *Journal of Management Studies*, Vol. 29, pp. 411-38.

Pillay, S., and Dorasamy, N. (2010). Linking cultural dimensions with the nature of corruption: An institutional theory perspective. *International Journal of Cross Cultural Management*, *10*(3), 363-378.

Podsakoff, P.M. et al. (2005) 'The influence of management journals in the 1980s and 1990s', *Strategic Management Journal*, 26(5), pp. 473–488.

Poletti-Hughes, J. and Briano-Turrent, G.C. (2019) 'Gender diversity on the board of directors and corporate risk: A behavioural agency theory perspective', *International Review of Financial Analysis*, pp. 80–90.

Pontiff, J., and Schall, L. D. (1998). Book-to-market ratios as predictors of market returns. *Journal of financial economics*, *49*(2), 141-160.

Post, C., and Byron, K. (2015). Women on boards and firm financial performance: A meta-analysis. *Academy of management Journal*, *58*(5), 1546-1571.

Post, C., Sarala, R., Gatrell, C. and Prescott, J. E. (2020) 'Advancing theory with review articles'. *Journal of Management Studies*, 57(2), pp.351–376.

Powell, M. and Ansic, D. (1997) 'Gender differences in risk behaviour in financial decision-making: An experimental analysis', *Journal of Economic Psychology*, 18(6), pp.605-628.

Power, D., Schoenherr, T., and Samson, D. (2010). The cultural characteristic of individualism/collectivism: A comparative study of implications for investment in operations between emerging Asian and industrialized Western countries. *Journal of Operations Management*, *28*(3), 206-222.

Prechel, H. and Zheng, L. (2016) 'Do organizational and political–legal arrangements explain financial wrongdoing?' *The British Journal of Sociology*, 67(4), pp.655-677.

Puleo, V.A., Smith, F.S. and Casey, K.M. (2009) 'Insurance company dividend policy decisions: Evidence on the role of corporate governance and regulation', *Managerial Finance*. 35(6), pp.493-500.

Ramirez, A. and Tadesse, S. (2009) 'Corporate cash holdings, uncertainty avoidance, and the multinationality of firms', *International Business Review*, 18(4), pp.387-403.

Ravitch, S.M. and Riggan, M., 2016. Reason & rigor: How conceptual frameworks guide research. Sage Publications.

Read, W.J., Rama, D.V. and Raghunandan, K. (2004) 'Local and regional audit firms and the market for SEC audits', *Accounting Horizons*, 18(4), pp. 241–254.

Riddle, D. (1992) 'Leveraging cultural factors in international service delivery'*, Advances in services marketing and management*, 1(1), pp.297-322.

Rivas, J.L. (2012) 'Diversity & internationalization: The case of boards and TMT's', *International Business Review*, 21(1), pp.1-12.

Roberts, P.D., Stewart, G.B. and Pullin, A.S. (2006), 'Are review articles a reliable source of evidence to support conservation and environmental management? A comparison with medicine', *Biological conservation*, 132(4), pp.409-423.

Rubio-Misas, M. (2020) 'Ownership structure and financial stability: Evidence from Takaful and conventional insurance firms', *Pacific-Basin Finance Journal*, 62, p.101355.

Rubio-Misas, M. (2023) 'Supervisory power and insurer financial stability: the role of institutional quality', *The Geneva Papers on Risk and Insurance-Issues and Practice*, pp.1-27.

Ruigrok, W., Peck, S. and Tacheva, S. (2007) 'Nationality and gender diversity on Swiss corporate boards', *Corporate Governance: An International Review*, 15(4), pp.546-557.

Saeed, A., Mukarram, S.S. and Belghitar, Y. (2021) 'Read between the lines: Board gender diversity, family ownership, and risk-taking in Indian high-tech firms', *International Journal of Finance and Economics*, pp. 185–207.

Safiullah, M. and Shamsuddin, A. (2018) 'Risk in Islamic banking and corporate governance', *Pacific-Basin Finance Journal*, 47, pp.129-149.

Sallemi, N., Hadiji, R.Z. and Zouari, G. (2021). 'Governance mechanisms and the Takaful insurance performance: the moderating role of the leader's seniority', *Journal of Islamic Accounting and Business Research*. 12(2), pp.149-168.

Sarbanes, P. (2002) 'Sarbanes-oxley act of 2002., In The Public Company Accounting Reform and Investor Protection Act', Washington DC: US Congress (Vol. 55).

Sarhan, A.A., Ntim, C.G. and Al-Najjar, B. (2019) 'Board diversity, corporate governance, corporate performance, and executive pay', *International Journal of Finance and Economics*, 24(2), pp.761-786.

Schiehll, E. and Martins, H.C. (2016) 'Cross-national governance research: A systematic review and assessment', *Corporate Governance: An International Review*, 24(3), pp.181-199.

Schramm-Nielsen, I. (1989). Relations de travail entre Danois et Francais dans les Entreprises Privées. *Integrated Modern Languages and Economics Centre, Copenhagen*.

Scott, W.R. (2005) 'Institutional theory: Contributing to a theoretical research program', *Great minds in management: The process of theory development*, 37(2), pp.460-484.

Serfling, M.A. (2014) 'CEO age and the riskiness of corporate policies', *Journal of corporate finance*, 25, pp.251-273.

Setiyono, B. and Tarazi, A. (2018) 'Does diversity of bank board members affect performance and risk? Evidence from an emerging market', *In Corporate Governance in Banking and Investor Protection* (pp. 185-218). Springer, Cham.

Shaddady, A. (2021) 'Business environment, political risk, governance, Shariah compliance and efficiency in insurance companies in the MENA region', *The Geneva Papers on Risk and Insurance-Issues and Practice*, pp.1-44.

Shaikh, I. A., O'Brien, J. P., and Peters, L. (2018). Inside directors and the underinvestment of financial slack towards RandD-intensity in high-technology firms. *Journal of business research*, *82*, 192-201.

Shakil, M.H. and Wahab, N.S.A. (2021) 'Top management team heterogeneity, corporate social responsibility and firm risk: An emerging country perspective', *Journal of Financial Reporting and Accounting*.

Shane, S. (1993). Cultural influences on national rates of innovation. *Journal of business venturing*, *8*(1), 59-73.

Shawver, T.J., Bancroft, P.C. and Sennetti, J. (2006) 'Can the 'clan effect' reduce the gender sensitivity to fraud? The case of the IPO environment', *Journal of Forensic Accounting*, 7(1), pp.185-208.

Shepherd, D. A. and Suddaby, R. (2017) 'Theory building: A review and integration'. *Journal of Management*, 43(1), pp. 59–86.

Shim, J. (2017) ‘An investigation of market concentration and financial stability in property–liability insurance industry’, *Journal of Risk and Insurance*, 84(2), pp.567-597.

Shiu, Y. (2004). Determinants of United Kingdom general insurance company performance. *British Actuarial Journal*, *10*(5), 1079-1110.

Shiu, Y. M. (2011). Reinsurance and capital structure: Evidence from the United Kingdom non-life insurance industry. *Journal of Risk and Insurance*, *78*(2), 475-494.

Shleifer, A. and Vishny, R.W. (1997) ‘A survey of corporate governance’, *The Journal of Finance*, 52(2), pp. 737–783.

Sila, V., Gonzalez, A. and Hagendorff, J. (2016) ‘Women on board: Does boardroom gender diversity affect firm risk?’, *Journal of Corporate Finance*, pp. 26–53.

Singh, J.V., House, R.J. and Tucker, D.J. (1986) ‘Organizational change and organizational mortality’, *Administrative Science Quarterly*, pp.587-611.

Smith, A., Houghton, S.M., Hood, J.N. and Ryman, J.A. (2006) ‘Power relationships among top managers: Does top management team power distribution matter for organizational performance?’, *Journal of Business Research*, 59(5), pp.622-629.

Song, H.J., Yoon, Y.N. and Kang, K.H. (2020). ‘The relationship between board diversity and firm performance in the lodging industry: The moderating role of internationalization’, *International Journal of Hospitality Management*, 86, p.102461.

Srinidhi, B.I.N., Gul, F.A. and Tsui, J. (2011) ‘Female directors and earnings quality’, *Contemporary Accounting Research*, 28(5), pp.1610-1644.

Stohl, C. (1993). European managers’ interpretations of participation: A semantic network analysis. *Human Communication Research*, *20*(1), 97-117.

Suchman, M.C. (1995) ‘Managing legitimacy: Strategic and institutional approaches’, *Academy of management review*, 20(3), pp.571-610.

Sun, F., Wei, X. and Xu, Y. (2012) ‘Audit committee characteristics and loss reserve error’, *Managerial Auditing Journal*. 27(4), pp.355-377.

Sun, W., Xu, X. and Govind, R. (2022) ‘Firm governance and functional strengths: the impact of board diversity on firm marketing capability’, *British Journal of Management*, 33(4), pp.1950-1968.

Sundaramurthy, C., Pukthuanthong, K. and Kor, Y. (2014) ‘Positive and negative synergies between the CEO's and the corporate board's human and social capital: A study of biotechnology firms’, *Strategic Management Journal*, 35(6), pp.845-868.

Süsi, V. and Lukason, O. (2019) ‘Corporate governance and failure risk: Evidence from Estonian SME population’, *Management Research Review*, 42(6), pp.703–720.

Swiss, Re (2021) Gender Diversity in the Re/insurance Industry: For a Sustainable Future, Zurich, Switzerland.

Tajfel, H. (1982) ‘Social psychology of intergroup relations’. *Annual Review of Psychology*, 33(1), pp. 1–39.

Talavera, O., Yin, S. and Zhang, M. (2018) ‘Age diversity, directors’ personal values, and bank performance’, *International Review of Financial Analysis*, 55, pp.60-79.

Teodósio, J., Vieira, E. and Madaleno, M. (2021) ‘Gender diversity and corporate risk-taking: A literature review’, *Managerial Finance*, 47(7), pp.1038–1073.

Terjesen, S. and Sealy, R. (2016) 'Board gender quotas: Exploring ethical tensions from a multi-theoretical perspective', *Business Ethics Quarterly*, 26(1), pp.23-65.

Terjesen, S., Aguilera, R.V. and Lorenz, R. (2015) 'Legislating a woman's seat on the board: Institutional factors driving gender quotas for boards of directors', *Journal of Business Ethics*, 128(2), pp.233-251.

Terjesen, S., and Singh, V. (2008). Female presence on corporate boards: A multi-country study of environmental context. *Journal of business ethics*, *83*, 55-63.

Terjesen, S., Sealy, R., and Singh, V. (2009). Women directors on corporate boards: A review and research agenda. *Corporate governance: an international review*, *17*(3), 320-337.

The Geneva Association. (2022) 'The Role of Insurance in Promoting Social Sustainability', *The Geneva Reports—Risk and Insurance Research*.

Torchia, M., Calabrò, A. and Huse, M. (2011) 'Women directors on corporate boards: From tokenism to critical mass', *Journal of Business Ethics*, 102, pp.299-317.

Tranfield, D. et al. (2003) 'Towards a methodology for developing evidence-informed management knowledge by means of systematic review', *British Journal of Management*, 14(3), pp. 207–222.

Ullah, F., Jiang, P., Ntim, C.G., Shahab, Y. and Jiang, X. (2022) 'Female directors' foreign experience and environmental and sustainable performance', *Asia-Pacific Journal of Financial Studies*, 51(2), pp.169-193.

Ullah, M.S., Muttakin, M.B. and Khan, A. (2019) 'Corporate governance and corporate social responsibility disclosures in insurance companies', *International Journal of Accounting and Information Management*. 27(2), pp.284-300.

United Nations. Department for Economic, and Policy Analysis. (1994). *World Economic and Social Survey*. UN.

Uyar, A., Wasiuzzaman, S., Kuzey, C. and Karaman, A.S. (2022) 'Board structure and financial stability of financial firms: Do board policies and CEO duality matter?' *Journal of International Accounting, Auditing and Taxation*, p.100474.

Van den Steen, E. (2004). Rational overoptimism (and other biases). *American Economic Review*, *94*(4), 1141-1151.

Van der Walt, N. and Ingley, C. (2003) 'Board dynamics and the influence of professional background, gender and ethnic diversity of directors', *Corporate governance: An international review*, 11(3), pp.218-234.

Van Essen, M., Heugens, P. P., Otten, J., and Van Oosterhout, J. (2012). An institution-based view of executive compensation: A multilevel meta-analytic test. *Journal of International Business Studies*, *43*, 396-423.

Van Veen, K. and Marsman, I. (2008) 'How international are executive boards of European MNCs? Nationality diversity in 15 European countries', *European Management Journal*, 26(3), pp.188-198.

Vandegrift, D. and Brown, P. (2005) 'Gender differences in the use of high-variance strategies in tournament competition', *The Journal of Socio-Economics*, 34(6), pp.834-849.

Wahab, N.S.A., Ntim, C.G., Adnan, M.M.M. and Tye, W.L. (2018) 'Top management team heterogeneity, governance changes and book-tax differences', *Journal of International Accounting, Auditing and Taxation*, 32, pp.30-46.

Walker, D. (2009) 'A Review of Corporate Governance in UK Banks and Other Financial Industry Entities', *Final Recommendations*. HMSO, London.

Walsh, J.P. and Seward, J.K. (1990) 'On the efficiency of internal and external corporate control mechanisms', *The Academy of Management Review*, 15(3), pp. 421–458.

Wang, J.L., Jeng, V. and Peng, J.L. (2007) The impact of corporate governance structure on the efficiency performance of insurance companies in Taiwan', *The Geneva Papers on Risk and Insurance-Issues and Practice*, 32(2), pp.264-282.

Wang, M. and Hussainey, K. (2013) 'Voluntary forward-looking statements driven by corporate governance and their value relevance', *Journal of accounting and public policy*, 32(3), pp.26-49.

Wang, Q. and Ligon, J.A. (2009) 'The underpricing of insurance IPOs', *Financial Management*, 38(2), pp.301-322.

Wang, T. and Hsu, C. (2013) 'Board composition and operational risk events of financial institutions', *Journal of Banking and Finance*, 37(6), pp.2042-2051.

Ward, D. (2003) 'Can Independent Distribution Function as a Mode of Corporate Governance?: An Examination of the UK Life Insurance Market', *Journal of Management and Governance*, 7(4), pp.361-384.

Watts, R.L. and Zimmerman, J.L. (1978) 'Towards a positive theory of the determination of accounting standards', *Accounting Review*, pp.112-134.

Watts, R.L. and Zimmerman, J.L. (1990) 'Positive accounting theory: A ten year perspective', *Accounting Review*, pp.131-156.

Weber, E. U., and Hsee, C. (1998). Cross-cultural differences in risk perception, but cross-cultural similarities in attitudes towards perceived risk. *Management science*, *44*(9), 1205-1217.

Wegge, J., Roth, C., Neubach, B., Schmidt, K.H. and Kanfer, R. (2008) 'Age and gender diversity as determinants of performance and health in a public organization: The role of task complexity and group size', *Journal of Applied Psychology*, 93(6), p.1301.

Williams, K.Y. and O'Reilly III, C.A. (1998) Demography and research in organizational behavior, 20, pp.77-140.

Wu, Y.C., Kweh, Q.L., Lu, W.M. and Azizan, N.A. (2016) 'The impacts of risk-management committee characteristics and prestige on efficiency', *Journal of the Operational Research Society*, 67(6), pp.813-829.

Xie, X. (2010). Are publicly held firms less efficient? Evidence from the US property-liability insurance industry. *Journal of Banking and Finance*, *34*(7), 1549-1563.

Xie, X., Lu, W., Reising, J. and Stohs, M.H. (2011) 'Demutualisation, control and efficiency in the US life insurance industry', *The Geneva Papers on Risk and Insurance-Issues and Practice*, 36(2), pp.197-225.

Xie, X., Wang, Y., Zhao, G. and Lu, W. (2017) 'Cash holdings between public and private insurers–a partial adjustment approach', *Journal of Banking and Finance*, 82, pp.80-97.

Xu, Z.J., Wang, L. and Long, J. (2017) 'The impact of director's heterogeneity on IPO underpricing', *Chinese Management Studies*.

Yamen, A., Kuzey, C., and Dinc, M. S. (2022). Culture, institutional quality and earnings management: an international evidence. *EuroMed Journal of Business*, *17*(1), 72-87.

Yang, P., Riepe, J., Moser, K., Pull, K. and Terjesen, S. (2019) 'Women directors, firm performance, and firm risk: A causal perspective', *The Leadership Quarterly*, 30(5), p.101-297.

Yoshikawa, T., Zhu, H., and Wang, P. (2014). National governance system, corporate ownership, and roles of outside directors: A corporate governance bundle perspective. *Corporate Governance: An International Review*, *22*(3), 252-265.

Yousaf, U.B., Jebran, K. and Ullah, I. (2024) 'Corporate governance and financial distress: A review of the theoretical and empirical literature', *International Journal of Finance and Economics*, 29(2), pp.1627-1679.

Zaid, M.A., Wang, M., Adib, M., Sahyouni, A. and Abuhijleh, S.T. (2020) 'Boardroom nationality and gender diversity: Implications for corporate sustainability performance', *Journal of Cleaner Production*, 251, p.119652.

Zain, F.A.M., Abdullah, W.A.W. and Percy, M. (2021) 'Voluntary adoption of AAOIFI disclosure standards for takaful operators: the role of governance', *Journal of Islamic Accounting and Business Research*. 12(4), pp.593-622.

Zattoni, A., Leventis, S., Van Ees, H. and De Masi, S. (2023)' (Board diversity's antecedents and consequences: A review and research agenda', *The Leadership Quarterly*, 34(1), p.101-659.

Zheng, X., El Ghoul, S., Guedhami, O. and Kwok, C.C. (2012) 'National culture and corporate debt maturity' *Journal of Banking and Finance*, 36(2), pp.468-488.

Zhou, Y., Kara, A. and Molyneux, P. (2019) 'Chair-CEO generation gap and bank risk-taking', *The British Accounting Review*, 51(4), pp.352-372.

Zou, H., Wen, M.M., Yang, C.C. and Wang, M. (2012) 'Underwriting and investment risks in the property-liability insurance industry: Evidence prior to the 9–11 event', *Review of Quantitative Finance and Accounting*, 38(1), pp.25-46.

Zureigat, Q.M. (2015) 'IFRS compliance and audit quality: evidence from KSA', *International Journal of Accounting, Auditing and Performance Evaluation*, 11(2), pp.188-201.

Appendix 2.1

Search terms (governance mechanisms & insurance industry) and justifications

Search Terms	Justifications
Corporate Governance:	
Corporate Governance Governance Mechanisms Governance Practices	Different terms appeared frequently in the corporate governance (CG) literature, hence included in the search terms.
Ownership Structure	
Institutional Ownership Ownership Concentration Shareholders Ownership Foreign Ownership Insider Ownership Managerial Ownership Stock Ownership	Percentage of ownership is considered an important internal CG mechanism because owners have the incentive and ability to directly advise and monitor senior management and the board of directors (Aguilera et al., 2015; Boubakri, 2011).
Board of Directors	
Board of Directors Board Structure Board Characteristics Board Composition Boardroom Supervisory Boards Board Diversity Board Size Board Independence Outside Directors CEO Duality Audit Committee Compensation Committee Remuneration Committee Nomination Committee Risk Committee Risk Management Committee Risk-Management Committee Finance Committee Internal Control	The board of directors plays an essential part in the governance structure of companies. Along with monitoring, advising, and controlling senior management behaviour, it has the ultimate responsibility for the economic, efficient and effective allocation and use of the firm's resources (Aguilera and Jackson, 2010; Fama and Jensen, 1983; Walsh and Seward, 1990). Consequently, to reduce the probability of missing critical articles, alternative words for 'board' used in the existing literature were included to cover board characteristics and board committees.
Managerial Incentives	

Search Terms	Justifications
Managerial Incentives Executives Compensation Managerial Compensations Executives Remuneration Managerial Remunerations CEO Compensations CEO Remunerations CEO Pay CEO Bonus CEO Salary Stock Options	Compensation plans are considered an internal CG tool selected by boards that can align the interests of shareholders and corporate leaders (Aguilera et al., 2015; Gillan, 2006). To avoid missing critical studies, other search terms that represented managerial incentives from the existing literature were selected.
Legal Environment	
Investors Protection Investors Rights Shareholders Protection Shareholders Rights	The legal environment is an external mechanism that generally governs how companies operate and conduct business and that protects property rights under the oversight of regulatory institutions (Aguilera et al., 2015).
Market for Corporate Control	
Corporate Control Takeovers	The market for corporate control can be an external mechanism that is activated as a disciplinary tool for managers when they deliver poor performance. As a result, a firm's value may drop heavily in the equity market, and the probability of a hostile turnover by outsiders may increase (Aguilera et al., 2015; Boubakri, 2011; Fama and Jensen, 1983).
External Audit	
External Audit Audit Independence Audit Quality	An external auditor can be considered an important CG mechanism to monitor and evaluate a firm's accounting procedures and financial disclosures. Therefore, the independence and objectivity of the external auditor may reflect the reliability of the company's financial report, which in turn may increase transparency between corporate insiders and stakeholders (Aguilera et al., 2015; O'Sullivan and Diacon, 1999).
Stakeholder Activism	
Stakeholders Activism External Monitoring	Stakeholders, for example, in the insurance industry reflect external pressure on monitoring insurance companies. Although some stakeholders, such as agents and reinsurers, have no ownership stake in the firm, their primary goal is the solvency of the insurer (Cole et al., 2011).
Rating Organisations	

Search Terms	Justifications
Rating Organisations Rating Agencies Financial Analysts Stock Analysts	Rating agencies and financial analysts can act as an external mechanism because they evaluate public firms' performance and governance practices, which in turn reduces asymmetric information between management and stakeholders by providing an overview of the firm's situation and future expectations (Aguilera et al., 2015; Brown et al., 2010).
Insurance Industry	
Insurance Insurers Takaful	Owing to the strong emphasis of the aims of this paper, namely, a comprehensive review of firms' CG mechanisms in the insurance industry, the terms 'insurance' and its derivatives (e.g., 'insurers') are used. Consequently, this paper may ultimately provide more extensive coverage of the literature that examined CG mechanisms in the insurance industry. In addition, the term 'takaful' that is related to Islamic insurance was added because some articles only use this term instead of 'insurance' (e.g., Alkhan and Hassan, 2020).

Appendix 3.1. Further details on countries' board gender quota policies used in our study.

Countries	Year quota passed	Quota
Belgium	2011	33%
Denmark	2012	Not specified
Finland	2005	40%
France	2011	40%
Germany	2015	30%
India	2013	At least one female director
Israel	2007	50%
Italy	2011	33%
Malaysia	2011	30%
Netherlands	2011	30%
Norway	2003	40%
Spain	2007	40%

Note: The information in this table detailing countries' board gender quota policies was compiled from Catalyst (2018a; 2018b), Deloitte (2017), and earlier studies by Fauver et al. (2022) and Liao et al. (2022). It includes only those countries for which data was available.