

Industrial heterogeneity, governance structure and firm value

Abstract

We examine the impact of corporate governance on firm value by using a unique research approach ‘sector-wise analyses’ by employing a data set of listed firms in Taiwan. We investigate whether the unique dynamics of each industrial sector could differently affect internal CG practice. In addition, we investigate the moderating effect of block ownership on the relationships between CG and firm value. Our results show that CG and firm value relationships significantly differ across industrial sectors and conclude that the CG model is not one-size-fits-all for industrial sectors – whilst observed a significant impact of block ownership as a moderating variable.

Keywords: Corporate governance, Firm value, Sector-wise analysis, Block ownership, Agency conflicts

JEL classification : C23 G30 G32 G34

1 | INTRODUCTION

The association between corporate governance (CG) and firm performance has been the central theme of contemporary accounting literature over the last two decades. The notable contribution in the recent research document mixed results about the CG and firm financial performance relationship (see, for example, Anderson & Gupta, 2009; El Mehdi, 2007; Guest, 2009; Haniffa & Hudaib, 2006; Klapper & Love, 2004; Munisi & Randoy, 2013; Nguyen et al., 2014). These studies investigate the impact of CG on firm financial performance using ROA and ROE as a measure of performance.

In contrast, we investigate the impact of CG on firm value measured using Tobin's Q (*TQ*) which is an objective tool to measure firm value – based on market perception of how a firm has performed thus far and how it's expected to perform in future. The prior research on CG and firm value nexus is conducted mainly in the context of the US and the Western markets (see, for example, Bhagat & Bolton, 2008; Basu et al, 2016; Brown & Caylor, 2006; Ciftci et al., 2019; Bae et al. 2012; Konijn, 2011; Laeven & Levine 2009; Maury & Pajuste, 2005; Wintoki et al., 2012). As these prior studies are in the context of developed economies where the legal and institutional arrangements are very strong and minority shareholders are fully protected – hence their findings are not fully generalizable to emerging economies owing to the difference in the quality of legal and institutional arrangements.

Importantly, prior research on the CG and firm value nexus generalized the findings across the different industrial sectors without considering the sector's individual dynamics. Contrary to that – we contribute to the literature by introducing a unique research approach: 'sector-wise analyses' to incorporate the individual dynamics of each industrial sector to gauge the impact of CG on firm value by employing a data set of Taiwan-listed firms. ⁽¹⁾ We explore whether the distinctive nature of each industrial sector could differently influence the internal CG practice leading to a diverse impact on firm value. We argue that a pooled sample of all sectors is unable to identify the industry-specific dynamics, particularly when there is a higher level of heterogeneity across industrial sectors. To our knowledge, the present study is the first to introduce the sector-wise analysis approach to better understand CG and firm value relationships.

¹ The term 'firm value' and 'Tobin's Q (*TQ*)' are used interchangeably in this study.

We have three main objectives of this study. First, to examine the impact of internal CG mechanisms (e.g., board size, CEO duality, independent non-executive directors, presence of audit committee and block ownership) on firm value by employing the sector-wise analysis. Second, we examine the moderating effect of large controlling shareholders (blockholders) on the relationship between CG and firm value. Finally, we test the theoretical significance of sector-wise analysis of whether Type II agency conflicts differ across industrial sectors owing to the different dynamics of each sector.

The underlying rationale for sector-wise analysis is evident, as in most emerging markets with no exception to Taiwan – each industrial sector has different operational challenges owing to the diverse target market – whilst some industrial sectors are more regulated than others (Yeh et al., 2012; Wang et al., 2020). In addition, due to the difference in product segmentations, market lines and geographical regions, the industrial sectors pursue diverse market strategies leading to different internal CG approaches, which in turn, differently impact firm value (Fan & Parvar, 2012; Moya-Martínez et al., 2014; Shu & Chiang, 2020). Moreover, we argue that market competition and financial risk also differ across industrial sectors which differently impacts the relationship between CG and firm value – hence CG regulations should be tailored considering the industry-specific attributes.

Importantly, firms often organise themselves in sectors, as evidenced by the range of sector-specific trade bodies hence a sector lens tends to be more valuable to understand firm-level internal CG practice (Wang et al., 2020). Further, each sector faces complex market conditions relating to the products or services they provide – whilst sharing different concerns towards vertical and horizontal market channels (Arouri, 2011; Fan & Parvar, 2012). This means that sectors are an essential tool for interaction between firms and regulatory authorities therefore each firm internal CG approach needs to be sector specific (Yeh et al., 2012). We thus argue that a higher level of heterogeneity across industrial sectors needs to be separately tested for a better understanding of internal CG practice and its impact on firm value.

Our findings show that board size, CEO duality, INEDs, presence of audit committee and block ownership positively impact *TQ* in the case of electric machinery and electronics sectors. In contrast, these variables reflect a negative or insignificant impact on *TQ* across textile, iron & steel, chemical & biotech and miscellaneous sectors – indicating a marked difference between the internal CG practice of different industrial sectors. To this end, we argue that market competition and its challenges tend to differ across sectors owing to the difference in the buying

and selling markets of each sector which impact their corporate environment – leading to a different CG and *TQ* nexus.

With regard to the individual dynamics of each sector –our analysis shows that the electric machinery and electronics sector firms are relatively larger with higher earnings per share and have a lower competitive market and lower financial risk – whilst more regulated than other sectors hence adopting a better CG practice equivalence to the developed economies. On the contrary, our evidence reveals that textile, iron & steel, are dominated by small-size firms with lower earnings per share whilst suffering a highly competitive market and financial risk which get away these sectors from better CG practices – leading to a weak CG and firm value nexus. The chemical & biotech and miscellaneous sectors firms are medium in size with a moderate competitive market and financial risk and average earning per share hence demonstrating the adequate practice of CG.

We observed that the moderating impact of block ownership on the relationship between CG and *TQ* is positively significant for electric machinery and electronics – leading to a ‘monitoring effect’ whereas negatively significant for textile, iron & steel, chemical & biotech and miscellaneous sectors – indicating ‘entrenchment effect’. We report that the blockholders tend to appoint INEDs which are not truly independent which negatively impacts firm value.

We conclude that the CG model is not universal i.e., not one-size-fits-all for different industrial sectors and fortify the assertion that the CG regulations should be tailored considering the industry-specific attributes. Our findings suggest regulators to customise the CG model according to the individual dynamics of each industrial sector hence CG regulations would be more specific to each sector – leading to optimised CG compliance. To this end, a sector engagement strategy can enable regulators to act as a facilitator in bringing firms together to solve mutual problems at the sector level. Equally, the variation across industrial sectors owing to the industry’s individual characteristics and cultural values tends to require industry-specific internal CG mechanisms.

Our paper makes several contributions to the literature. First, prior studies of CG in the context of Taiwan investigate the impact of CG on various issues such as financial performance, political CEOs, family ownership, financial crisis, earning management, dividend policy, board governance, related party transactions and information transparency (Amin & Cumming, 2023; Chi et al., 2015; Chen I-Ju 2014; Ho et al., 2020; Liu et al., 2016; Shyu, 2011; Yeh et al., 2012;

Yuting et al., 2012). To our understanding, no prior study in the context of Taiwan has investigated the CG and firm value relationship. We fill this research gap and investigate the impact of CG on firm value.

Second, the present study introduces a unique research approach: sector-wise analysis and reports that the distinctive nature of each industrial sector differently influences the CG practice – leading to a diverse CG and firm value relationship. Third, we extend the theoretical literature of CG by first-time investigating whether agency issues differ across industrial sectors by incorporating industry-specific dynamics. In this regard, we report the presence of the ‘entrenchment effect’ across textile, iron & steel, chemical & biotech and miscellaneous, sectors while the ‘alignment effect’ in the case of electric machinery and electronics sectors.

Finally, the present study estimates the results by using four different models namely, an Instrumental variable (IV) estimation, the Heckman selection model, the Propensity score matching (PSM) technique and the Difference-in-difference (DiD) approach. Further, we employ the dynamic generalized method of moments (GMM) to address the potential sources of endogeneity (Amin & Cumming, 2023; Wintoki et al., 2012). The paper proceeds as follows. Section two presents the literature review and hypotheses development. Section three discusses the research methodology and data. Our empirical results are presented in Section Four. We conclude the paper in section five.

2. | LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 | Significance of Taiwan as an emerging market

Taiwan's corporate sector has several distinct dynamics which make it unique across other developed and emerging economies hence making this research more interesting (Kao et al., 2019). For example, contrary to other economies, Taiwan consists of two different types of board structures (TWEC listing rule, article 9). First, the board structure of a Taiwanese firm is a two-tier structure which consists of a board of directors and supervisors (Solomon et al., 2003). The role of supervisors is to monitor directors regarding board decisions and to review and audit reports prepared for the shareholders. The supervisors neither participate in the voting process nor are involved in the board's decision-making but are designated to monitor the board of directors. (Ho et al., 2020).

However, unlike German firm boards in which supervisors have more power than the board of directors – in Taiwan, both directors and supervisors are parallel and are usually elected by shareholders during the annual shareholders' meeting (Yeh et al., 2012).

The second type of board structure in Taiwan is a one-tier system as suggested by the Taiwan Securities and Exchange Act which is composed of a board of directors and an audit committee (TWEC listing rule, article 9). These two different board structures are more likely to have different impacts on firm value owing to different internal CG mechanisms which makes Taiwan a unique setting across other emerging economies. Moreover, the Corporate Law of Taiwan allows institutional investors to assign representatives to serve directorships. To increase their control over the firm, controlling shareholders could find nominal investment companies, which in turn, invest in and obtain directorships of the underlying firm (Yeh et al., 2012).

Taiwan's Corporate Law stipulates that both supervisors and directors are to be elected by shareholders whilst only current shareholders are qualified candidates. Even though Taiwan's Corporate Law recommend that no current employees or directors serve as supervisors; it does not prohibit family members of current employees or directors from serving as supervisors (TWEC listing rule, article 9). As a result, it is not uncommon to find family members of controlling shareholders serving as supervisors.

The majority of firms in Taiwan are in the form of small- and medium-sized enterprises (SMEs) whilst the board of directors in SMEs tends to be family-dominated – coupled with pyramids and crossholdings to increase the controlling influence of shareholders (Kao et al., 2019). In addition, Yeh & Woidtke (2005) and Kao et al. (2019) document that the average control rights of the largest shareholders are 30.33%, whereas the average cash flow rights are only 21.68%. Thus, the excess of control rights over cashflow rights (8.66%) hence blockholders seek personal benefits at the cost of minority shareholders (Amin & Cumming, 2023). Therefore, the Taiwanese context allows us to more robustly test our hypotheses, which are predicated on the notion that blockholders are powerful actors in influencing board selection.

Yeh et al. (2012) document that controlling shareholders in Taiwan tend to be a family group related through blood or marriage ties. They often enhance control rights through nominal investment companies and other entities (Filatotchev et al., 2005). Additionally, Ho et al. (2020) report that the ownership structure of firms in Taiwan is different from Western countries because family control plays an important role in Taiwanese businesses.

Excessive political polarization is also a unique characteristics of Taiwan's corporate sector which continuously add complexity and uncertainty in its political, social and corporate environment (Lee et al., 2019; Ullah & Kamal, 2019; Whitley, 2013). The economic and political setup of Taiwan tends to address financial and economic matters related to urban planning and policymaking in which the municipality or other tier of government is involved (Amin & Cumming 2023; Lee et al., 2019). To this end, the political involvement of firms' CEOs in Taiwanese politics gives them discretion over the firm's key decisions, which in turn, – creates Type II agency issues (Mobrand, 2020).

Another advantage of the Taiwanese setting is that there is a sizeable proportion of family firms with concentrated ownership which directly supports our hypotheses. According to the statistics from the TEJ (Taiwan Economic Journal) database, 79.6% of the listed firms have an identifiable controlling owner which tends to be a family or the government. In addition, unlike the UK and the US, Taiwan possesses a weak market for corporate control.

According to the Global Competitiveness Report 2008–2009, published by the World Economic Forum, “Like other developed economies, Taiwan has a large pool of scientists and engineers, and it benefits from high company spending on R&D and strong collaboration between research institutes and the business sector in innovation.” Likewise, the Global Competitive Index Report (2012-2013) documents that Taiwan is ranked as an innovation-driven economy owing to its high educational standards, greater adaptation rate of new technology and sophisticated business processes. Further, Taiwan attained 13th position in the index – showing Taiwanese intellectual capability and capacity for innovation and adaptation of new technology.

Similarly, according to a biennial report released by the Asian Corporate Governance Association (ACGA) i.e. formerly known as Credit Lyonnais Securities Asia in 2018, Taiwan ranked fifth – ahead of India, Japan and South Korea – whilst rank among 12 Asia-Pacific markets for corporate governance (Taiwan Today, 2018). This report also highlighted that like other developed economies, Taiwan is making strides in several areas, particularly the effectiveness of audit committees, enforcement and independent directors. Granting all this, Taiwan occupies several characteristics of a developed economy though it's an emerging market hence provides an interesting platform to conduct this analysis.

2.2 | Board size

The board of directors is deemed to be the first defence that safeguards shareholders' interests against self-interested management actions. Therefore, board size is an essential element of board structure and needs to best fit with the requirements and objectives of the firm. In general, firms develop their board structure considering their size, corporate culture, resource requirements and monitoring needs. In the recent decade, the board role has extended beyond the primary responsibility of control and monitoring – ensuring that decisions are taken in the best interest of the organisation (Corten et al., 2017; Uribe-Bohorquez et al., 2018).

However, the empirical literature related to board size and firm performance relationship shows mixed results. For example, several studies document a negative relationship between board size and firm performance and report that small board size is better for controlling financial statement fraud (e.g., Beasley, 1996; Guest, 2009; Yermack, 1996). These studies report that smaller boards are focused, efficient and quick in decision making which results in better firm performance.

Likewise, Amin & Furquhar (2021) and Arosa et al. (2010) document a negative impact of board size on firm performance – suggesting that there is an issue of ineffective coordination, and poor communication which weakens the board monitoring function. Kao & Chen (2004) report that a larger board lack efficient communication between the members and weakens the board monitoring function which negatively impacts firm performance. Alternatively, Ho & William (2003) found no substantial impact of board size on firm performance.

However, several prior studies reported a positive association between board size and firm performance and argued that the larger board provides firms with a greater range of expertise and accessibility to scarce resources (e.g., Abor & Biekpe, 2007; Bozec, 2005). Similarly, Kyere & Ausloos (2021) document that a large board positively impact firm value. Further, Ciftci et al. (2019) report that a large board size can enhance board independence and diversity thereby increasing firm performance. Therefore, these studies report that a large size board has more knowledge and skills compared to a small board thus providing an increased pool of expertise.

Agency theory argues that large-size boards can perform better monitoring functions and enhance the board's tendency of vigilance. In a similar vein, resource dependence theory suggests that a larger board with a diversified portfolio bring higher intellectual knowledge which enhances the quality of strategic decision-making and positively influences the firm performance (Arosa et al., 2010). We, therefore, hypothesize:

H1: Board size is positively associated with firm value (Tobin 's Q).

2.3 | CEO duality

The dual leadership structure refers to a situation in a firm when the CEO and the chairperson of the board are the same person. The prior research documents the perspectives of both stewardship and agency theory to determine the impact of CEO duality on firm performance. In the first view, the proponents of stewardship theory argue that firm performance may enhanced if the position of CEO and chairperson is held by the same person as it improves strategic decision-making. In this regard, Ritchie (2007) suggests that dual leadership may reduce the level of information asymmetry which helps to decrease the cost of capital. Nguyen et al. (2015) show that CEO duality has a positive relationship with Tobin's Q. Likewise, Serra et al. (2016) show that the competence and experience of CEOs positively affect firm performance. However, the latest study by Yu (2023) documents that the mixed research findings of CG and firm performance relationship are due to different firm performance measurements, research designs, sampling practices and approaches to dealing with endogeneity issues.

Moreover, a dual leadership structure resolves the problem of the communication gap between the CEO and chairperson compared to the model of separate roles of the CEO and chairperson. Furthermore, it helps to minimise management conflict – avoid delays in decisions and reduce inconsistencies in the firm's strategic decision-making. Daily & Dalton (1992) argue that the duality of the role tends to allow an individual to lead the entire corporate board for effective decision-making.

In the opposing view, the board's monitoring function is theoretically derived from agency theory which emphasizes that the conflicts of interest arise from the duality of the CEO role and control in corporate decision making (Ritchie, 2007). The supporters of agency theory suggest the separation of CEO and chairperson roles to avoid the concentration of power and authority in the hands of a single person. To this end, Jesuka & Peixoto (2021) report a negative impact of CEO duality on firm performance. Similarly, Fan et al. (2019) document that CEO duality negatively moderates the relationship between board-CEO friendship ties and firm value as board monitoring is weak. However, Kyere & Ausloos (2021) and Mutlu et al. (2018) document that CEO duality has no impact on firm value.

However, agency theory conjectures that powerful CEOs are more likely to take the benefit of information asymmetries and apply their power and authority for personal incentives at the cost of minority shareholders. Considering the theoretical context of agency and stewardship theory we hypothesize both the theoretical notions: We hypothesis.

H2a: CEO duality is negatively associated with firm value (Tobin 's Q) – the agency theory perspective.

H2b: CEO duality is positively associated with firm value (Tobin 's Q) – the stewardship theory perspective.

2.4 | Board independence

Regulatory and compliance bodies across developed and emerging economies emphasize board independence as an influential governance mechanism to enhance accountability, fairness, transparency, responsibility and the overall effectiveness of CG. The board's independence is recognised as a strong monitoring mechanism for preventing opportunistic actions which strengthens the board's effectiveness. Agency theory primarily focuses on the monitoring role of independent non-executive directors (INEDs) in mitigating agency conflicts between professional managers and shareholders (Yusuf et al.,2018).

Agency theory argues that a large proportion of INEDs enhances corporate control and strategic decision-making by effective monitoring leading to a positive impact on firm performance (Nicholson & Kiel, 2007; Rashid, 2018). In the opposing view, the stewardship theory argues that the INEDs lack business knowledge hence unable to understand the complexities of the firms' affairs.

A large number of studies report that INEDs tend to enhance shareholder value by alleviating managers' self-centred behaviour (e.g., Liu et al., 2015; Rashid, 2018; Uribe-Bohorqueza et al., 2018). Likewise, Sarpong-Danquah et al. (2018), Kao et al. (2018), and Boachie (2021) find a positive and significant relationship between INEDs and firm performance.

In contrast, several empirical studies report a negative impact of INEDs on firm performance (see, for example, Hermalin & Weisbach, 2003; Yermack, 1996). Moreover, Akbar et al. (2016) reported an insignificant impact of INEDs on firm performance.

It is widely recognized, particularly in emerging markets that INEDs do not have frequent access to the firm's key information hence their decision-making does not cover all internal

attributes of the firm's affairs (Black & Kim, 2012; Cavaco et al., 2017). Further, INEDs are less likely to be effective because of information asymmetry and lack of professional expertise which limits corporate strategic decision-making.

In addition, INEDs are not well informed about firms' daily affairs thus unable to effectively perform monitoring functions (Hermalin & Weisbach, 2003). Young et al. (2009) report that 64% of firms in Taiwan do not have an independent director whilst 21% of firms hire only one independent director despite the mandatory requirement of two independent directors for IPO firms in 2002.

The institutional arrangements of Taiwan are relatively weak whilst the minority shareholders' rights are not fully protected hence a truly independent and impartial monitoring role of INEDs is not expected, particularly in the presence of powerful blockholders. Consistent with the common phenomena across several emerging markets, we postulate that powerful blockholders link with the INEDs and compromise board independence – leading to a negative impact on firm value. However, we test both the possible impact of INEDs on firm value. We hypothesize:

Hypothesis H3a: The presence of INEDs negatively impacts firm value (Tobin's Q) – the agency theory perspective.

Hypothesis H3b: The presence of INEDs positively impacts firm value (Tobin's Q) – the stewardship theory perspective.

2.5 | Presence of Audit Committee

An independent audit committee plays an important role in implementing effective CG practice by ensuring the integrity of internal financial controls and corporate reporting, which in turn, helps to mitigate agency conflicts (Engel et al., 2010). An effective audit committee facilitates the timely release of unbiased financial reporting thus helping to reduce the level of information asymmetry (Fauver et al., 2017). The board committees must be independent and have full access to board decisions pertinent to financial planning and strategic decision-making.

The extant literature documents that independent, diligent and expert board subcommittees help in enhancing the firm's financial performance and protecting shareholder interest. For example, Mangena & Chamisa (2008) studied a sample of South African listed firms and reported that the presence of an audit committee increases the level of monitoring, decreases internal fraud and improves CG compliances. Chambers (2014) points out that firm

performance is associated with effective board sub-committees, particularly about those important matters which has not been discussed in a board meeting by the reason of time constraints.

Prior literature documents a positive impact of audit committee independence on firm performance. For example, Puni (2015) investigates the impact of board committees on firm financial performance in the context of Ghana and reports an insignificant impact of board committees on firms' financial performance. In contrast, Adams, Hermalin & Weisbach (2010) report a positive association between the independence of the audit committee and better financial reporting which attracts investors for a large pool of investment and as a result enhances firm financial performance. Moreover, Boachie (2021) report that larger audit committees tend to lose concentration and be less engaged than smaller committees. In contrast, Amin & Furquhar (2021) results show that the audit committee has no significant impact on firm performance.

Abdeljawad et al. (2020) document that the presence of the audit committee together with other mechanisms tends to enhance the quality of governance and provide better investment opportunities. Gendron et al. (2004) report that the presence of an independent audit committee depicts firms' strong audit quality, control effectiveness, financial statement accuracy and overall better CG. Therefore, we argue that the independence of an audit committee is deemed to be a positive sign of a firm's credibility and exhibits the firm commitment to adopt better CG practices. Taken as a whole, based on a relatively greater amount of evidence in favour of the positive impact of an independent audit committee on firm performance, we hypothesize that:

H4: The presence of an independent audit committee positively impacts firm value (Tobin 's Q).

2.6 | Block ownership

The governance role of concentrated ownership has been increasingly acknowledged by the prior studies of CG which show that blockholders have power (i.e., large voting rights) and incentives (i.e., large cash flow rights) to influence the corporate strategy which impacts firm performance (Li & Zaiats, 2017; Maury & Pajuste, 2005). Concentrated ownership is common across emerging markets, particularly in East Asian including Taiwan – where powerful blockholders tend to dictate the corporate key issues to the managers. We thus investigate the

moderating role of blockholders on the relationship between CG and firm value. The empirical literature on block ownership and firm value relationships document mixed outcomes and relates them with the trade-off between the alignment effects and entrenchment effects of agency theory.

Regarding the alignments effect, the extent literature reports that blockholders focus on corporate valuation which positively impacts firm value. (Konijn et al., 2011; Laeven & Levine, 2008). Likewise, Ciftci et al. (2019) report that concentrated ownership leads firms towards long-term ties to external investors hence relatively better equipped to acquire a range of resources.

In contrast, the largest blockholder usually forms a controlling coalition with the other blockholders for tunnelling and related-party transactions to pursue private benefits which inflate the ‘entrenchment effect’ (Amin & Cumming, 2023; Antounian et al., 2021). Blockholders seek private benefits at the cost of minority shareholders, particularly in emerging economies where shareholders' rights are not fully protected (Gupta & Chauhan 2023). Therefore, blockholders engage with managers for the manipulation of corporate earnings to mislead external investors for the extraction of private benefits/bonuses tied to the firm financial performance (Wang & Shailer, 2015). Yeh et al. (2012) document that a high percentage of the listed firms (77.2%) have identifiable blockholders who tend to be the founder or founding family.

Yeh & Woidtke (2005) and Kao et al. (2019) document that the average control rights of the blockholders are greater than cash flow rights which provides more leeway for the blockholders to pursue private benefits at the cost of minority shareholders. We thus conjecture that a higher level of block ownership in an emerging market like Taiwan presumably gives rise to Type II agency conflicts. However, to adhere to the context of agency theory we test both possible effects of block ownership on firm value. Hence, we hypothesize:

Hypothesis H5a: Block ownership negatively impacts firm value (Tobin's Q).

Hypothesis H5b: Block ownership positively impacts firm value (Tobin's Q).

2.7 | Moderating effect of block ownership

In the previous line discussion, we have examined the implications of the effects of CG (e.g., the board size, its independence, CEO duality, audit committee and block ownership) which support the board's key decision-making and significantly impact firm performance. We argue that block ownership may

have an intervening effect on board size, its independence, CEO duality and the audit committee that may exist within the company. Therefore, it is worth to investigate whether the presence of block ownership may alter the strength and the direction of the relationship between CG (i.e. the board size, its independence, CEO duality and audit committee) and firm value.

Agency theory argues that the presence of powerful blockholders tends to link with the common agency issue of divergence of interest between cash flow rights and control rights (Amin & Cumming, 2023). The code of best CG practice suggests a balance of powers between the blockholders and minority shareholders; however, the blockholders may weaken the effectiveness of the board monitoring function (Kao et al., 2018). Moreover, the presence of a higher level of block ownership may lead to partisan decisions which appear to be incongruent with the long-term objectives of the firms (Amin & Cumming, 2023).

The monitoring mechanisms of the family-controlled firms are considered relatively more efficient than non-family firms which help to mitigate agency costs whilst managerial involvement of family members tends to reduce Type I agency conflict (Ciftci et al., 2019). Croci et al. (2011) document that family firms are more likely to be influenced by the dominant shareholder's incentives than those of diversified (outside) shareholders. In addition, the institutional context of Taiwan is underpinned by the weak legal framework, highly volatile capital market, strong corporate-political connections and lower investors' protections which allow the powerful blockholders to extract the private benefit at the cost of minority shareholders. Overall, based on the above discussion, we propose the following four hypotheses.

Hypothesis H6a: Block ownership negatively moderates the relationship between board size and firm value (Tobin's Q).

Hypothesis H6b: Block ownership negatively moderates the relationship between the CEO duality and firm value (Tobin's Q).

Hypothesis H6c: Block ownership negatively moderates the relationship between INEDs and firm value (Tobin's Q).

Hypothesis H6d: Block ownership negatively moderates the relationship between the presence of the audit committee and firm value (Tobin's Q).

3 | RESEARCH METHODOLOGY

3.1 | Data sources and variables

Our preliminary sample consists of all listed firms on the Taiwan Stock Exchange (TWSE). We exclude financial industries (SIC codes, 6000–6999) and utilities (SIC codes, 4900–4999) subject to differences in listing and regulatory requirements (Doukas & Zhang, 2020). We also dropped those firms which are either declared as newly listed or delisted during the sample period. This resulted in an unbalanced panel data set of 803 firms and 5645 observations covering the period of 2010–2018. We collected the data from the year 2010 to avoid affected data of the global financial crisis of 2007–2009 whilst excluding the data from 2019 onward to avoid the effects of COVID-19.

In addition to the data stream, our data is supplemented by the Taiwan Stock Exchange (TWSE), Taiwan Economic Journal (TEJ) and the firm's annual reports. Following Taiwan Stock Exchange standards of industrial sectors classification, we categorized our data into six main sectors namely textile (TWSE Code 1400), electric machinery (TWSE Code 1500), chemical & biotech (TWSE Code 1700), iron & steel (TWSE Code 2000), electronics (TWSE Code 2300), and miscellaneous (others sector) TWSE Code 9900)). The miscellaneous (others) sector consists of firms related to foods, plastics, glass and ceramics, paper and pulp, rubber, automobile, building & construction, shipping and transportation. These sectors have small numbers of sample firms, therefore, we merged into the miscellaneous sector.

3.2 | Model Specification

To investigate the impact of governance variables on *TQ*, we address the endogeneity issue by using five strategies namely, the GMM model, an instrumental variable (IV) estimation, the Heckman selection model, the Propensity score matching (PSM) technique and the Difference-in-difference (DiD) approach. Prior literature on CG documents that board characteristics are dynamic in nature (Amin & Cumming, 2023; Farag & Mallin 2016; Wintoki et al., 2012). Moreover, it is widely acknowledged that a potential source of endogeneity is inherent in the governance and firm performance relationship (Nguyen et al., 2014). Therefore, following prior literature (e.g., Amin & Liu, 2020; Wintoki et al., 2012) we employ a two-step system GMM estimator to test the dynamic nature of the board and ownership structure and address the potential sources of endogeneity.

In the second stage, we employ an instrumental variable approach by using an endogenous binary variable. Third, we estimate the Heckman selection model to avoid sample selection bias. Fourth, we conduct the propensity score matching (PSM) technique to account for observable differences in firm characteristics across industrial sectors. Finally, we use the

governance regulations (2011) as an exogenous shock to test whether our estimation results are driven by the release of regulations (2011) by employing the Difference-in-differences (DiD) model to test the robustness of the results.

3.3 | Variables

We measure firm value using Tobin's Q (TQ) e.g., the ratio of the market value of equity plus the book value of debts divided by the book value of total assets (Watson & Head, 2004). Tobin's Q demonstrates the firm's market performance, whilst it is a less myopic measure of corporate value than accounting measures of performance, such as ROA and ROE.

We also measure the market competitiveness of each sector by employing the Herfindahl-Hirschman Index (HHI). The HHI measures the market concentration of the largest firms in a particular industry to determine if that industry should be considered competitive or as close to being a monopoly. Market concentration in an industry is determined by examining the number of companies that manufacture or market a particular product or line of products, along with the relative distribution of market share in terms of sales for each company within the industry. Economists consider the concentration of market share to be an important determinant in the viability of market competition and consumer choice. ⁽²⁾

In this regard, an increase in competitiveness is reported when a firm lowers its costs relative to those incurred by rival firms. To this end, we calculated HHI by taking the market share of each firm in the industry, squaring them, and summing the result – as depicted in the following equation.

$$HHI = S_1^2 + S_2^2 + S_3^2 + \dots + S_n^2$$

We expect that a highly competitive market tends to weaken the internal CG mechanisms, which in turn, destroy firm value. Following Eling & Marek (2013) we also determine the sector-level financial risk as well and determine whether financial risk does matter in CG and firm value relationship. To this end, we ascertain whether financial risk differs across industrial sectors, which in turn, differently impact firm value. Turning to the control variables, following prior studies we include three core factors affecting governance and firm value relationships

(2) The U.S. Department of Justice considers a market with an HHI of less than 1,500 to be a competitive marketplace, an HHI of 1,500 to 2,500 to be a moderately concentrated marketplace, and an HHI of 2,500 or greater to be a highly concentrated marketplace.

such as firm size, leverage, and sales growth (Ciftci et al., 2019; Nguyen et al., 2014). Table 1 presents the definitions of the variables used in the study.

TABLE 1

3.4 | Summary Statistics

Table 2 presents the summary statistics of the main variables used in the model estimation. The analysis shows that the textile (1.07) and Iron & steel (1.09) sectors have the lowest *TQ*, while electric machinery (1.26) and electronics (1.27) have the highest *TQ*. The electric machinery (7.94) and electronics (7.95) have the largest board sizes, whereas the textile (6.75) and iron & steel (6.80) sectors have small board sizes. Likewise, the CEO duality is prevalent and varies between (0.25) to (0.33) across the sectors. In addition, all sectors show almost one-fifth of board members as INEDs as per the recommendation of CG best-practice principles of the Taiwan stock exchange.

Similarly, electric machinery (0.54) and electronics (0.59) have the highest proportion of audit committees while the textile (0.40) and iron & steel (0.42) sectors have the lowest proportion of audit committees. Consistent with the common phenomena of emerging markets, sample firms are highly concentrated. To this end, textile (0.26) and iron & steel (0.27) have the highest proportion of block ownership. Likewise, family-controlled ownership is also dominating across all the sectors.

The value of the HHI index of electric machinery and electronics sectors is relatively lower (i.e., indicating high market competitiveness), moderate in the case of chemical & biotech and miscellaneous sectors (i.e. moderate market competitiveness) and highest for textile and iron & steel sectors (i.e. lower market competitiveness). Importantly, descriptive statistics also reflect that the financial risk differs across industrial sectors. For example, the textile (0.07) and the iron & steel (0.08) sectors have the highest financial risk; the chemical & biotech (0.04) and miscellaneous (0.04) sectors have a moderate level of risk, while electric machinery (0.02) and electronics (0.02) sectors have the lowest level of financial risk.

The firm size of the electric machinery (33.7) and electronics (31.5) sectors is relatively greater across all the sectors. Further, the textile, iron & steel, chemical & biotech, and miscellaneous sectors firms are highly leveraged sectors. The sales growth of electric machinery, electronics and miscellaneous sectors firms are significantly greater than the textile, iron & steel and chemical & biotech sectors.

The descriptive analysis also shows that the EPS and ROA of the electric machinery and electronics sectors are significantly greater than other sectors, reflecting the sound financial position of these sectors' firms. (3) Overall, we observe that descriptive statistics are significantly different across industrial sectors – reflecting a higher level of heterogeneity which needs to be separately accounted for by conducting a sector-wise analysis. To this end, we conclude that the electric machinery and electronics sectors are financially strongest while the textile and iron & steel sectors are relatively weakest sectors.

TABLE 2

4 | Empirical results

Table 3 presents the results of the CG (e.g., board size, CEO duality, INEDs, audit committee independence and block ownership) and firm value relationship and the moderating role of block ownership on the relationship between CG and firm value across industrial sectors. We employed a well-developed two-step system GMM estimator.

Table 3 shows that the coefficient on board size is insignificant for textile, iron & steel, chemical & biotech and miscellaneous sectors (*Model 5*; $\beta = 0.652$; *Model 10*; $\beta = 0.322$; *Model 15*; $\beta = 0.362$; *Model 30*; $\beta = 0.381$). The possible explanation for the insignificant effect is that the board size of these sectors is relatively small while these sectors' board has less diversity in board composition owing to family intervention.

On the contrary, the results of electric machinery and electronics sector firms show a significant positive association between board size and Tobin 's Q which is consistent with the prior study of Arosa et al. (2010) and the prediction of agency theory (*Model 20*; $\beta = 0.528$; *Model 25*; $\beta = 0.321$). This result reflects that a larger board can perform better monitoring functions which enhances the board's tendency of vigilance. This result is congruent with the resource-based view which argues that a larger board is associated with diversification in terms of board intellectual knowledge, which in turn, positively influences firm value. Based on these results, we accept hypothesis *H1* for electric machinery and electronics and reject it for textile, iron & steel, chemical & biotech and miscellaneous sectors.

The results also show that the coefficient on CEO duality is negatively significant across textile, iron & steel, chemical & biotech and miscellaneous sectors which is consistent with the

(3) The variables such as EPS, and ROA used only in descriptive statistics for the comparison of industrial sectors and are not part of the regression analysis.

prediction of agency theory (*Model 5*; $\beta = -0.602$: *Model 10*; $\beta = -0.302$: *Model 15*; $\beta = -0.322$: *Model 30*; $\beta = -0.488$). This result advocates the view that powerful CEOs are more likely to take the benefit of information asymmetries and apply their power and authority for personal incentives at the cost of minority shareholders. In contrast, the coefficient on the CEO duality is positively significant in the case of electric machinery and electronics sectors (*Model 20*; $\beta = 0.562$: *Model 25*; $\beta = 0.215$), which is consistent with the prediction of stewardship theory and the prior studies of Abor & Biekpe (2007) and Ritchie (2007).

We argue that the electric machinery and electronics sectors firms are relatively large, less competitive and adopted better CG practices hence – the presence of duality in the electric machinery and electronics sectors helps to minimise management conflict – and avoid delays in decisions, which in turn, positively impacts *TQ*. We thus accept hypothesis *H2a* for textile, iron & steel, chemical & biotech and miscellaneous sectors and *H2b* for electric machinery and electronics sectors.

The coefficient on INEDs is negatively significant in the case of the textile and iron & steel sectors – reflecting that the blockholders develop a coalition with the INEDs and extract the private benefit at the cost of minority shareholders, which in turn, destroys firm value (*Model 5*; $\beta = -0.365$: *Model 10*; $\beta = -0.276$). In the case of chemical & biotech and miscellaneous sectors the coefficient on INEDs is insignificant – suggesting that INEDs tend to be reluctant to work independently as they can be re-elected if they have a good affiliation with the powerful CEO and blockholders (*Model 15*; $\beta = 0.291$: *Model 30*; $\beta = 0.322$).

On the contrary, the electric machinery and electronics sectors' results show a significant positive impact of INEDs on *TQ* (*Model 20*; $\beta = 0.282$: *Model 25*; $\beta = 0.386$). The possible explanation for this result is that these sector firms have relatively better CG mechanisms in place which restrict the unnecessary intervention of the blockholders on the monitoring role of INEDs. Based on these findings we accept hypothesis *H3a* for the textile and iron & steel sectors and accept hypothesis *H3b* for the electric machinery and electronics sectors.

The coefficient on the audit committee is negatively significant in the case of the textile and iron & steel sectors (*Model 5*; $\beta = -0.662$: *Model 10*; $\beta = -0.307$). The possible explanation of these results is that audit committees in these sectors are not independent as the INEDs are linked with powerful blockholders to support their incentives. Whereas the audit committee is insignificant in the case of chemical & biotech and miscellaneous sectors (*Model 15*; $\beta = 0.301$:

Model 30; $\beta = 0.212$). On the contrary, the audit committee is positively significant for the electric machinery and electronics sectors (*Model 20*; $\beta = 0.323$; *Model 25*; $\beta = 0.261$). This result advocates the view of Gendron et al. (2004) who argue that the presence of an independent audit committee depicts firms' strong audit quality, control effectiveness, financial statement accuracy and overall better CG. We thus reject hypothesis *H4* for all sectors except the electric machinery and electronics sectors.

The results further show that the coefficient on block ownership is negatively significant with regard to the textile, iron & steel, chemical & biotech and miscellaneous sectors (*Model 5*; $\beta = -0.312$; *Model 10*; $\beta = -0.366$; *Model 15*; $\beta = -0.455$; *Model 30*; $\beta = -0.235$). This result shows that blockholders pursue ultimate power and control to extract private benefits – leading to the ‘entrenchment effect’. This result reflects that blockholders tend to limit the board's power and authority and put their self-interests ahead of the firm's goals, which in turn, damages the firm value.

In contrast, block ownership shows a positive impact on firm value in the case of electric machinery and electronics sectors – indicating an ‘alignment/monitoring effect’ (*Model 20*; $\beta = 0.331$; *Model 25*; $\beta = 0.233$). This result shows that the blockholders focus on value maximisation through effective monitoring and disciplinary mechanisms whilst effectively curbing the extraction of corporate resources. Based on these findings, we accept hypothesis *H5a* for textile, iron & steel, chemical & biotech and miscellaneous sectors. Whereas we accept hypothesis *H5b* for the electric machinery and electronics sectors.

Hypothesis *H6a* suggested that block ownership negatively moderates the relationship between board size and *TQ*. Whilst the coefficient on the interaction term (e.g., block ownership*board size) is insignificant across all the sectors (*Model 5*; $\beta = -0.243$; *Model 10*; $\beta = -0.411$; *Model 15*; $\beta = 0.299$; *Model 20*; $\beta = 0.591$; *Model 25*; $\beta = 0.254$; *Model 30*; $\beta = 0.287$). We thus fail to support Hypothesis *H6a*. Hypothesis *H6b* proposed a negative moderating effect of block ownership on the relationship between CEO duality and firm value.

The coefficient on the interaction term (CEO duality*block ownership) is negatively significant for the textile, iron & steel, chemical & biotech and miscellaneous (*Model 5*; $\beta = -0.311$; *Model 10*; $\beta = -0.512$; *Model 15*; $\beta = -0.559$; *Model 30*; $\beta = -0.471$) sectors while positively impacting electric machinery and electronics sectors firms (*Model 20*; $\beta = 0.351$; *Model 25*; $\beta = 0.233$).

We therefore accept the *H6b* for textile, iron & steel, chemical & biotech and miscellaneous sectors and reject for electric machinery and electronics sectors.

Regarding INEDs, the coefficients on the interaction terms (INEDs*block ownership) are negatively significant in the case of textile, iron & steel, chemical & biotech, and miscellaneous sectors – indicating that powerful blockholder link with INEDs which compromise the board monitoring function (*Model 5*; $\beta = -0.517$; *Model 10*; $\beta = -0.311$; *Model 15*; $\beta = -0.612$; *Model 30*; $\beta = -0.301$).

In contrast, the interaction terms of INEDs are positively significant for electric machinery and electronics sectors – reflecting that blockholders focus on value maximisation which strengthens the positive relationship between INEDs and *TQ* (*Model 20*; $\beta = 0.336$; *Model 25*; $\beta = 0.323$). Based on this result, we accept the hypothesis *H6c* for textile, iron & steel, chemical & biotech and miscellaneous sectors and reject for electric machinery and electronics sectors.

Finally, Hypothesis *H6d* proposed that block ownership negatively moderates the relationship between the audit committee and *TQ*. Our results provide support in favour of this hypothesis since a negative and significant coefficient (Audit committee*block ownership) is observed in the case of textile, iron & steel, chemical & biotech and miscellaneous sectors (*Model 5*; $\beta = -0.509$; *Model 10*; $\beta = -0.489$; *Model 15*; $\beta = -0.621$; *Model 30*; $\beta = -0.271$).

The interaction term of the audit committee is positively significant in the case of electric machinery and electronics sectors (*Model 20*; $\beta = 0.662$; *Model 25*; $\beta = 0.322$). We thus accept hypothesis *H6d* for textile, iron & steel, chemical & biotech and miscellaneous sectors and reject for electric machinery and electronics sectors. Overall, these results show that CG and firm value relationship differs across industrial sectors which supports our main argument that each industrial sector has a different target market consequently, they compete differently for goods and services owing to the difference in the market dynamics.

The coefficient on the family dummy is negatively significant across all the sectors – reflecting that the presence of family-control ownership negatively affects *TQ*. Further, market competitiveness measured by the HHI index is negatively impacted on *TQ* for textile and iron & steel sectors (i.e. higher competitive sectors), insignificant for chemical & biotech and miscellaneous sectors (i.e. moderate competitive sectors) and positively impacts *TQ* in the case of electric machinery and electronics sectors (i.e., lowest competitive sectors).

The results show that the impact of financial risk on firm value differs across industrial sectors. For example, the textile and iron & steel sectors which have the highest financial risk – show a negative impact on firm value (*Model 5*; $\beta = -0.205$; *Model 10*; $\beta = -0.372$). In contrast, the chemical biotech and miscellaneous sectors have a moderate level of risk (*Model 15*; $\beta = 0.377$; *Model 30*; $\beta = 0.402$), and the electric machinery and electronics sectors (*Model 20*; $\beta = 0.376$; *Model 25*; $\beta = 0.491$) which have the lowest level of financial risk positively impact on firm value.

Our findings show that there is no relationship between firm size and *TQ* in the case of textile, iron & steel, chemical & biotech, and miscellaneous sectors. On the contrary, there is a significant positive association between firm size and *TQ* with regard to the electric machinery and electronics sectors. The results further show a significant positive impact of leverage on *TQ* across textile, iron & steel, chemical & biotech and miscellaneous sectors – reflecting that these sectors' firms prefer leverage over equity financing to inflate their equity stakes.

In contrast, the coefficient on leverage is negatively significant in the case of electric machinery and electronics sectors – indicating that these sectors firms use the leverage for value maximisation rather than as a tool of minority shareholders' expropriation. The coefficient on sales growth is insignificant with regards to the textile, iron & steel and chemical & biotech sectors – while electronics, electric machinery and miscellaneous sectors show a positive relationship between sales growth and firm value.

TABLE 3

4.1 | Robustness Tests: IV approach (Endogeneity of Family-Control Firms)

Although, our econometric model addresses the omitted heterogeneity by using the year dummy, fixed effects and separate estimation of industrial sectors; however, we take into consideration some omitted variables robustness tests which may influence the relationship between *CG* and *TQ*. Our main results in Table 3 show that the family dummy has a negative impact on *TQ*. However, family control and *TQ* are likely to be affected by the same firm characteristics.

We argue that the level at which ownership is systematically linked to the difference across firm characteristics – the effect of the family element on *TQ* could result from such differences. Further, there is a possibility that our results may be driven by reverse causality. For instance,

a family maintain a higher level of ownership in a socially irresponsible firm because it is less attractive to external investors. To address the potential sources of endogeneity regarding family elements and to avoid sample selection bias, we employ the Instrumental variable regression (IV), Heckman selection model and Propensity Score Matching technique (PSM).

We begin by employing an instrumental variables (IV) approach by using an endogenous binary variable. To this end, we adopt a three-stage procedure by following Adams et al. (2009) and present the results in Table 4. In the first stage, we estimate a Probit regression by regressing a dummy variable of family-controlled firms on all explanatory and control variables.

Following Lin et al. (2011) and Laeven & Levine (2008), we incorporate the average value of the control rights of family firms by considering the industry as an instrumental variable for family firms. At the second stage, we regress the family dummy on the fitted estimation by Probit regression including all predictors. In the third stage, we regress *TQ* on the predicted family dummy and control variables. Table 4 shows that the coefficient on family-dummy is negatively significant across all the sectors hence validating the results of Table 3.

Table 4

4.2 | Robustness Tests: Heckman Selection Model (Endogeneity of Family-Control Firms)

We next estimate the Heckman selection model for the robustness of our results and present the results in Table 5. At the first stage, as a standard procedure of the Heckman selection model, we perform the Probit estimation to regress the family dummy, instrumental variable, and the respective control variables and present the estimation in column 1 of each sector. We then determine the Inverse Mills ratio (λ) and regress *TQ* on (λ) including family-dummy and control variables and present the results in column 2 of each sector. (4) The results show that the family dummy is negatively significant across all sectors. These estimations reinforce our main findings in Table 3 by incorporating family elements as a potential source of endogeneity.

Table 5

4.3 | Robustness Tests: Propensity Score Matching (PSM) (Endogeneity of Family-Control Firms)

(4) We estimate the inverse Mills ratio (λ) by using STATA command.

Propensity score matching (PSM) is a quasi-experimental method in which the researcher uses statistical techniques to construct an artificial control group by matching each treated unit with a non-treated unit of similar characteristics. Using these matches, we can estimate the impact of an intervention. The main advantage of the propensity score methodology is in its contribution to the more precise estimation of treatment response. Thus, the PSM is a standard tool to estimate the effects of treatments in studies where any potential bias may exist.

We also estimate the Propensity Score Matching technique (PSM) for the robustness of our findings and present the results in Table 6. To this end, we determine the propensity scores using the Probit model by incorporating the family dummy along with its corresponding instrumental and control variables. We match each observation of family firms (without replacement) to the non-family firm that holds the nearest score to the respective family-controlled firm.

We then estimate the regression model using the sample of PSM to determine whether the relationship between the family dummy and *TQ* remains significantly negative. The result demonstrates that the family dummy continues to show a negative impact on *TQ* across all the sectors, even the non-family firms exhibit those firm-level specific characteristics which are similar to the family firms. In sum, the underlying endogeneity tests consistently support our main findings in Table 3, suggesting that endogeneity does not influence our empirical results.

TABLE 6

4.4 | Robustness Tests: Difference in difference estimation (governance regulations (2011) as a natural exogenous shock))

Finally, considering the prevalence of family control firms in emerging markets, we specifically, incorporate the family element and the release of governance regulations 2011 as a potential source of endogeneity to test the validity of our results. In this regard, the Legislative Yuan (Parliament of Taiwan) passed the revision in the Company Law in 2011 which is directly associated with governance arrangements in Taiwan. Overall, these governance regulations persuade the firms to follow good CG practices. Table 7 presents the robustness of our results by using the governance regulations 2011 as an exogenous shock to test whether the results are driven by the release of these revised regulations.

We therefore employ the Difference-in-differences (DiD) estimation by incorporating the requirement of CG regulations (2011). The DiD is a quasi-experimental estimation technique used in the literature to compare the changes in outcomes over time by studying the differential

effects of a treatment on a targeted 'treatment group' versus a 'control group'. This arrangement mitigates the potential source of endogeneity as the change in the firm-level internal CG is endogenously triggered by new governance regulations (2011).

As a standard procedure of DiD estimation, our '*treatment group*' are the firms being affected by the revised CG regulations (2011) while the '*control group*' represents the firms not being affected (e.g., no quantitative change in the proportion of CG variables). To this end, we include a binary variable '*Treated*' by taking the value 1 if there is a change in the proportion of CG variable across sectors firms after the release of governance regulations (2011) and 0 otherwise.

In addition, we control for the post-regulation period using an indicator variable '*post-regulation*' by taking value 1 if the sample year is (2011), and 0 otherwise. Moreover, we incorporate the interaction term (i.e., *Treated * Post-regulation*) as a binary variable that equals 1 if the TQ is affected by the governance regulations (2011), and 0 otherwise. The results show that the variables '*Treated*Post-regulation*' remain insignificant across all the sectors, indicating that the governance regulations have no significant impact on firm value which indicates that our estimated results have not been driven by the release of regulations (2011).

TABLE 7

5. | DISCUSSION AND CONCLUSION

We have three main objectives of this study. First, to examine the impact of internal CG mechanisms (e.g., board size, CEO duality, independent non-executive directors, presence of audit committee and block ownership) on firm value by employing the sector-wise analysis. Second, we examine the moderating effect of large controlling shareholders (blockholders) on the relationship between CG and firm value. Finally, we test the theoretical significance of sector-wise analysis of whether Type II agency conflicts differ across industrial sectors owing to the different dynamics of each sector.

We argue that a pooled sample is unable to identify the industry-specific dynamics as there is a higher level of heterogeneity across industrial sectors. Our results demonstrate that the sector-wise analysis helps to understand the distinctive governance behaviours of each industrial sector hence providing a better understanding of CG and firm value relationship. We conclude that the CG model is not universal i.e., not 'one-size-fits-all' for different industrial sectors and fortify the assertion that the CG regulations should be tailored considering the industry-specific attributes.

Our findings suggest regulators to customise the CG model according to the nature of each industrial sector hence CG regulations would be more specific to each sector which tends to optimize CG compliance. In this regard, a sector engagement strategy can enable regulators to act as a facilitator in bringing firms together to solve mutual problems at the sector level. Equally, the variation across industrial sectors owing to the industry's individual characteristics and cultural values tends to require industry-specific internal CG mechanisms.

In terms of individual dynamics of each sector – our analysis shows that the electric machinery and electronics sector firms are relatively larger with higher earnings per share and have a lower competitive market and lower financial risk – whilst more regulated than other sectors hence adopting a better CG practice equivalence to the developed economies. On the contrary, our evidence reveals that textile, iron & steel, are dominated by small-size firms with lower earnings per share whilst suffering a highly competitive market and financial risk which get away these sectors from better CG practices – leading to a weak CG and firm value nexus. The chemical & biotech and miscellaneous sectors firms are medium in size with a moderate competitive market and financial risk and average earning per share hence demonstrating the adequate practice of CG.

With regard to the impact of individual governance variables – we report that board size, CEO duality, INEDs, audit committee independence and block ownership positively impact *TQ* in the case of electric machinery and electronics sectors. In contrast, these variables reflect a negative or insignificant impact on *TQ* across textile, iron & steel, chemical & biotech and miscellaneous sectors – indicating a marked difference between the internal CG practice of different industrial sectors. To this end, we argue that market competition and its challenges tend to differ across sectors owing to the difference in the buying and selling markets of each sector which impact their corporate environment leading to a different CG and *TQ* nexus.

Likewise, we report that the moderating impact of block ownership on the relationship between CG and *TQ* is positively significant for electric machinery and electronics – leading to the ‘monitoring effect’ whereas negatively significant for textile, iron & steel, chemical & biotech and miscellaneous sectors – reflecting ‘entrenchment effect’. We report that the blockholders tend to appoint INEDs which are not truly independent which negatively impacts firm value.

In addition, we established the theoretical significance of sector-wise analysis by linking our econometric model with the notion of agency theory and ascertaining whether Type II agency

conflicts differ across industrial sectors owing to the different dynamics of each sector. In this regard, we report the presence of an ‘entrenchment effect’ across textile, iron & steel, chemical & biotech and miscellaneous sectors while the ‘alignment effect’ in the case of electric machinery and electronics sectors.

Importantly, prior studies established only one theoretical effect either the ‘entrenchment effect’ or ‘alignment effect’ for any setting – whereas we add to the literature that both effects of agency theory i.e. ‘entrenchment effect’ and ‘alignment effect’ may exist in one setting at the same time provided that analysis needs to be done on sector level.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available at www.bvdinfo.com with a paid subscription. Restrictions apply to the availability of this data which were used under license for this study.

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REFERENCES

- Abdeljawad, I., Oweidat, G.A. and Saleh, N.M. (2020). Audit committee versus other governance mechanisms and the effect of investment opportunities: evidence from Palestine. *Corporate Governance: The International Journal of Business in Society*, 20, 527-544.
- Abor, J. and Biekpe, N. (2007). Corporate Governance, Ownership Structure and Performance of SMEs in Ghana: Implications for Financing Opportunities. *Corporate Governance*, 7, 288-300.
- Adams, R., Almeida, H., Ferreira, D. (2009). Understanding the relationship between founder–CEOs and firm performance. *Journal of Empirical Finance*, 16, 36–150.
- Adams, RB., Hermalin, BE., Weisbach, MS. (2010). The Role of Boards of Directors in Corporate Governance: A Conceptual Framework and Survey. *Journal of Economic Literature*, 48, 58-107.

- Amin, Q. A. Farquhar, S, S. (2021). The relationship between corporate governance and firm financial performance: an empirical investigation of an emerging market. *International Journal of Business Governance and Ethics*, 152, 113940.
- Amin, Q. A., Liu, J. (2020). Shareholders' control rights, family ownership and the firm's leverage decisions. *International Review of Financial Analysis*, 72, 101591.
- Amin, Q.A., Cumming, D., (2023). Regulatory reforms, board independence and earnings quality. *Journal of International Financial Markets, Institutions & Money*, 88, 101840.
- Amin, Q.A., Cumming, D., (2023). The politician as a CEO, corporate governance and firm value. *Journal of International Financial Markets, Institutions & Money*, 87, 101804.
- Anderson, A., Gupta, P.P. (2009). A cross-country comparison of corporate governance and firm performance: Do financial structure and the legal system matter. *Journal of Contemporary Accounting & Economics*, 52, 61-79.
- Antounian, C., Mustafa A. Dah, M.A., Harakeh, M. (2021). Excessive managerial entrenchment, corporate governance, and firm performance. *Research in International Business and Finance*, 56, 101392.
- Arosa, B., T. Iturralde and A. Naseda (2010). Outsiders on the board of directors and firm performance: evidence from Spanish non-listed family firms. *Journal of Family Business Strategy*, 1, 236–245.
- Arouri, M.E.H. (2011). Does crude oil move stock markets in Europe? A sector investigation. *Economic Modelling*, 28, 1716-1725.
- Bae, K.H., Baek, J.S., Kang, J.K., Liu, W.L., (2012). Do controlling shareholders' expropriation incentives imply a link between corporate governance and firm value? Theory and evidence. *Journal of Financial Economics*, 105 412–435.
- Basu, N., Imants Paeglis, I., Rahnamaei, M. (2016). Multiple blockholders, power, and firm value. *Journal of Banking & Finance*, 66, 66-78.
- Beasley, M. S. (1996). 'An empirical analysis of the relation between the board of director composition and financial fraud. *Accounting Review*, 71, 443–465.
- Bhagat, S., & Bolton, B. (2008). Corporate governance and firm value. *Journal of Corporate Finance*, 14, 257-273.
- Black, B. and Kim, W. (2012). The effect of board structure on firm value: A multiple identification strategies approach using Korean data. *Journal of financial economics*, 104, 203-226.
- Boachie, C. (2021). Corporate governance and financial performance of banks in Ghana: The moderating role of ownership structure. *International Journal of Emerging Markets*. 18 (3), 607-632.
- Bozec, R. (2005). Boards of Directors, Market Discipline and Firm Performance. *Journal of Business Finance & Accounting*, 32, 1921-1960.
- Brown, L. and Caylor, M.L. (2006). Corporate governance and firm valuation. *Journal of Accounting and Public Policy*, 25 (4), 409-434.
- Cavaco, S., Crifo, P., Reberiou, A., Roudaut, G. (2017). Independent directors: Less informed but better selected than affiliated board members? *Journal of Corporate Finance*, 43, 106-121.
- Chambers, A. (2014). Chambers' Corporate Governance Hand-book, 6th edn, Hayward Heath, West Sussex: Bloomsbury Professional.

- Chen I-Ju. (2014). Financial crisis and the dynamics of corporate governance: Evidence from Taiwan's listed firms. *International review of financial analysis*, 32, 3-28.
- Chi.,W.C., Hung,K., Cheng,HW., Lieu,PT. (2015).Family firms and earnings management in Taiwan: Influence of corporate governance. *International Review of Financial Analysis*,36, 88-98.
- Ciftci, Ilhan, Ekrem Tatoglu, Geoffrey Wood, Mehmet Demirbag, and Selim Zaim. (2019). Corporate governance and firm performance in emerging markets: Evidence from Turkey. *International Business Review*, 28, 90–103.
- Ciftci,I., Tatoglu, E., Wood, G. Demirbag, M. , Zaim, S. (2019). Corporate governance and firm performance in emerging markets: Evidence from Turkey. *International Business Review*, 28, 90–103.
- Croci, E., John A. Doukas, J.A., Gonenc, H. (2011). Family Control and Financing Decisions.*European Financial Management*, 17(5), 860–897.
- Laeven, L., Levine, R. (2008). Complex ownership structures and corporate values. *Review of Financial Studies*, 2,1579-604.
- Doukas, J.A., Zhang, R. (2020).Corporate managerial ability, earnings smoothing, and acquisitions. *Journal of Corporate Finance*, 65,101756.
- Ducassy, I. and Montandrau, S. (2015). Corporate social performance, ownership structure, and corporate governance in France. *Research in International Business and Finance*, 34, 383-396.
- El Mehdi, I.K. (2007). Empirical evidence on corporate governance and corporate performance in Tunisia. *Corporate Governance: International Review*, 15,1429–1441.
- Eling, M., Marek, S.D. (2013). Corporate governance and risk rating: evidence from the UK and German insurance market. *The Journal of Risk and Insurance*, 81(3), 653–682
- Engel, E., Hayes, RM.,Wang,X. (2010). Audit committee compensation and the demand for monitoring of the financial reporting process, *Journal of Accounting and Economics*, 49,136-154.
- Fahlenbrach, R. (2009). Founder-CEOs and stock market performance. *Journal of Financial and Quantitative Analysis*, 442, 439–466.
- Fama, E.F. and Jensen, M.C. (1983). Separation of Ownership and Control. *Journal of Law & Economics*, 262, 301-325.
- Fan Q, Jahan-Parvar MR. (2012). U.S. industry-level returns and oil prices. *International Review of Economics and Finance*, 22:112–128.
- Fan, Y., Boateng, A., King, T. & MacRae, C. (2019) Board-CEO friendship ties and firm value: evidence from US firms. *International Review of Financial Analysis*, 65, 1–17.
- Farag, H., and C. A. Mallin. (2016). The Impact of the Dual Board Structure and Board Diversity: Evidence from Chinese Initial Public Offerings IPOs. *Journal of Business Ethics*, 139, 333–349.
- Fauver, L., Hung, M., Li, X. and Taboada, A.G., (2017). Board reforms and firm value: Worldwide evidence. *Journal of Financial Economics*, 125,120-142.
- Filatotchev,I., Lien YC., Piesse, J. (2005). Corporate Governance and Performance in Publicly Listed, Family-Controlled Firms: Evidence from Taiwan. *Asia Pacific Journal of Management*, 22, 257–283.
- Gendron, Y., J. Bedard and M. Gosselin (2004). Getting inside the black box: a field study of practices in “effective” audit committees. *Auditing: A Journal of Practice and Theory*, 23, 153–171.
- Guest, P.M. (2009). The impact of board size on firm performance. *The European Journal of Finance*, 15,385–404.

- Gupta,P., Chauhan,S. (2023). Dynamics of corporate governance mechanisms - family firms' performance relationship – a meta-analytic review. *Journal of Business Research*, 154,113299.
- Haniffa, R., Hudaib, M. (2006). Corporate Governance Structure and Performance of Malaysian Listed Companies. *Journal of Business Finance & Accounting*, 33, 1034-1062.
- Hermalin, B, Weisbach, M. (2003). Boards of directors as an endogenously determined institution: a survey of the economic literature. *Economic Policy Review*, 9 (2) 7-26.
- Ho, J. Cheng Jen Huangb,C.J., Karuna, C. (2020). Large shareholder ownership types and board governance. *Journal of corporate Finance*,65, 101715.
- Ho, J., Huang, C.J., Karuna, C. (2020). Large shareholder ownership types and board governance. *Journal of Corporate Finance*, 65, 101715.
- HO., J. Huang.CJ., Karuna, C. (2020). Large shareholder ownership types and board governance. *Journal of Corporate Finance*, 65, 101715.
- Hung, S-H., Whittington, R. (2011). Agency in national innovation systems: Institutional entrepreneurship and the professionalization of Taiwanese IT. *Research Policy*, 40 526–538.
- Jackling, B. and Johl, B. (2009) 'Board structure and firm performance: evidence from India's top companies. *Corporate Governance: An International Review*, 17, 492–509.
- Jesuka, D., Peixoto,F.M. (2021). Corporate governance and firm performance: does sovereign rating matter? *Corporate Governance: The International Journal of Business in Society*, 22, 243-256.
- Jiraporn, P., Chintrakarn, P., & Liu, Y. (2012). Capital structure, CEO dominance, and corporate performance. *Journal of Financial Services Research*, 423, 132–158.
- Kaczmarek, S., Kimino, S., & Pye, A. (2014). Interlocking directorships and firm performance in highly regulated sectors: the moderating impact of board diversity. *Journal of Management & Governance*, 182, 347–372.
- Kao, L. and A. Chen (2004). The effect of board characteristics on earnings management. *Corporate Ownership and Control*, 1, 96–107.
- Kao, M. F., Hodgkinson, L., & Jaafar, A. (2018). Ownership structure, board of directors and firm performance: Evidence from Taiwan. *Corporate Governance: The International Journal of Business in Society*, 9, 189– 216.
- Kao,M.F., Hodgkinson, L. Jaafar, A. (2019). Ownership structure, board of directors and firm performance: evidence from Taiwan. *Corporate Governance: International Journal of Business & Society*, 19, 189-216.
- Klapper, L. F., & Love, I. (2004). Corporate governance, investor protection, and performance in emerging markets. *Journal of Corporate Finance*, 1 5, 703–728.
- Konijn, S.J.J., Kraussl, R., Lucas, A. (2011). Blockholder dispersion and corporate value', *Journal of Corporate Finance*, 17, 1330-1339.
- Kyere., M. Ausloos, M. (2021). Corporate governance and firms financial performance in the United Kingdom. *International Journal of Finance & Economics*. 26:1871–1885.
- Lee, J.S., Yen, P.H., Lee, L.C. (2019). Political connection and stock return, Evidence from party alternation in Taiwan. *International Review of Economics and Finance*. 63, 128–137.
- Lefort, F., Urzua, F. (2008). Board independence, firm performance and ownership concentration: Evidence from Chile. *Journal of Business Research*, 61,615-622.
- Li, T. and Zaiats, N. (2017). Corporate governance and firm value at dual-class firms. *Review of Financial Economics*,36, 47-71.

- Limbach, P., Schmid, M., & Scholz, M. (2016). All Good Things Come to an End: CEO Tenure and Firm Value. Working Papers on Finance NO. 2015/11.
- Lin, C., Ma, Y., Malatesta, P., Xuan, Y. (2011). Ownership structure and the cost of corporate borrowing. *Journal of Financial Economics*, 100, 1–23.
- Liu, Y., Miletkov, M. K., Wei, Z., & Yang, T. (2015). Board independence and firm performance in China. *Journal of Corporate Finance*, 30, 223–244.
- Liu, YU., Valenti, A. Hen, Y. (2016). Corporate governance and information transparency in Taiwan's public firms: The moderating effect of family ownership. *Journal of Management & Organization*, 22, 662–679.
- Mangena, M., Chamisa, E. (2008). Corporate governance and incidences of listing suspension by the JSE Securities Exchange of South Africa: An empirical analysis. *The International Journal of Accounting*, 43, 28–44.
- Maury, B., Pajuste, A. (2005). 'Multiple large shareholders and corporate value', *Journal of Banking and Finance*, 29 (7), pp. 1813–1834.
- Mobrand, E. (2020). Corruption, Democracy, and the Business of Politics in Taiwan. The online magazine of the Taiwan Studies Programme. University of Nottingham. <http://www.taiwaninsight.org>.
- Moya-Martínez P, Ferrer-Lapeña R, Escribano-Sotosc F. (2014). Oil price risk in the Spanish stock market: an industry perspective. *Economic Modelling*, 37, 280–290.
- Munisi, G. and Randoy, T. (2013). Corporate governance and company performance across Sub-Saharan African countries. *Journal of Economics and Business*, 70, (C), 92–110.
- Mutlu, C.C., Van Essen, M., Peng, M.W., Saleh, S.F. & Duran, P. (2018) Corporate governance in China: a meta-analysis. *Journal of Management Studies*, 55(6), 943–979.
- Nguyen, T., Locke, S. & 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., Locke, S., Reddy, K. (2014). A dynamic estimation of governance structures and financial performance for Singaporean companies. *Economic Modelling*, 40(C), 1–11.
- Niamh. M., Solomon, J. (2008). Corporate governance, accountability and mechanisms of accountability: an overview. *Accounting, Auditing & Accountability Journal*. 217, 885–906.
- Nicholson, G., & Kiel, G. (2007). Can directors impact performance? A case based test of three theories of corporate governance. *Corporate Governance: An International Review*, 154, 585–608.
- Ntim, C. G., Soobaroyen, T., Broad, M. J. (2017). Governance structures, voluntary disclosures and public accountability: The case of UK higher education institutions. *Accounting, Auditing & Accountability Journal*, 30, 65–118.
- Onali, E., Galiakhmetova, R., Molyneux, P., & Torluccio, G. (2016). CEO power, government monitoring, and bank dividends. *Journal of Financial Intermediation*, 27, 89–117.
- Puni. A. (2015). Do board committees affect corporate financial performance? Evidence from listed companies in Ghana. *International Journal of Business and Management Review*, 3, 14–25.
- Rashid, A. (2018). Board independence and firm performance: Evidence from Bangladesh. *Future Business Journal*, 4, 34–49.
- Ritchie, T. (2007). Independent directors: magic bullet or Band-Aid? *Corporate Governance eJournal*. Available at <http://epublications.bond.edu.au/cgej/5>.

- Sarpong-Danquah, B., Gyimah, P., Afriyie, R. O., & Asiamah, A. (2018). Corporate governance and firm performance: An empirical analysis of manufacturing listed firms in Ghana. *Accounting and Finance Research*, 7(3), 111–118.
- Serra, F.R., Trê, G. & Ferreira, M.P. (2016) The ‘CEO’ effect on the performance of Brazilian companies: an empirical study using measurable characteristics. *European Management Review*, 13(3),193–205.
- Shukeri, S. N., Shin, O. W., & Shaari, M. S. (2012). Does board of director’s characteristics affect firm performance? Evidence from Malaysian public listed companies. *International Business Research*, 59,120–127.
- Shyu. J. (2011). Family ownership and firm performance: evidence from Taiwanese firms. *International Journal of Managerial Finance*,7, 397-411.
- Solomon, JF., Lin, SW., Norton, SD. Aris Solomon, A. (2003). Corporate Governance in Taiwan: empirical evidence from Taiwanese company directors” *Corporate Governance: International Review*,113, 235-248.
- Tai YH, Hwang, NC Richard. (2020). Market Reactions to Corporate Governance Ranking Announcements: Evidence from Taiwan. *ABACUS*, 564, 12209.
- Ullah, S., Kamal, Y. (2019). Corporate governance, political connections and firm performance, the role of political regimes and size. *Global Business Review*, 1–23.
- Unsal, O., Hassan, M.K., Zirek, D.(2016). Corporate lobbying, CEO political ideology and firm performance. *Journal of Corporate Finance*, 38,126–149.
- Uribe-Bohorquez, MV., Martínez-Ferrero,J. Garcia-Sanchez, IM. (2018). Board independence and firm performance: The moderating effect of institutional context. *Journal of Business Research*, 88, 28-43
- Veprauskaite, E., Adams, M. (2013). Do powerful chief executives influence the financial performance of UK firms? *British Accounting Review*,45, 229–241.
- Villalonga, B. and Amit, R. (2006). How do family ownership, control and management affect firm value? *Journal of Financial Economics*, 802, 385-417.
- Wang, K., & Shailer, G. (2015). Ownership concentration and firm performance in emerging markets: A meta-analysis. *Journal of Economic Survey*, 292, 199–229.
- Wang,W.K., Min Lu,W.M.,Kweh, Q.L., Siao, W.Y.(2020). Related-party transactions and corporate performance following the adoption of International Financial Reporting Standards in Taiwan. *Management and Decision Economics*, 41,371–379.
- Weir, C., Laing, D. (2000). The Performance-Governance Relationship: The Effects of Cadbury Compliance on UK Quoted Companies. *Journal of Management and Governance*, 4, 265-281.
- Whitley, R. (2013). Change and Continuity in East Asia Business System. Chapter 28.
- Wintoki, M.B., Linck, J.S., Netter, J.M. (2012). Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics*, .105, 581–606.
- Yeh, Y.H., Shu,PG. Su,YH. (2012). Related-party transactions and corporate governance: The evidence from the Taiwan stock mark. *Pacific-Basin Finance Journal*, 20, 755–776.
- Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Finance & Economics*, .40, 2, 185-211.
- Young, C.S., Tsai, L.C., Hsieh, P.G., (2008). Voluntary appointment of independent directors in Taiwan: motives and consequences. *Journal of Business Finance and Accounting*, 35, 1103–1137.
- Yu, M. (2023). CEO duality and firm performance: A systematic review and research agenda. *European Management Review*, 20,346–358.

- Yusuf, F., Yusuf, A., Saeed, A. (2018). Rethinking agency theory in developing countries: A case study of Pakistan. *Accounting Forum*, **4**, 281-29.
- Yuting Huang, Y. Anlin Chen, A., Kao, L. (2012). Corporate governance in Taiwan: The nonmonotonic relationship between family ownership and dividend policy. *Asia Pacific Journal of Management*, 29:39–58.
- Zhang, X., Tang, G., & Lin, Z. (2016). Managerial power, agency cost and executive compensation—an empirical study from China. *Chinese Management Studies*, 10 1, 119–137.