Ownership Structure and Firm Performance in Malaysia: The Moderating Effect of Corruption Risk

Hafizah Marzuki[1], Suhaily Hasnan[2]♣, Mazurina Mohd Ali[3] and Iman Harymawan[4]
[1]Internal Audit Office, Universiti Sains Islam Malaysia, Negeri Sembilan, Malaysia
[3]Faculty of Accountancy, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia
[2]Faculty of Accountancy, Universiti Teknologi MARA,
Puncak Alam Campus, Selangor, Malaysia
[4]Department of Accounting, Faculty of Economics and Business,
Universitas Airlangga, Indonesia

ABSTRACT

The purpose of this study was to examine the effects of ownership structure on firm performance and the interaction effect of a firm's corruption risk with the ownership structure. Data were collected from the annual reports of 280 Malaysian public listed firms over the period 2018 to 2022. Multiple regression analyses were run to assess the empirical status of the research hypotheses. For direct relationship, the results showed a positive and significant relationship between foreign ownership and firm performance, while family ownership and institutional ownership had no significant relationship with firm performance. For interaction effect, there was evidence of corruption risk having a moderating effect on the positive influence of family, foreign, and institutional ownership against firm performance. The key results of the study are beneficial to highlight the roles of family, foreign, and institutional shareholders in accelerating firm performance, even though the Malaysian business environment is vulnerable to corruption risks. The originality of this study lies on the role of corruption risk in weakening or strengthening the ownership structure-firm performance relationship. This study makes a novel contribution to business players, shareholders, academicians, professionals, policymakers, and regulators. Limitations and future directions of the study are also discussed.

Keywords: Corruption Risk, Anti-Corruption, Corruption, Ownership Structure, Corporate Governance.

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♣ Corresponding Author: Suhaily Hasnan; Faculty of Accountancy, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia; Email: suhailyhasnan@uitm.edu.my

INTRODUCTION

Firm performance has become one of the key important driving forces for a country's economic growth (Doruk, 2023; Jakpar et al., 2019). Even though research on firm performance is extensive, there are still many areas that have not been explored, particularly in the Malaysian context (Khatib et al., 2022). Malaysia's capital markets constitute the backbone of the country's economic growth (Esa et al., 2023) however, the performance of the capital markets is subject to significant internal and external risks and uncertainties, such as global economic crises and a series of corporate fraud scandals (Securities Commission Malaysia, 2021a). These crises have caused several incidents of corporate collapse around the world, including Malaysia, with many corporations suffering from the financial crisis due to the Covid-19 pandemic (Wan et al., 2021) and the corporate scandal of 1 Malaysian Development Berhad (1MDB) (Lim & Yoong, 2023). Such disruptions have destroyed the performance of firms with the loss of billions of USD dollars, reputational damage, and the erosion of investors' confidence (Srinok & Zandi, 2021).

Therefore, to restore the confidence of stakeholders, there is a need for good corporate governance in firms (Karim et al., 2022), as its impact could strengthen firm performance and a country's economic growth. Khan et al. (2021) pointed out that a well-performing firm is driven by excellence in corporate governance practices. More so, Girau et al. (2024) argued that one of the contributing factors to corporate collapse is inappropriate corporate governance practices. Generally, corporate governance is a process of directing and managing the business affairs of a firm towards achieving its business objectives, while avoiding undesirable conflicts (Securities Commission Malaysia, 2021b). Further, the Securities Commission Malaysia (2021) stated that the primary objective of corporate governance is to allocate the rights and responsibilities among various parties in the firm, while balancing the needs of various stakeholders. However, the design of a corporate governance structure may vary among countries as it is subject to the political situation, as well as the economic, business, and social environment (Sayari & Marcum, 2022).

Over the last few years, corporate governance has become a controversial issue due to a series of corporate fiascos in many jurisdictions

including Malaysia (Girau et al., 2024). Following these corporate crises, the government of Malaysia has made a series of corporate governance reforms to ensure well-managed firms that uphold the main principles of governance, such as accountability, disclosure, responsibility, and transparency (Liew & Devi, 2021). The Malaysian Code on Corporate Governance was first introduced in 2000 and subsequently reviewed four times – 2007, 2012, and 2017, with the latest revision being in 2021. The aim of the MCCG reforms was to increase the quality of disclosures and implementation of corporate governance practices among publicly listed firms in Malaysia to help firms align the objectives between management and shareholders (SC, 2021). However, despite such efforts, the MCCG codes have failed to enhance good corporate governance because the application and implementation of these codes are not mandatory (Devi et al., 2019).

One of the primary components in the corporate governance system is the ownership structure. Malaysia has institutional structures that can be characterised as having low enforcement, concentrated ownership, and low shareholder activism (Liew & Devi, 2021). Therefore, Malaysia provides an interesting avenue to examine the relationship between ownership structure and firm performance. For example, past studies have observed that most firms in Malaysia had unique concentrated ownership, such as family firms (Hasnan et al., 2019; Liew & Devi, 2021) and institutional-controlled firms (Azmi et al., 2021; Ibrahim et al., 2019). However, given that the MCCG codes are not mandatory, an opportunity arises for Malaysian controlling shareholders to expropriate minority shareholders. Furthermore, Chaudhary (2022) argued that, in firms with high concentrated ownership, controlling shareholders had a tendency to expropriate minority shareholders. This is generally referred to as the Agency Problem Type II, which is based on the principal-principal problem and is particularly prevalent in emerging markets (Liew & Devi, 2021). Against this backdrop, Farooque et al. (2020) argued that concentrated ownership helps to alleviate agency conflicts, thereby leading to higher firm performance.

Another important issue that should be considered in the link between corporate governance mechanisms and firm performance is corruption. Corruption has been rampant in Malaysia and shapes some of Malaysia's policy (Foley, 2023). More so, Jones (2022) reported that Malaysia has encountered several corruption cases including IMDB, which have destroyed

firms' performance and corporate reputation. Furthermore, Malaysia's corruption perception index (CPI) has shown a declining ranking in recent years (Yusof et al., 2024) due to the erosion of shareholders' confidence and public trust after the IMDB corruption scandal (Jones, 2020). According to TI-M (2022), most territories are failing to stop corruption, with Malaysia's Corruption Perception Index declining from 53% in 2019 to 47% in 2022. Jones (2022) documented that, since 2004, various initiatives have been introduced by the government to tackle corruption. However, Mahmud et al. (2021) found that the effort of Malaysian capital markets to fight against corruption is still low and insufficient. The lack of anti-corruption measures signifies a high level of corruption risk, which exposes companies to possible corrupt practices in the future (Krishnamurti et al., 2021).

In the Malaysian context, many past studies have examined the direct relationship between ownership structure and firm performance (Ahmed et al., 2022; Azmi et al., 2021; Hasnan et al., 2019; Ibrahim et al., 2020; Karim et al., 2022, 2023; Liew & Devi, 2021; Sata et al., 2023; Wahid et al., 2023). Further, adding to the direct relationship between ownership structure and firm performance, this study found that another factor may have a moderating role, but Khatib et al. (2022) argued that there were limited studieson the moderation effect in the link between ownership structure and firm performance. Notably, a few researchers had examined the indirect relationship between ownership structure and firm performance by taking some situational factors as moderating variables such as political connection (Sata et al., 2023) and board independence (Karim et al., 2023). Hence, the originality of this study lies in the important role of ownership structure and its relationship with firm performance while taking corruption risk as a moderator variable. Also, this study was designed empirically for the purpose of highlighting the interaction effect between corruption risk and various types of ownership structure, such as family ownership, foreign ownership, and institutional ownership, with the support of the Agency Theory that is based on the principal-principal relationship.

This study contributes by providing clear evidence of the relationship between ownership structure, corruption risk, and firm performance among publicly listed firms in Malaysia. It sought to fill the research gap in the existing governance literature and offers empirical evidence about the interaction effect of corruption risk on the link between ownership

structure and firm performance in the following ways. First, given the unique regulations, economic policies, and environment in the Malaysian setting (Girau et al., 2022), this study may provide different perspectives to the extant literature. Second, this study demonstrates the role of ownership structure as an effective monitoring mechanism is depended on the firm-level corruption risk. Third, this study extends the previous research by examining the moderating effect of corruption risk, whether it may change the direction (i.e. negative, positive, or no direction) and strength (i.e. weaken or strengthen) of the ownership structure-firm performance relationship. This study has the following implications. For academia, this study offers an initial understanding on how corruption risk interacts with ownership structure and eventually influence firm performance. Next, this study benefits various parties, such professionals, business players, policymakers, and regulators in developing new policies and regulations.

The remainder of this paper is structured as follows: Section 2 explains the theoretical framework, literature review, and hypothesis development; Section 3 reports the sampling design, variable measurement, regression models, and data analysis employed in the study. Section 4 documents the empirical findings and discussion. Lastly, the conclusion and implications of the study are presented in Section 5.

LITERATURE REVIEW

Theoretical Framework

The Agency Theory is extensively used in corporate governance literature. This classical theory was first introduced by Jensen and Meckling in 1976, the primary focus of which is a nexus contract between the principal (owner) and agent (manager), and concerns the issue of agency costs (Jensen & Meckling, 1976). Further, this Theory provides a policy prescription for aligning the interests between the two parties, the principal and agent, based on three common mechanisms – monitoring, bonding activities, and incentive alignment. Khandelwal et al. (2023) elaborated on the types of Agency Theory, namely, type I and type II. The Agency Theory type I refers to the principal-agent relationship and is portrayed in the Anglo-American variety of the Theory, which is dominated by developed

economies (Nemoto, 2023). Nevertheless, firms may be exposed to agency problem type I principal-agent conflicts when management are reluctant to distribute profits to shareholders, while their executive compensations remain high (Ahmed et al., 2020).

In contrast, the Agency Theory type II denotes the principal-principal relationship. In this case, the managers (agents) can also be the owners (principals) if they own a significant share or even become controlling shareholders, such as the manager-owner of family-concentrated firms (Chai, 2016). The Agency Theory type II conjectures that controlling shareholders may serve as a monitoring tool in reducing agency conflicts, and thus, the expropriation of wealth by managers might be reduced (Ali et al., 2023). However, firms may face agency problem type II (principal-principal conflict) when the interest between controlling and minority shareholders is not aligned (Karim et al., 2023). Generally, the problem of the principal-principal conflict is more prevalent in developing countries (Khan et al., 2022; Young et al., 2008). Therefore, in explaining the relationship between the ownership structure and firm performance in Malaysia, this study adopted the Agency Theory type II.

Hypothesis Development

Ownership structure is a corporate governance issue in many developing countries including Malaysia. This is because ownership structure could influence decision making, and consequently, drive the performance of a firm. There are various types of ownership structure in corporate business of which three were adopted in this study – family ownership, foreign ownership, and institutional ownership. In Malaysia, the ownership pattern of firms differs from those in developed countries like the UK and the USA. Further, it is argued that the ownership pattern among publicly listed firms in Malaysia is concentrated across families, state, and institutional shareholders. Given the prevalence of ownership concentration in Malaysia, firms may be exposed to greater agency conflicts when dominant shareholders expropriate wealth and privileges from minority shareholders. Additionally, in the decision-making process, controlling shareholders have discretionary power in appointing cronies or associate members to sit on the board, thus increasing their ability to expropriate the interests of minority shareholders (Liew & Devi, 2021). This would present

different issues concerning the corporate governance landscape to those found in the Malaysian institutional setting.

Family-owned firms refer to firms that are managed and controlled by family members. Arguably, the unique characteristic of family ownership poses different challenges to developing-market firms. Interestingly, family-owned firms are prominent in the Malaysian business setting. Among them are some of the most prominent Malaysians including Robert Kuok (Kuok Brothers) or better known as the "Sugar-King," Quek Leng Chan (Public Bank Group), Tuanku Abdullah Tuanku Abdul Rahman (Melewar Group), Tan Sri Shamsuddin Abdul Kadir (Sapura Holdings Berhad), and T. Ananda Krishnan (Tanjong Berhad) (Lode and Noh, 2018). Family ownership plays a significant role in the corporate governance structure of a firm. There are two conflicting roles of family ownership, on the one hand, family ownership serves as a monitoring mechanism to align the interests between the principal and agent, while, on the other, the manager-owner of a family-controlled firm is reluctant to allocate wealth (i.e., dividends) to the minority shareholders (Ahmed et al., 2020).

Based on these arguments, there are two conflicting findings concerning the link between family ownership and firm performance. Past studies have documented that family ownership had a favourable impact on improving firm performance (Chandren et al., 2019; Hasnan et al., 2019; Kao et al., 2019). For instance, in the Malaysian context, Hasnan et al. (2019) found that the higher the percentage of family members' shareholdings in a firm the higher the firm value of the sample firms listed on Bursa Malaysia in 2016. However, other studies have found that family-dominant shareholders were negatively correlated with firm performance (Liew & Devi, 2021; Wang et al., 2020). Further, Liew & Devi (2021) reported that family firms had a significant and negative impact on the firm value of the sample domestic banks in Malaysia for the period 2007 to 2009. Despite the mixed findings, the Agency Theory outlines that family-controlling shareholders may enhance firm performance in the Malaysian business environment; thus, we suggested the following hypothesis:

$H_{1:}$ Family ownership is positively related to firm performance

Foreign ownership poses another part of the corporate governance mechanism in the business landscape. The role of foreign investors is important in reducing agency conflicts between managers and shareholders (Le et al., 2020). Further, foreign owners have modern technology and international exposure experience, thereby enabling them to bring additional value to their firms (Din et al., 2022)for 146 manufacturing firms listed at the Pakistan Stock Exchange (PSX. Examining the sample firms in Malaysia for the period 2015 to 2016, Yusof & Arshad (2020)tobit and generalized ordered logit regressions. Findings: The authors find that one-fifth of firms applying for construction permits or had visits or meetings with tax officials were expected to pay bribes. Firms' encounters with corruption were higher still when applying for import (29% observed that, on average, the percentage level of foreign ownership was around seven percent and that only one percent of the sample firms were entirely foreign-owned firms. In contrast, 81.7 percent were fully local firms. Similarly, past studies have documented that, on average, foreign investment constitutes only a small percentage of firm ownership in several Asian countries like the Taiwanese securities market (Kao et al., 2019)this paper aims to empirically assess the effects of ownership structure and board of directors on firm value. Design/methodology/approach: Using a sample of Taiwanese listed firms from 1997 to 2015, this study uses a panel estimation to exploit both the cross-section and time–series nature of the data. Furthermore, two stage least squares (2SLS. The lower participation of foreign investors could be due to the fact that some Asian countries have institutional structures that are characterised by higher concentrated ownership and lower protection for shareholders (Liew & Devi, 2021)panel data analysis using the fixed effects model (FEM.

Prior research on the link between foreign ownership and firm performance have documented controversial results. Some scholars view that the presence of foreign shareholders was a significant determinant of firm performance (Hong Nguyen et al., 2020)ownership concentration, foreign ownership, institutional ownership, Tobin q, return on assets, return on equities, and earnings per shares were collected from forty (40. More so, Adamu & Haruna (2020)ownership concentration, foreign ownership, institutional ownership, Tobin q, return on assets, return on equities, and earnings per shares were collected from forty (40 documented that foreign ownership had a positive relationship with firm performance,

suggesting that an increase in the foreign shareholding of a firm was more likely to strengthen other investors' confidence and thereby increase firm performance. In contrast, other studies have indicated that foreign ownership was negatively associated with firm performance (Jaffar & Abdul-Shukor, 2016). They further reported that foreign shareholders were less effective in monitoring roles because their representation in the firm was relatively small. In line with the Agency Theory, the previous discussion asserted that foreign ownership had a strong incentive to improve firm performance when their participation increased, thus the following hypothesis was proposed:

H_2: Foreign ownership is positively related to firm performance

Another important mechanism of corporate governance is institutional ownership. Xu et al. (2023) posited that domestic institutional investors were more committed to environmental innovation compared to foreign investors. Besides that, institutional shareholders served as a monitoring mechanism to control opportunistic managers and mitigate managers from expropriating the wealth of shareholders (Tsouknidis, 2019). In addition, institutional investors helped reduce agency conflicts by mitigating information asymmetry among shareholders. More so, institutional investors had several incentives to make investments in firms with effective governance that lead them to promote good corporate governance in the business landscape (Al-Jaifi et al., 2019). In Malaysia, the Institutional Investors Council Malaysia introduced the Malaysian Code of Institutional Investors (MCII) to ensure the right functioning of institutional investors and to promote good engagement activity with their investee firms. As such, their active roles in monitoring activities have contributed to firm performance (Azmi et al., 2021; Sakawa & Watanabel, 2020).

Consistent with the above arguments, previous research has found a direct relationship between institutional ownership and firm performance (Drobetz et al., 2021; Sakawa & Watanabel, 2020). For instance, Sakawa & Watanabel (2020) found that the association between firm performance and the percentage of institutional shareholding is positively significant in Japan. Similarly, Kao et al. (2019)this paper aims to empirically assess the effects of ownership structure and board of directors on firm value. Design/methodology/approach: Using a sample of Taiwanese listed firms from 1997 to 2015, this study uses a panel estimation to exploit both the

cross-section and time–series nature of the data. Furthermore, two stage least squares (2SLS used a Taiwanese dataset of listed firms and reported that the higher the percentage of institutional shareholdings, the higher the firm value. From the Malaysian context, Azmi et al. (2021) suggested that institutional ownership had a positive impact on firm financial performance, with a sample of 2,975 firm-year observations from 2013 to 2017. However, Tsouknidis (2019) analysed the linkage between institutional ownership and firm performance and found that institutional investors had a negative and significant direct impact on firm performance. Based on the Agency Theory and prior empirical findings, the following hypothesis was proposed:

H_3: Institutional ownership is positively related to firm performance

Despite inconclusive findings concerning a direct linkage between ownership structure and firm performance, studies on the indirect linkage between them are also inadequate (Khatib et al., 2022). Furthermore, the effect of corruption risk on ownership structure-firm performance has received less attention from researchers (Marzuki et al., 2022). Notably, Malaysian capital markets are operating in a high corruption risk environment in which the anti-corruption efforts are still low and insufficient (Joseph et al., 2016; Mahmud et al., 2021). Based on the literature, corruption risk has negative relationship with Islamic banks' stability in emerging countries including Malaysia (Yunan et al., 2023). In contrast, studying on the level of institutional quality, Alshubiri et al. (2024) found that high level of corruption is directly associated with improvement in banking stability of middle-income countries including Malaysia. For indirect relationship, past studies have found that corruption seemed to moderate the link between risk and banking profitability of Malaysia, suggesting that corruption increased the credit risk, and eventually increased performance of bank in Malaysia (Zaman et al., 2021). However, another prior study claimed that corruption had no role in the relationship between CEO compensation and firm performance in Asian countries including Malaysia (Yahya & Ghazali, 2018). Based on the Agency Theory and prior arguments, this study expected that the level of corruption risk would influence the relationship between ownership structure and firm performance. Hence, a set of hypotheses was developed as follows:

H_4: Corruption risk has a moderating effect on the relationship between family ownership and firm performance

H_5: Corruption risk has a moderating effect on the relationship between foreign ownership and firm performance

H_6: Corruption risk has a moderating effect on the relationship between institutional ownership and firm performance

RESEARCH METHOD

Data and Variables

The research sample consisted of 280 firms listed in Malaysia from 2018 to 2022 across 11 industries, excluding financial services firms and real estate investment trusts. Stratified random sampling was employed to compute the final sample. Thus, each sector was adequately represented to avoid any issues of misrepresentation. In total, 260 sample firms were required from a population of 755 and each stratum (sector) should be represented by a minimum of 30 samples, for which all samples will be included if the sample size for each stratum was less than 30 (Sekaran & Bougie, 2016). Next, 49 firms were excluded because they were registered under the Banking and Financial Institution Act, which had different regulatory settings. Table 1 presents the computation of the sample selection with their respective proportions.

For data collection, the beginning year of 2018 was to reflect the effective period of the latest Global Reporting Initiative (GRI), while the ending year of 2022 corresponded with the most recent information available during the data collection phase. Moreover, information on ownership structure and corruption risk was hand collected from the company's annual reports. Meanwhile, data on firm financial performance were drawn from the financial database of Eikon DataStream. This study adopted firm performance in the form of Tobin's Q because of two reasons, (1) Tobin's Q is a market-based performance measurement that may capture the long term effect of business action and cannot be easily manipulated for giving better image of the firm (Khan et al., 2021) and (2) controlling shareholders (i.e. dominant ownership) had the power to decide the firm's market value that can be measured by Tobin's Q (Karim et al., 2022). However, each of firm performance measures has its own strength and weaknesses (Pavic Kramaric

et al., 2021). To isolate the impact of other potential factors affecting the ownership structure-firm performance relationship, five control variables were included – firm size, firm age, return on assets, external audit, and firm leverage. Details of the measurement of the variables are shown in Table 2.

Table 1: Computation of Sample

Industry	Population	Sample Calculation	Initial Sample	No Data	Outlier	Final Sample
Construction	52	52/755*260=18	18			18
Consumer products & services	165	165/755*260=57	57		2	55
Energy	25	< 30	25	5	1	19
Health care	14	< 30	14	2		12
Industrial products & services	216	216/755*260=74	74		3	71
Plantation	41	41/755*260=14	14		1	13
Property	95	95/755*260=33	33			33
Technology	42	42/755*260=14	14			14
Telecommunications & media	15	< 30	15	4		11
Transportation & logistics	29	< 30	29	6		23
Utilities	12	< 30	12	1		11
REIT	18	Excluded	-			-
Financial services	31	Excluded	-			-
TOTAL	755		305	18	7	280

Table 2: Measurement of Variables

Variables	Acronyms	Definitions
Dependent variable		
Tobin's Q	*TBQit*	Market value of equity added to the book value of the debt over the book value of the total assets (Khan et al., 2021)
Independent variables		
Family ownership	*FMOWNit*	The ratio of the ten largest family shareholders in a firm (Hasnan et al., 2019)
Foreign ownership	*FROWNit*	The ratio of the ten largest foreign shareholders in a firm (Aziz et al., 2017)
Institutional ownership	IOWNit	The ratio of MSWG shareholders in a firm. MSWG investors are Khazanah Nasional, Employees Provident Fund Board (EPFB), Kumpulan Wang Amanah Pekerja (KWAP), Permodalan Nasional Berhad (PNB), Lembaga Tabung Angkatan Tentera (LTAT), Lembaga Tabung Haji (TH), and Social Contribution Society (SOCSO) (Azmi et al., 2021)
Moderating variable		
Corruption risk	*CORRit*	An index score of the Global Reporting Initiative (GRI) with the sum of 11 data points related to bribery and corruption, as provided by the Global Sustainability Standards Board (Sari et al., 2021)the authors propose that several institutional factors influence the extent of their voluntary disclosures. The findings reveal that a large degree of variability difference between the average levels of anti-corruption disclosure in Thailand (434 words

Variables	Acronyms	Definitions
Control variables		
External Audit	*EAit*	The remuneration paid to external auditors (Martins & Júnior, 2020)
Firm age	*FAit*	The number of years a firm has been incorporated (Khan et al., 2021)
Firm leverage	*FLit*	Total liabilities divided by total assets (Azmi et al., 2021)
Firm size	*FSit*	Natural logarithm of total assets (Azmi et al., 2021)
Return on Assets	*ROAit*	Ratio of net income to total assets (Puhat et al., 2024)

METHODOLOGY

This study used the STATA statistical software to conduct univariate (i.e., descriptive, correlation, and normality test) and multivariate analysis (i.e., multiple regression analysis). Given that the dataset was the balanced panel data of several firms over a five-year period from 2018 to 2022, this study used the static panel estimator to address both the cross-sectional and time series effects. Also, since the selection period may be affected by the economic shockwave of COVID-19 pandemic, so firm dummies and year dummies were included in the models to control for various unobserved effects (Jell-Ojobor & Raha, 2022; Karim et al., 2022)we analyze the influence of GSCM practices on corporate financial performance (CFP. Further, selection of the model estimator (i.e., Pooled Ordinary Least Squares (OLS), Fixed Effects (FE) or Random Effects (RE)) and diagnostic tests (i.e., multicollinearity, heteroscedasticity, and autocorrelation) were conducted to fulfil the required estimations. Model 1 represents the regression equation for direct relationship is as follows:

$$TBQ_{it} = \beta_{it} + \beta_1 FMOWN_{it} + \beta_2 FROWN_{it} + \beta_3 IOWN_{it} + \beta_4 EA_{it} + \beta_5 FA_{it} + \beta_6 FL_{it} + \beta_7 FS_{it} + \beta_8 ROA_{it} + (\mu_i + \gamma_t + \varepsilon_{it}) \quad (1)$$

For the interaction effect between corruption risk and ownership structures, the general regression equation of Model 2 was as follows:

$$TBQ_{it} = \beta_0 + \beta_1 FMOWN_{it} + \beta_2 FROWN_{it} + \beta_3 IOWN_{it} + \beta_4 CORR_{it} + \beta_5 FMOWN_{it} * CORR_{it} + \beta_6 FROWN_{it} * CORR_{it} + \beta_7 IOWN_{it} * CORR_{it} + \beta_8 EA_{it} + \beta_9 FA_{it} + \beta_{10} FL_{it} + \beta_{11} FS_{it} + \beta_{12} ROA_{it} + (\mu_i + \gamma_t + \varepsilon_{it}) \quad (2)$$

Where in Model (1) and Model (2), TBQ was Tobin's Q as a proxy of firm performance, β was vector of the coefficient of explanatory variables. Family ownership ($FMOWN_{it}$), foreign ownership ($FROWN_{it}$), institutional ownership ($IOWN_{it}$), and corruption risk (CORR). Symbol "*" was a sign for interaction term, whereas control variables included external auditor (EA_{it}), firm age (FA_{it}), firm leverage (FL_{it}), firm size (FS_{it}), and return on assets (ROA_{it}). Vector "$(u_i + \gamma_t + \varepsilon_{it})$" reflect two-way error component model, which included firm effect and year effect.

RESULTS AND DISCUSSION

Descriptive Statistics and Correlation Matrix

Table 3 presents the descriptive statistics. For firm performance, the mean value for TBQ_{it} was 1.089, which indicated the percentage of the market value to the firm's total assets. In addition, the mean value for family ownership, foreign ownership, and institutional ownership were 0.263, 0.074, and 0.080, respectively. Meanwhile, corruption risk fell between 0.091 and 1.000, with a mean value of 0.647. The results of the pairwise correlation in Table 4 indicated that the correlation value between the two variables was less than 0.8 meaning there was no multicollinearity problem (Hair et al., 2010). Normality test was conducted using the Shapiro-Wilk test and the findings as in Table 3 showed that the dataset was found to be not normally distributed. Since all the variables did not fulfil normality requirement, the Central Limit Theorem was applied which indicated that the findings from multiple regressions couldmeet the requirement of normality if the sample size was large enough (Mohammadi et al., 2021).

Table 3: Descriptive Results

						Shapiro-Wilk Test	
Variable	**N**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**	**W**	**Sig.**
TBQ_{it}	1,400	1.089	1.260	0.095	13.064	0.809	0.000
$FMOWN_{it}$	1,400	0.263	0.259	0.000	0.840	0.971	0.000
$FROWN_{it}$	1,400	0.074	0.145	0.000	0.786	0.886	0.000
$IOWN_{it}$	1,400	0.080	0.165	0.000	0.828	0.939	0.000
$CORR_{it}$	1,400	0.647	0.294	0.091	1.000	0.961	0.000
EA_{it}	1,400	0.001	0.001	0.000	0.005	0.992	0.000
FA_{it}	1,400	28	16	3	91	0.935	0.000
FS_{it} ('000)	1,400	5,461,498.700	1.57e+07	13,113.000	2.055e+08	0.975	0.000
FL_{it}	1,400	0.405	0.225	0.000	2.6641	0.984	0.000
ROA_{it}	1,400	0.647	0.585	0.002	4.419	0.837	0.000

Notes: Using a sample of 1,400 firm-year observations. TBQ indicates Tobin's Q measured by dividing the total of market value and debt with the total assets; FMOWN is the amount of family ownership as a percentage; FROWN is the value of foreign ownership as a percentage; IOWN is the top MSWG institutional investors as a percentage; CORR is the corruption risk index score representing the level of corruption risk. EA is the remuneration paid to external auditor as a percentage; FA is the number of years a firm has been incorporated; FS is the total assets in MYR; FL denotes firm's leverage as a percentage; and ROA is the return on assets as a percentage. W denotes test statistic of Shapiro-Wilk test and Sig. is p-value of the test.

Table 4: Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) TBQ_{it}	1.000									
(2) $FMOWN_{it}$	-0.131***	1.000								
(3) $FROWN_{it}$	0.258***	-0.289***	1.000							
(4) $IOWN_{it}$	0.044*	-0.322***	-0.021	1.000						
(5) $CORR_{it}$	-0.125***	0.190***	-0.087***	-0.242***	1.000					
(6) EA_{it}	-0.078***	-0.062***	-0.076***	-0.235***	0.177***	1.000				
(7) FA_{it}	-0.065***	0.051	0.041*	0.012	-0.077***	-0.162***	1.000			
(8) FS_{it}	-0.030	-0.098***	-0.022	0.471***	-0.156***	-0.237***	0.079***	1.000		
(9) FL_{it}	0.025	-0.157***	0.026	0.191***	-0.117***	-0.153***	-0.082***	0.219***	1.000	
(10) ROA_{it}	0.257***	-0.054**	0.161***	-0.060**	-0.047*	0.042*	-0.041*	0.156***	-0.126***	1.000

Notes: Using a sample of 1,400 firm-year observations. TBQ indicates Tobin's Q; FMOWN is family ownership; FROWN is foreign ownership; IOWN is institutional investors; CORR is corruption risk. EA is the natural log of external auditor; FA is firm's age; FS is the natural log of firm's size; FL denotes firm's leverage; and ROA is return on assets. Significant level at *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Static Panel Regression Results and Discussion

Column (1) in Table 5 shows the static panel regression results for the research Model 1. The results revealed that family ownership had no significant influence on firm performance, indicating that the presence of family shareholders in firm was not likely to contribute firm performance because they no longer served as a key player in firm performance, consistent with past studies of Farooque et al. (2020) and Tapa & Mazlan (2023). Thus, hypothesis 1 was not supported. For hypothesis 2, the result confirmed that there was positive and significant relationship between FROWN and TBQ, suggesting that the presence of foreign shareholders was more likely to improve firm performance as they can provide effective monitoring activities in firm, supports the finding of Din et al. (2021)for 146 manufacturing firms listed at the Pakistan Stock Exchange (PSX, thus Hypothesis 2 was confirmed. The result of Hypothesis 3 reports that the influence of institutional ownership on firm performancewas not statistically significant, implying that the existence of institutional shareholders seemed not contribute to firm performance because of inadequate monitoring capacities, corroborating the Alodat et al. (2022)resource dependency and agency theories have underlined the superior performance of firms equipped with stronger Corporate Governance (CG, hence Hypothesis 3 was not supported.

Table 5: Relationship between Corruption Risk, Ownership Structures, and Firm Performance

Variable	TBQ_{it}	TBQ_{it}
Model	(1)	(2)
Constant	0.7057 (1.1207)	0.9795 (1.0712)
$FMOWN_{it}$	-0.0685 (0.2444)	-0.4428 (0.3075)
$FROWN_{it}$	0.3030** (0.1480)	-0.0065 (0.1602)
$IOWN_{it}$	0.2083 (1.1726)	-0.0498 (0.1658)
$CORR_{it}$		-0.2368** (0.0850)
$FMOWN_{it}$ * $CORR_{it}$		0.5022** (0.2409)
$FROWN_{it}$ * $CORR_{it}$		0.3850** (0.1726)
$IOWN_{it}$ * $CORR_{it}$		0.4364*** (0.1193)
EA_{it}	-23.8222 (77.0860)	-26.1925 (74.8553)
FA_{it}	-0.0219 (0.0215)	-0.0189 (0.0201)
FL_{it}	-0.0857 (0.1634)	-0.0701 (0.1625)
FS_{it}	0.0554 (0.0643)	0.0426 (0.0622)

Variable	TBQ_{it}	TBQ_{it}
ROA_{it}	0.0447 (0.0779)	0.0472 (0.0770)
Firm effect	Yes	Yes
Year effect	Yes	Yes
R^2	0.0576	0.0840
Observations	1,400	1,400

Notes: Using a sample of 1,400 firm-year observations. Robust standard errors in parenthesis. TBQ indicates Tobin's Q; FMOWN is family ownership; FROWN is foreign ownership; IOWN is institutional investors; CORR is corruption risk. EA is the natural log of external auditor; FA is firm's age; FS is the natural log of firm's size; FL denotes firm's leverage; and ROA is return on assets. Significant level at *** *p<0.01, ** p<0.05, * p<0.1.*

In Model 1, the R^2 value indicated that six percent of the variation in the firm performance was explained by the independent variables but adding interaction to the Model 2 could explain a further R^2 value of eight percent, albeit a small change. The regression equation of Model 2 was performed to investigate three interaction variables of FMOWN*CORR, FROWN*CORR, and IOWN*CORR. Based on the findings in column (2) of Table 5, all the interaction terms were positive and significant against TBQ, indicating that firms with a specific factor (i.e. high corruption risk) had a tendency to consider these ownership patterns as they had more incentive, experiences, and skills to engage in monitoring activities. Basically, firms with high corruption risk will be scrutinized by the regulators (Karpacheva & Hock, 2023), thus this situation might positively influence firm owner's ability to improve firm performance. Similarly, Harymawan et al. (2019) posited that adding the factor of political connections enhanced the relationship between family ownership and firm performance in Indonesia. However, Okafor et al. (2021) revealed that the incident of bribery negatively affected the relationship between ownership structure and capital investment in Africa because bribery reduced the ability of owners to expand their assets through capital investment. Therefore, Hypotheses H4, H5, and H6 were supported. Overall, the effects of ownership structures on firm performance in Malaysian listed firms were more likely to be depended on the level of corruption risk, indicating that corruption risk seemed to strengthen the positive effect of ownership structure on firm performance. Further, this finding supported the Agency Theory in a way that the agency conflict type II was reduced, and the interest of minority shareholders was protected.

In addition, even though the results reported above showed that the moderator variable improved the ownership structure-firm performance relationship, it was necessary to compare the relative behaviour of the

moderating variable for each family ownership-firm performance, foreign ownership-firm performance, and institutional ownership-firm performance to see which were the most effective among the three significant interactions. Following the approach prescribed by Aiken & West (1991), the interaction slopes are presented in Figures 1 to 3. Meanwhile, the interaction term of IOWN*CORR produced the highest effect size, suggesting that the effective stewardship roles of institutional investors in Malaysia were in accordance with the Malaysian Code of Institutional Investors, which enabled them to bring about organisational change in the firms.

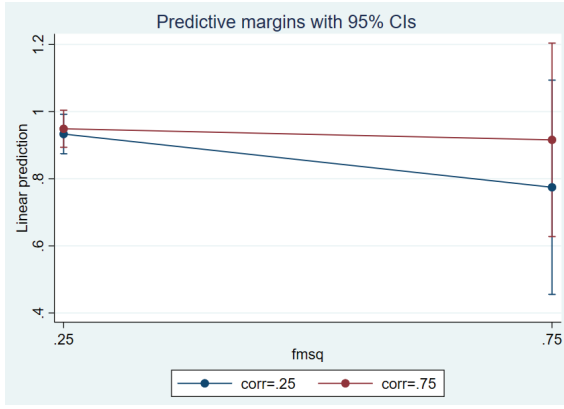

Figure 1: Interaction between Corruption Risk and Family Ownership

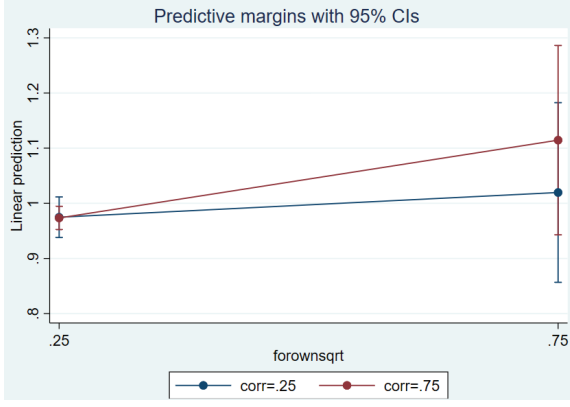

Figure 2: Interaction between Corruption Risk and Foreign Ownership

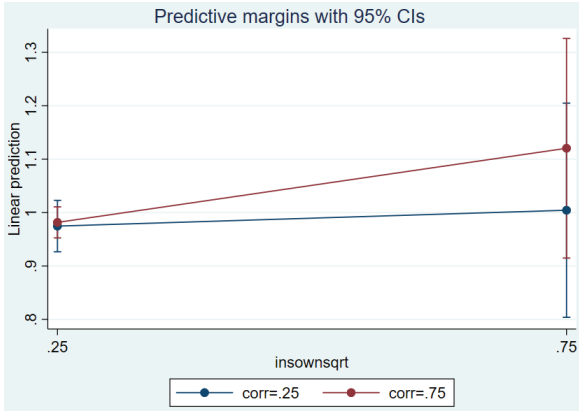

Figure 3: Interaction between Corruption Risk and Institutional Ownership

Additional Analysis

For this study, the primary estimated regression model was based on static panel regression. However, to address the potential endogeneity issues, a dynamic panel of the system generalised method of moments (GMM) was conducted as an additional test for robustness of the primary models Model 1 and Model 2. Based on the dynamic GMM results, similar findings were documented as presented in Table 6, where the direct relationship of all the explanatory variables in the models were not statistically fit to explain firm performance in the form of TBQ. However, the results of the interaction effect were partially consistent with the primary analysis of static panel regression, which indicated that at the five percent level of significance, the interaction between FROWN*CORR, and IOWN*CORR showed a positive relationship with TBQ.

Table 6: Relationships between Corruption risk, Ownership Structure and Firm Performance Using System GMM Estimator

Variable	TBQ_{it-1}	TBQ_{it-1}
Model	(1)	(2)
Constant	6.8366 (4.5379)	2.1046* (1.1852)
L1	1.3246*** (0.2997)	0.5921*** (0.0882)
$FMOWN_{it}$	0.4272 (2.0337)	-0.1545 (0.3510)
$FROWN_{it}$	1.1564 (1.3650)	-0.4790** (0.2293)
$IOWN_{it}$	0.2213 (1.0972)	0.0019 (0.2863)

Variable	TBQ_{it-1}	TBQ_{it-1}
$CORR_{it}$	-0.7843 (0.5060)	-0.4912** (0.1997)
$FMOWN_{it}$ * $CORR_{it}$		-0.1200 (0.6130)
$FROWN_{it}$ * $CORR_{it}$		0.7390** (0.3517)
$IOWN_{it}$ * $CORR_{it}$		0.6412** (0.3055)
EA_{it}	-788.2386 (564.0625)	-189.222 (188.1807)
FA_{it}	-0.0077 (0.0212)	0.0018 (0.0044)
FL_{it}	-0.9610 (0.6842)	-0.3701 (0.2713)
FS_{it}	-0.4273 (0.2915)	-0.0926 (0.0785)
ROA_{it}	0.6663 (0.4108)	0.1921 (0.1233)
Sargan test	0.013	0.000
Hansen test	0.001	0.004
Arellano–Bond test AR(1)	Pass	Pass
Arellano–Bond test AR(2)	Pass	Pass
Observations	1,120	1,120

Notes: Using a sample of 1,400 firm-year observations. Robust standard errors in parenthesis. TBQ indicates Tobin's Q; FMOWN is family ownership; FROWN is foreign ownership; IOWN is institutional investors; CORR is corruption risk. EA is the natural log of external auditor; FA is firm's age; FS is the natural log of firm's size; FL denotes firm's leverage; and ROA is return on assets. Significant level at *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

CONCLUSION

Overall, the findings of this study supported Krishnamurti et al. (2021), who argued that corruption risk was negative, even though it may have positive effects under particular circumstances. Hence, in this study, the positive aspects of corruption risk usually had more weight in which it may strengthened the effect of corporate governance mechanisms on firm performance. This study examined the relationship between ownership structure and firm performance, using a sample of Malaysian public listed firms over the 2018-2022 period. The findings indicated that foreign ownership improved firm performance, while family ownership and institutional ownership did not. Also, this study investigated the interaction effect between corruption risk and ownership structures on firm performance. The findings revealed that corruption risk moderated the positive effect of firm ownership variables (i.e., family ownership, foreign ownership, and institutional ownership) and subsequently improved firm performance. Drawing from the Agency Theory, the positive influence of foreign ownership on firm performance indicated that the presence

of foreign shareholders in firm was a good monitoring mechanism for firm performance. Moreover, the findings of positive moderation effects suggested that firms that experience a high corruption risk environment are pressured to have strong monitoring mechanisms represented by the presence of family, foreign, and institutional shareholders, eventually leading to higher firm performance.

The findings of this study have potential theoretical and practical implications. From the theoretical aspect, this study provides an understanding on the role of corruption risk as a moderator between corporate governance mechanisms-firm performance relationship. Therefore, by presenting how the interaction between corruption risk and firm's governance mechanisms links to firm performance, the results contribute to the growing debate in the governance literature. In terms of practical implications, the results of this study may assist business players to efficiently design their corporate governance system to strengthen firm performance while operating in a highly corruption risk environment. Specifically, while corruption risk may influence the effect of ownership structure on firm performance, Malaysian listed firms are in dire need to enhance the roles of ownership structure in improving firm performance. Hence for regulatory bodies and policymakers of Malaysia such as Securities Commission Malaysia and Minority Shareholders Watch Group, the results are worth considering for providing adequate guidelines and regulations pertaining to concentrated ownership structure in Malaysian listed firms.

This study also has some limitations. First, this study focused on firm-ownership attributes rather than other potential factors of firm performance. Thus, future studies may explore the influence of other corporate governance mechanisms, such as board of directors and top management characteristics on firm performance, while taking corruption risk as a moderating variable. Second, this study was limited to Malaysian listed firms, and therefore, the generalization to other countries should be made with caution. Future research that extends the sample to other countries may have a different outcome and perspective. Third, this study adopted a global corruption-related reporting of GRI to assess the level of corruption risk in Malaysian listed firms which may limit the understanding on the local-based indicators of corruption risk. Thus, future studies may explore a more comprehensive corruption risk index which can be applied in the Malaysian institutional

context. Lastly, the analysis and discussion of corruption in this study were limited to risk indicators perspective in Malaysia. Future studies may delve into both the supply-demand sides of corruption by considering some individual or other firm-level variables, which may influence the incidence of corporate corruption. By doing so, various corporate stakeholders may understand the red flags of corruption and reduce the harmful effect of corrupt practices.

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