THE EFFECTS OF FOREIGN OWNERSHIP ON CORPORATE RISK: FINDINGS FROM QUANTILE REGRESSION AND FSQCA

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ABSTRACT

The study investigates the correlation between foreign ownership and corporate risk at 147 listed firms in Vietnam from 2015 to 2019. Quantile regression and fuzzy-set Qualitative Comparative Analysis (fsQCA) technique method are applied to examine this relationship. Although the findings reveal that foreign ownership has an impact on corporate risk, the direction of this impact varies depending on the specific conditions. These empirical results have significant implications for firms in managing risks through effective policies related to foreign ownership. The findings will also enable foreign investors to assess the risk level of their investments when analyzing the current situation of a given firm, thereby adjusting their investment capital appropriately.

Keywords: foreign ownership, corporate risk, quantile regression, fuzzy-set Qualitative Comparative Analysis (fsQCA)

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1. INTRODUCTION

In line with the current trends of integration and globalization, firms in developing countries are seeking to attract foreign investment in order to increase their business capital potential. According to Ferris and Park (2005), foreign investors play a crucial role in the long-term viability and competitiveness of these firms. Research by Bjuggren et al. (2007) has shown a positive relationship between foreign ownership and investment performance, as well as firm performance, while there is also a suggestion from Phung and Mishra (2015) that encouraging foreign investor

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participation can lead to improved firm performance. Additionally, the presence of foreign investors can promote transparent information disclosure, improve the information environment, and reduce information asymmetry for investors (Huang et al., 2020). This can ultimately reduce incentives to withhold negative information among managers, thus minimizing risk. Furthermore, a study by Huang et al. (2020) reveals that investment capital from countries with strong corporate governance systems can positively impact the performance of firms in countries with weaker corporate governance practices. There is clear evidence that foreign ownership and investment support the broader development of firms and economies in the countries that receive it.

Risk refers to the potential for a firm to face financial and operational challenges or undesirable changes. These issues can severely disrupt the ability to create new value and may even reduce existing value (Hiles, 2012). For listed firms, risks can have a significant impact on investors, particularly foreign investors who often face information asymmetry when investing in host country markets. Research conducted by John et al. (2008) has shown that increasing the foreign ownership ratio can improve corporate governance activities, leading to better risk management. Similarly, studies by Kao et al. (2018), Rashid (2020), and Boshnak (2023) indicate that firms pay close attention to the ratio of foreign ownership as it plays a crucial role in enhancing firm performance and minimizing risk. In addition to empirical evidence, the relationship between foreign ownership and corporate risk can also be explained by agency theory. This theory highlights the potential conflicts of interest between owners and managers (Jensen & Meckling, 1976) and is often referenced in practical studies on resolving such conflicts. Foreign investors can play an important role in monitoring the actions of managers and reducing risks stemming from their personal motives. Therefore, implementing appropriate policies to encourage foreign individuals and organizations to invest can help mitigate corporate risk.

In the current context, Vietnam is a country experiencing strong economic development. Given the country's advantages in terms of markets, human resources, and capital attraction policies, foreign investors consider it to be a reliable investment destination (World Bank, 2023). As of October 2023, Vietnam has attracted approximately USD 438 billion in foreign direct investment (FDI) (Vietnamese Government Report, 2023). FDI inflows into Vietnam in 2023 reached USD 18 billion, representing a 3.2% increase compared to the previous year (World Bank, 2023). Economic reforms have facilitated the efficient allocation of resources (Le et al., 2018). Despite continued global uncertainties, investor confidence in Vietnam's economic prospects has made a significant contribution to the country's ability to attract foreign capital. However, firms within the country need to have a clear understanding of how their operations will change as a result of foreign investment. A 2016 study by Vo explores the impact of foreign ownership on risk-taking activities in 263 firms listed on the Ho Chi Minh Stock Exchange in Vietnam from 2007 to 2014, demonstrating that foreign ownership helps to reduce risk-taking activities. Similarly, Le (2021) studied a sample of 75 banks in Vietnam from 2006 to 2015 and the results show that foreign ownership can reduce risks for these institutions. However, previous research in Vietnam has only focused on a limited market scope or a specific sector, such as the banking sector, up to 2015. The present study involves research on a broader scale, including all sectors and stock exchanges in Vietnam from 2015 to 2019. During this time, Vietnam had not yet encountered the impact of the COVID-19 epidemic; therefore, the assessment of the impact of foreign ownership on corporate risk will be meaningful for the current period following the pandemic.

According to Goulard (2020), as a consequence of the US–China trade war Vietnam gained nearly 9% of its GDP from trade diversion, including a shift in foreign investment. However, while Vietnam has attracted a relatively large amount of foreign ownership, most of these investments are smaller in scale and have not had a sufficiently long investment period. As a result, they have created numerous risks and do not have a high investment efficiency (Mai, 2019). This has raised concerns among Vietnamese enterprises regarding the impact of foreign ownership on their performance and the potential risks involved. While agency theory suggests that foreign ownership may have a certain influence on corporate risk, empirical research is needed to further strengthen this inference. Consequently, instead of basic regression techniques such as Ordinary Least Square (OLS), Fixed Effect Model (FEM), and Random Effect Model (REM), this study employs quantile regression and fuzzy-set Qualitative Comparative Analysis (fsQCA) in order to analyze experimental data. The quantile regression method overcomes the distribution problem of regression errors in conventional regression methods and allows for an examination of the relationship between foreign ownership and corporate risk in different subgroups. Additionally, the fsQCA method considers the influence of foreign ownership when combined with other factors that may randomly impact corporate risk. This approach has been used in many studies to produce more reliable research results (Wang et al., 2022; Satar et al., 2024).

By using two different analysis methods and comparing the results, this study provides more convincing evidence and its findings are therefore valuable both theoretically and practically. The study indicates that foreign ownership has a positive effect on limiting corporate risk, which is consistent with previous studies (Kabir et al., 2020). However, the study also provides evidence that foreign ownership can increase corporate risk, a finding emphasized by Nguyen (2012). Nguyen (2012) argues that the level of corporate risk increases significantly with the level of foreign ownership. These research results can serve as a useful source of information for listed firms in Vietnam to formulate policies for appropriate foreign investment sources in order to minimize risks. Additionally, foreign investors can use this research to evaluate the relationship between their investment capital and corporate risk in real conditions at the time of investment, facilitating more informed and successful investment decisions.

The article is divided into six parts. Part 2 presents the theoretical framework and outlines the research hypotheses. In Part 3, the research design is described, including the methods, data, and research model. Part 4 discusses the results of the empirical study, while Part 5 presents the conclusions and implications of the research. The final part of this research discusses research limitations and suggests directions for future research.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. The agency theory

This study uses agency theory to explain the impact of foreign ownership on corporate risk. First of all, agency theory focuses on explaining conflicts between owners and managers regarding their divergent interests (Jensen & Meckling, 1976). Owners are individuals who invest capital but do not directly operate their businesses; this operational responsibility lies with the managers. Therefore, there are often doubts among owners regarding whether managers are acting in the

interests of the business or for their own benefit. If the agency problem is not resolved, the level of corporate risk-taking will increase (Lin et al., 2020). Jensen (1986) emphasized that the capital ownership structure of an enterprise needs to be diverse, and attention should be paid to increasing foreign ownership because foreign parties will be independent and objective with regard to the internal enterprise. The participation of foreign investors, usually from developed countries, will also introduce an effective management perspective, thereby providing appropriate control and regulation for managers. In addition, they offer development strategies that are suitable for managers, thereby supporting managers in running the business (Kim, 2011). This is also the basis for limiting conflicts in representation issues. As a result, agency theory suggests that foreign ownership helps to decrease corporate risk.

On the other hand, Kim (2011) believes that agency problems can be exacerbated as the percentage of foreign ownership in the capital structure increases. The level of corporate risk can also rise as a consequence of foreign ownership. Kim (2011) explains that if the amount of capital is too concentrated in institutional investors, they will find ways to harm the interests of minority shareholders. These investors also prioritize the execution of business strategies that yield predictable, short-term profits instead of high-risk, long-term investment decisions (Drucker, 1986).

Previous studies have used agency theory to explore the relationship between foreign ownership and corporate risk (Vo, 2016). Their results suggest that foreign investors are attracted to risk, seeking to profit from high-risk production and business practices. Therefore, they encourage managers to choose risky business strategies that can provide distinct advantages compared to their competitors. With the support of foreign investors, managers are also more active in operating and creating more effective business results. In these circumstances, the conflict between owners and managers is reconciled as they are working towards the same goal. At the same time, they encourage the implementation of high-risk strategies to create breakthroughs in future profits.

Having explored agency theory from various perspectives using previous research evidence, we believe that agency theory is an important basis for examining the impact of foreign ownership on corporate risk.

2.2. Hypothesis development

Recent studies have focused on examining how the agency problem influences corporate risk (Kim, 2011) because risk directly affects the competitiveness and development of businesses in the future. Jensen and Mecking (1976) believe that the conflict between owners and managers is inevitable. If firms want to limit this problem, they need to increase the proportion of foreign ownership in their capital structure. Foreign investors have a modern management perspective; they understand how to create opportunities for managers to promote their ability to run businesses and will exploit risky markets in search of profits. At the same time, they build effective control over corporate governance to ensure those risky activities are profitable (Majcen et al., 2009).

As demonstrated earlier, agency theory has been employed in previous research efforts. For example, Kim (2011) suggests that an increase in foreign ownership is an effective solution because the introduction of new parties helps to balance the interests of owners and managers

(Mikkelson & Ruback, 1991). Foreign investors tend to have a longer-term investment horizon compared to their domestic counterparts (Park & Yoon, 2017). Specifically, foreign investors encourage managers to seek opportunities through risks to create breakthroughs in future profits; therefore, managers are motivated to maximize firm performance. Moreover, expanding the debate regarding the influence of foreign ownership on corporate risk, Kabir et al. (2020) argue that investment efficiency is a priority for foreign investors and this requirement puts pressure on managers to employ high-risk strategies. Huang et al. (2022) emphasize that foreign ownership plays a role in replacing weak corporate governance systems in developed countries to ensure increased corporate risk while still ensuring control of mechanisms and safety for business operations. Similarly, to ensure efficiency in foreign investments, Yen and Wang (2022) argue that investors should not only focus on corporate governance effectiveness but also pay attention to the company's risk profile. There is also evidence from Park and Yoon (2017) suggesting that increased foreign investment has a positive impact on investment activities and the value of enterprises in South Korea. Finally, from a national risk perspective, Tang and Buckley (2020) provide evidence indicating that foreign investors tend to accept risks in order to increase ownership rights when entering foreign markets.

However, some evidence suggests a contrary view. Specifically, Vo (2016) contends that, because foreign investors focus on long-term benefits over the short-term, they will limit corporate risk to ensure sustainable development in the future. Foreign investors have effective management capabilities and also have a significant influence regarding managers' behavior; consequently, they will have solutions to limit corporate risk in businesses in developing economies (Lassoued et al., 2016). Foreign investors do not influence the tendency to accept risk, whereas domestic investors tend to embrace risk (Park & Yoon, 2017). There is also empirical evidence collected by Huang et al. (2020) which demonstrates that foreign investors contribute to increasing the risk of stock price crashes, with this impact being particularly pronounced for companies with high information asymmetry.

Our research chooses firms listed in Vietnam for two reasons. Firstly, in recent years, Vietnam has actively opened its market to attract investment capital from abroad and increase the percentage of foreign ownership within the country's firms. This has caused the rate of foreign ownership flowing into Vietnam to increase year by year (Batten & Vo, 2015; Vo, 2015, 2016; World Bank, 2023). The competitive domestic market has also become tougher. Corporate risk is always highly appreciated. Secondly, the existing studies on the topic lack a clear consensus in terms of the results. Therefore, this study continues to test this relationship to uncover new evidence in the Vietnamese context.

Based on background theory, previous research, and the unique characteristics of the Vietnamese market, the research hypothesis is as follows:
H_1: Foreign ownership affects corporate risk

3. RESEARCH DESIGN

3.1. Research methods

3.1.1. Quantile regression method

Previous research methods used to test the relationship between foreign ownership and corporate risk include multivariable regression (Huang et al., 2020), OLS (ElBannan, 2015), and general least squares (Desender et al., 2014). In contrast, this study utilizes quantile regression. Quantile regression is a method of estimating regression parameters on each quantile of the dependent variable for the total absolute difference of the regression function at each quantile of the dependent variable to be the smallest (Koenker, 2009; Koenker & Hallock, 2001). The advantage of this method over OLS or other regression methods is that it considers the entire variation of the dependent variable based on the change in the quantile in the interval (0,1):

The classical OLS model predicts the average (i.e., conditional mean) relationship between an input variable X and the outcome quantity Y. In sharp contrast, the quantile regression method can be used to predict parts of the distribution of the outcome variable, such as the conditional median effect on Y of a change in the independent variable X. Quantile regression can be used to predict the 25^{th} quantile of the outcome variable or the 75^{th} quantile of the outcome variable or, indeed, any quantile in which the researcher is interested. (Conyon & He, 2017)

It is, however, important to note that it is not necessary to apply the normal distribution and uniform variance. Research has emphasized that this method is not susceptible to outliers in the dataset (Ciftci et al., 2017).

Quantile regression has been used in a wide range of fields including the study of the benefits of learning and the difference in qualifications applied to the distribution of wage regimes (Lemieux, 2006). In the health field, research has investigated women's pregnancy conditions based on income distribution (Budig & Hodges, 2010). Based on quantile regression, corporate governance researchers have determined that there is a strong relationship between CEO performance and high salaries. Using linear regression, Li (2015) analyzed the difference in the salaries of female CEOs compared to male CEOs, with the results not showing any difference; however, when applying the 95% quantile regression method, the income of female CEOs is significant in comparison to male CEOs. By collecting evidence on the feasibility of the quantile regression method, the present study tests how foreign ownership affects corporate risk. The research results will help managers derive solutions suitable for their businesses when they attract foreign ownership to control corporate risk, through improving firm performance.

3.1.2. Fuzzy-set Qualitative Comparative Analysis

FsQCA has been selected as the preferred method for analyzing and clarifying the research results due to its unique features compared to traditional regression methods. This analysis technique is based on fuzzy-set theory and involves combining conditions to create qualitative outcomes (Ragin, 2008). Unlike traditional methods that focus on the net effect of independent variables on the dependent variable, fsQCA produces a set of independent variable combinations that

collectively influence the outcome. According to Ragin (2008), this method is suitable for all sample sizes: small, medium, and large. Following the data collection process, the data will be converted into percentile values ranging from 0 to 1 before being analyzed using fsQCA software. This method utilizes Boolean algebra rules to determine the sufficient configurations or necessary conditions for the outcome (Fiss, 2007). In addition to determining the separate influence of foreign ownership on risk through the quantile regression method, the use of fsQCA will assess the random combination of the foreign ownership variable and several different factors impacting corporate risk.

Traditional regression analysis methods often run into endogeneity problems due to assumptions related to normal distribution and both linear and symmetric relationships between independent variables. According to Du et al. (2021) and Xia et al. (2024), the fsQCA method solves the endogeneity problem because it examines the aggregate relationship between variables based on Boolean algebra instead of the correlations used in quantitative traditional methods.

3.2. Collected data

This study utilizes data from listed firms in Vietnam from 2015 to 2019, obtained from the Thomson Reuters Datastream database. The initial sample consisted of 171 firms, but 24 firms were excluded due to a lack of data on corporate risk. As a result, the final sample comprises a balanced panel of 147 listed firms covering a five-year period. The number of firms listed on the Vietnamese stock exchanges as of December 31, 2019, was 1,584 firms. However, the Thomson Reuters Datastream database lacks data on foreign ownership, corporate risk, or control variables for some Vietnamese listed firms during the 2015–2019 period. This limits the number of firms with adequate data for our research. To address this, the authors filtered and retrieved all firms with sufficient data from Thomson Reuters Datastream. The sample for this study primarily consists of firms listed on the two largest official stock exchanges in Vietnam—HNX (Hanoi Stock Exchange) and HOSE (Ho Chi Minh Stock Exchange)—to ensure the reliability of the data. The fsQCA method has been proven to produce consistent results for both small and large samples (Fiss, 2011; Woodside, 2012). With a five-year panel data format and a sample size of 147 listed firms observed from 2015 to 2019, the total number of observations is 735, which is sufficient to represent the entire population. Therefore, the current sample size of 147 firms is suitable for both quantile regression analysis and fsQCA.

The listed firms in the sample represent 11 different sectors, as shown in Table 1. The Industrial sector, which attracts significant FDI inflows into Vietnam (World Bank, 2023), has the highest proportion of firms at 37.41%. It is followed by the Financial and Consumer Discretionary sectors at 12.93% and 10.88%, respectively. There is only one firm from the Telecommunications sector, making it the sector with the lowest representation in the research sample.

Table 1: Number of Firms of Each Sector in the Research Sample

No.	Sector	Number of firms	Ratio (%)
1	Basic Materials	13	8.84
2	Consumer Discretionary	16	10.88
3	Consumer Staples	11	7.48
4	Energy	6	4.08
5	Financials	19	12.93
6	Health Care	4	2.72
7	Industrials	55	37.41
8	Real Estate	14	9.52
9	Technology	2	1.36
10	Telecommunications	1	0.68
11	Utilities	6	4.08

3.3. Research model

Equation (1) is used to examine the relationship between foreign investment and corporate risk. Table 2 presents how the variables in the study were measured.

$$f\ (RISK) = f(FO, SIZE, LEV, MTBV, GRWTH)$$

$$FRi,t = \beta0 + \beta1 * FOi,t + \beta2 * SIZEi,t + \beta3 * LEVi,t + \beta4 * MTBVi,t + \beta5 * GRWTHi,t\ .\beta6 + \varepsilon i,t \quad (1)$$

According to Orlitzky and Benjamin (2001), corporate risk can be divided into two types: accounting risk and total market risk. However, in this study, total market risk has been selected as the dependent variable because of three reasons:

- First, as exemplified by Mohsni et al. (2021), corporate risk can be measured by the standard deviation of ROA (return on assets) and ROE (return on equity). However, relying on book value, which may not reflect market fluctuations, can lead to corporate risk.
- Second, Bhuiyan et al. (2021) argue that research and development (R&D) expenses can be used to measure corporate risk. However, Vietnamese regulations do not require firms to disclose detailed data on R&D expenses in annual financial reports. Therefore, it is not possible to collect this data from listed firms in Vietnam.
- Finally, both domestic and foreign investors tend to focus on stock price fluctuations to predict changes in firms when analyzing the Vietnamese market. However, accounting data held by enterprises within this context may differ from international standards due to variations in accounting estimates and recording perspectives, resulting in inaccurate information about the circumstances of a given firm.

Therefore, we predict that using the standard deviation index of daily stock prices will be the most appropriate way to reflect market changes and serve as a basis for predicting potential corporate risk in the future. The measurement of the dependent variable, corporate risk (RISK), follows the standard deviation of daily stock return, which is the standard risk measurement used in popular financial studies (Schwert, 1989):

$$s = \sqrt{\frac{\sum(x - \bar{x})^2}{n - 1}}$$

s: standard deviation of daily stock return;
x: stock return rate at time t [(stock price at time t/stock price at time t-1) – 1]
$\bar{x}$: average value of stock return rate
n: number of days in year

The foreign ownership (FO) variable is measured by the foreign investment ratio of the listed firm. This study also includes control variables such as firm size (SIZE), financial leverage (LEV), market-to-book-value ratio (MTBV), and sales growth rate (GRWTH). Table B provides a detailed explanation of the variables used in the study and their roles.

Table 2: Description of Variables in the Study

Variables	Definition	The role of variables
Corporate risk (RISK)	The standard deviation of daily returns	Dependent variable
Foreign ownership (FO)	The percentage of foreign ownership	Independent variable
Firm size (SIZE)	The logarithm of the total assets	Control variables
Leverage (LEV)	The ratio of the total liabilities to total assets	
Market-to-book-value (MTBV)	The market value of equity devided by the book value	
Salesgrowth (GRWTH)	The sales growth ratio	

4. EMPIRICAL FINDINGS

4.1. Descriptive statistics

Table 3 below presents descriptive statistical data for the research sample, which consists of 147 listed firms in Vietnam over a period of five years resulting in 735 observations. It is important to note that the minimum value of foreign ownership is 0 because, despite having a portion of foreign investment in other years, there were some firms without foreign ownership during the 2015–2019 period. On the other hand, the maximum value of foreign ownership is 80%, indicating a relatively high proportion of foreign ownership in some listed firms.

The lowest possible value for the risk variable is 0% as it is determined by the standard deviation of stock return rate, which is calculated based on the day-to-day difference in stock value. In the research sample, “Phan Thiet Garment Import–Export” had a risk value of 0% in both 2016 and 2018, indicating that the difference in stock returns was insignificant. When rounding to two

decimal places, these values are automatically displayed as 0.00. On the other hand, the highest value for corporate risk is 9.64%, which suggests that the daily stock return volatility is not very high. This can be attributed to the fact that stock prices did not fluctuate significantly due to the impact of domestic and foreign markets or political events during the research period; as a result, the standard deviation of daily stock return during this period was low. Additionally, the formula for calculating the standard deviation of daily stock return considers the difference between the stock price over a range of days and the average daily stock price value over the course of a year. Therefore, when the stock value does not change significantly, the standard deviation will also be low.

The value of leverage is calculated by dividing total liabilities by total assets, with the lowest value being 0.0076 and the highest value being 16.486. Sales growth value is calculated by the ratio of the current year's change in sales to the last year's sales. The lowest value is -0.9934, while the highest value is 25.88. It is also worth mentioning that both the sales growth rate and the market-to-book-value ratio have negative values, suggesting a decline in revenue and firm value for some firms during the research period.

Table 3: Statistics Describe the Variables in the Study

Variable	Mean	Std.Dev	Min	Max	N
RISK	2.4850	1.0363	0	9.64	735
FO	0.1163	0.1530	0	0.8	735
SIZE	9.2327	0.7849	7.0002	12.087	735
LEV	0.4835	0.6359	0.0076	16.486	735
MTBV	1.1956	2.6081	-57.39	28.42	735
GRWTH	0.2532	1.6704	-0.9934	25.88	735

4.2. Empirical findings

4.2.1. Research results from the quantile regression method

The results of Table 4 below show that, at the Q(0.05) level, foreign ownership does not impact corporate risk. However, when the quantile level changes from Q(0.25) to Q(0.75), foreign ownership has a positive effect on corporate risk. It can be seen that foreign investors prefer to choose businesses with high corporate risk because that risk can result in higher profits, market expansion, and further development opportunities. This result is consistent with the research of Alp et al. (2021), who examined the Istanbul market, and Kabir et al. (2020), whose work was conducted in the Japanese context. There is also clear agreement with Huang et al. (2022), who analyzed investment in China. They emphasize that foreign investors require improvements in the corporate governance systems and strictly control the behavior of managers. Therefore, when corporate risk is higher, it can be supported by the system. This result contrasts with domestic research by Vo (2016) and Le (2021) suggesting that foreign ownership limits corporate risk. However, they used data from 2007 to 2014; this period saw a lower proportion of foreign ownership in Vietnam and the competitiveness between businesses was limited due to the slow international integration process. Furthermore, our results are reflective of agency theory. Jensen and Meckling (1976) explain that foreign investors tend to venture into activities with high

corporate risk because they can provide corporate governance solutions to limit damage. Thus, the results support hypothesis H_1 by proving that foreign ownership positively affects corporate risk.

The study has also examined the impact of control variables such as SIZE, which has a negative impact on corporate risk. This result is appropriate because some evidence in Vietnam demonstrates that when firms expand their assets, they will have a lack of control over management and operations. However, LEV has a positive effect on corporate risk. An explanation for this result is that a higher ratio of debt to total capital will cause difficulties in terms of making profitable investments. Fields with high risk often have high profitability. Meanwhile, GRWTH has no relationship with corporate risk. Because GRWTH represents the results achieved during the fiscal year, these figures do not reflect possible future risks.

Table 4: Foreign Ownership and Corporate Risk

Variable	RISK (Q0.05)	RISK (Q0.25)	RISK (Q0.5)	RISK (Q0.75)
RISK	.231	0.622***	0.592***	0.849**
	[0.85]	[2.96]	[2.60]	[2.46]
FO	-0.150***	-0.371***	-0.504***	-0.688***
	[-2.81]	[-9.01]	[-11.29]	[-10.17]
SIZE	0.495***	0.435***	0.409***	0.405***
	[7.57]	[8.62]	[7.47]	[4.89]
LEV	-0.0391**	-0.0232*	-0.0133	-0.0115
	[-2.44]	[-1.88]	[-0.99]	[-0.56]
MTBV	-0.0122	0.0159	0.0100	0.0410
	[-0.49]	[0.83]	[0.48]	[1.30]
GRWTH	.231	0.622***	0.592***	0.849**
	[0.85]	[2.96]	[2.60]	[2.46]

*Notes: significant levels: * p<0.1, ** p<0.05, *** p<0.01*

4.2.2. Research results from the fsQCA method

The evaluation of fit parameters in fsQCA results is based on the consistency and coverage of both sufficient and necessary conditions (Ragin, 2008). In line with Ragin's (2008) suggestions, this study utilized a consistency threshold of 0.8. The intermediate solutions produced by fsQCA tend to yield more satisfactory results compared to either complex or parsimonious solutions (Rihoux & Ragin, 2009). Consistency in fsQCA results can be similar to the correlation coefficient, while coverage can be understood as the coefficient of determination (R2) in regression analysis (Woodside, 2013).

The fsQCA analysis results demonstrate an intermediate solution with a cutoff frequency of 1 and a cutoff point of 0.8176 (see Table 5). The empirical findings reveal six sets of consistent results that influence corporate risk. As shown in Table 5, the overall coverage of the entire solution is 0.6485, indicating that the combinations in the conjunctural results cover 64.85% of the outcomes. These results demonstrate that foreign ownership can have both positive and negative effects on corporate risk depending on the various control variables it is combined with. For instance, increasing foreign ownership while also expanding firm scale, sales growth, or decreasing the ratio of the market-to-book-value can lead to increased corporate risk. On the other hand, if foreign

ownership decreases and the firm reduces its scale but increases leverage, the impact on the firm's operations and level of risk can be negative. Therefore, foreign ownership is not always beneficial with regard to firm development. The research results from fsQCA confirm the appropriateness of hypothesis H1. As shown in Table 5, firm size, leverage, market-to-book-value, and sales growth are all INUS: "insufficient but necessary parts of a condition which itself is unnecessary but sufficient for the result" (Mackie, 1965).

Table 5: fsQCA Results on the Impact of Foreign Ownership on Corporate Risk

Frenquency cutoff: 1
Consistency cutoff: 0.8176

Assumptions	Raw coverage	Unique coverage	Consistency
FO*SIZE	0.2515	0.0034	0.7740
~FO*~SIZE*LEV	0.5327	0.0105	0.7862
FO*~MTBV	0.2815	0.0049	0.7713
FO*GRWTH	0.2555	0.0004	0.7883
~SIZE*LEV*~MTBV	0.5395	0.0009	0.7970
~SIZE*LEV*GRWTH	0.4539	0.0001	0.8050

Solution coverage: 0.6485
Solution consistency: 0.7291

To compare the research results obtained through the quantile regression method, this study also examines two additional datasets: one including RISK data at the Q(0.05) quantile level and one including RISK data from the Q(0.25) to Q(0.75) quantile levels. Tables 6 and 7 display the results of the fsQCA analysis conducted on these two datasets, which are consistent with those obtained through the percentile regression method. Specifically, RISK data at the Q(0.05) level reveals a negative relationship between foreign ownership and corporate risk. Additionally, when an individual firm's standard deviation of daily return increases, there is a positive correlation between foreign ownership and corporate risk level. This finding is crucial for foreign investors seeking investment opportunities in the Vietnamese market and other economies with similar characteristics.

Table 6: fsQCA Results on the Impact of Foreign Ownership on Corporate Risk (0.05 percentile of RISK*)*

Frenquency cutoff: 1
Consistency cutoff: 0.8236

Assumptions	Raw coverage	Unique coverage	Consistency
SIZE*LEV*~MTBV	0.4907	0.0522	0.7957
~FO*SIZE*LEV	0.4785	0.0569	0.7544

Solution coverage: 0.6175
Solution consistency: 0.7557

Table 7: fsQCA Results on the Impact of Foreign Ownership on Corporate Risk (0.25-0.75 percentile of RISK)

Frenquency cutoff: 4
Consistency cutoff: 0.806189

Assumptions	Raw coverage	Unique coverage	Consistency
FO*~SIZE*LEV	0.3925	0.1208	0.7839
~SIZE*LEV*MTBV	0.3554	0.0838	0.8118

Solution coverage: 0.4762
Solution consistency: 0.7725

4.3. Robustness tests

Because the fsQCA method is capable of resolving the issue of endogeneity, which is often present in regression methods, this method has also been utilized for robustness tests using different datasets in order to confirm the research findings.

The first robustness test employed the previous dataset but with a dummy variable for foreign ownership (years in which each firm had foreign ownership were assigned a value of 1, and years in which firms had no foreign ownership were assigned a value of 0). The results of this test still show a negative relationship between foreign ownership and corporate risk, consistent with previous empirical research. This suggests that having foreign ownership can lead to a lower level of corporate risk (Table 8).

Table 8: fsQCA Results on the Impact of Foreign Ownership on Corporate Risk (FO is a Dummy Variable)

Frenquency cutoff: 1
Consistency cutoff: 0.8533

Assumptions	Raw coverage	Unique coverage	Consistency
~ROA*MTBV*~SIZE	0.3670	0.0318	0.8268
~FO*~SIZE*LEV	0.2529	0.0374	0.8295
MTBV*~SIZE*LEV	0.3444	0.0187	0.8330

Solution coverage: 0.5299
Solution consistency: 0.7661

In the research dataset, it is possible that some firms have one or more years without foreign ownership. For the second robustness test, therefore, this study utilized a dataset that only included observed variables from firms with foreign ownership in the year of observation. This finding is significant as it supports the notion that the risk level rises when there is an increase in the level of foreign ownership (see Table 9). This finding is consistent with Rohhim and Susanto (2011), ElBannan (2015), and Huang et al. (2020), who have demonstrated that the impact of foreign ownership on business operations is not always positive.

Table 9: fsQCA Results on the Impact of Foreign Ownership on Corporate Risk (remove observed with FO = 0)

Frenquency cutoff: 1
Consistency cutoff: 0.9064

Assumptions	Raw coverage	Unique coverage	Consistency
FO*~ROA*~MTBV*~SIZE	0.3202	0.0398	0.8856
FO*~MTBV*~SIZE*LEV	0.2902	0.0097	0.8940
FO*~ROA*~SIZE*LEV*GRWTH	0.2586	0.0060	0.9196

Solution coverage: 0.3359
Solution consistency: 0.8796

5. CONCLUSIONS AND IMPLICATIONS

This study examines the impact of foreign ownership on corporate risk in a sample of 147 Vietnamese listed firms from 2015 to 2019. The aim is to contribute to both research and practice. The results of the quantile regression analysis show that the influence of foreign ownership on corporate risk varies at different quantile levels. At the Q(0.05) percentile level, foreign investment capital does not have a significant impact on corporate risk. However, at Q(0.25) or higher, there is a positive relationship between the two factors. The fsQCA method provides further insights into this relationship, revealing that under different conditions, such as changes in firm size, leverage, market-to-book-value, or sales growth, the effect of foreign ownership can fluctuate between positive and negative. This highlights the multidimensional nature of the relationship between foreign ownership and corporate risk, with the fsQCA method demonstrating that under certain circumstances the influence of foreign investment capital can be negative. In summary, the results of both the quantile regression analysis and fsQCA suggest that foreign ownership, when combined with other factors, can have both positive and negative effects on total market risk.

The study shows that combining different analytical methods provides diverse perspectives on economic relationships. Previous research and the analysis results using the percentile method in this study only provide broader results on the influence of foreign ownership on corporate risk in a single direction (positive or negative). However, the addition of the fsQCA technique helps to better explain the research problem by considering a combination of input factors and demonstrating that there can be significant variance in the results achieved. The research findings from formal empirical research and robustness tests highlight the close relationship between foreign ownership and corporate risk, showing that it can contribute to both increased and decreased corporate risk.

For firms with foreign investment, the research findings are valuable in understanding the potential causes of future risks. With a clearer understanding of these causes, firms will be able to develop appropriate business management strategies to mitigate risks caused by both objective and subjective factors. Additionally, listed firms in Vietnam can better understand the role of foreign ownership and leverage it in combination with other factors to both reduce risks and improve their overall performance.

On the other hand, managers can rely on the results of this research to make informed decisions regarding their business operations during specific periods. For instance, when there are high levels of foreign ownership, it may be more beneficial to allocate funds towards R&D rather than expanding the scale of asset purchases for production activities. Similarly, if a firm's market-to-book-value ratio is decreasing, it would be more prudent to focus on stabilizing business operations and addressing current weaknesses rather than attempting to attract foreign ownership. While foreign ownership may provide temporary financial stability, it can also pressure firms into adjusting their strategies to align with the preferences of foreign shareholders who may have significant capital. Additionally, when a firm has stable revenue growth, it may be wise to limit foreign ownership as the firm may face challenges in reconciling the differing opinions of domestic and foreign investors regarding business activities.

For foreign investors, the results of this research are also interesting in terms of understanding the potential risks when investing in firms. Based on this research, foreign investors can predict the potential risk of future investments by analyzing the current situation of the firms in question; they can then adjust their investment structure as necessary to avoid risks.

6. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This study has several limitations that should be acknowledged. Firstly, it was conducted during the 2015–2019 period, which coincided with the beginning of the trade war between the US and China. This may have caused fluctuations in the foreign ownership data, particularly from 2018 to 2019. To address this limitation, further studies could consider collecting data from a longer time period or examining a different time frame during which the trade war was not a factor. Secondly, this study focuses on general research for all areas of the economy rather than a specific sector; it is important to note that the rate of foreign capital investment may vary significantly across different fields and industries.

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