Frontiers in Economics and Management Volume 4 Issue 2, 2023
ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

Studying the Empiriacal Evidence on Corporate Ownership Structure and Firm Risk on Australian

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Abstract

The study aims to identify the relationship between ownership structure and risk-taking behavior of companies in Australia. The study aims to answer two research that is to identify whether there exists a relationship between ownership structure and corporate risk and another question is which ownership structure has the highest effect. The study use 100 randomly selected companies from ASX/200 index from 2017 to 2021 using panel data and conducted regression on Stata to test the hypothesis and find evidence for the research question. In this research three ownership structure is used that is Management Ownership (MO), Institutional Ownership (IO), and Concentrated Ownership (CO). Further, three risks that are dependent variables are used Total Risk (TR), Asset Return Risk (ARR), and Financial Risk (FR). Finally, three control variables are used ROA, Total Asset, and Leverage ratio. Findings from this study state that there is no relationship exists between ownership structure and risk-taking behavior of companies. However, comparing three ownership structures only management ownership shows significant relation in the case of ARR.

Keywords

Ownership; Total Risk; Asset Return Risk.

1. Introduction (Heading 1)

As undertaking firm risk is very crucial for a business since it does help in attaining various business objectives in terms of earned profits, gained opportunities, and effective utilization of business assets. There are many aspects of a corporate business that are taken into consideration while evaluating the firm risk or business risk that a corporate is exposed to. Corporate governance and the ownership structure of a firm are two of the most important aspects which are included and analyzed in relation to understanding the firm risks (Paligorova and Teodora, 2010). In this dissertation, the chosen topic is to study the empirical evidence related to Australian companies on corporate ownership structure and firm risk. Further, in this chapter, the background, scope, and rationale of the study, the research aim, objectives, hypothesis, and questions have been addressed. The chapter ends with the structure of the dissertation.

In order to understand the research topic well, it is very much necessary to know the background and scope of the undertaken study. Previously many scholars have investigated the relationship between corporate governance and corporate risk-taking ability and policies of the firm. In times of financial uncertainties and corporate scandals, corporate governance has been one of the crucial factors impacting the firm (Zhao 2016). Multiple papers talk about the firm risk of many Asian, Australian, and American companies mainly being connected to the corporate governance policies Other than corporate governance, some studies have also tried to explore and study the impact of corporate ownership structure but the results obtained have been unclear and mixed. One such study done in the perspective of 69 Sri Lankan firms

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

discusses about the impact of managerial ownership on corporate risk (Mahrool, 2019). The findings show that there exists a significantly negative relationship between the two.

The research questions are one of the crucial elements of a research design as they provide a set of guidelines and give a direction to the course of the study (White, 2017). The research questions framed in this study are as follows:

1. Does ownership structure influence the corporate risk-taking abilities of Australian firms?

2. What kind of relationship exists between the two? Is it positive or negative?

This study uses three ownership structures Management Ownership, Institutional Ownership, and Concentrated ownership. The hypothesis is developed by studying multiple literatures on this ownership structure. It is necessary that the research hypothesis matches the aim and objectives of the report (Amrita Dhillon, 2015). Management ownership defines holding of equity by company's executive, institutional ownership defines equity of institutional players in company, and finally, concentrated ownership defines the highest equity holders share in the company. Company executive links their investment in a company with firms' investment decision that directly impacts firms risk taking behaviour. Institutional players played a critical role in the global financial crisis this evident their involvement positively increase the risk taking behaviour of firms. Finally, a concentrated ownership structure has an incentive in pushing management decisions. Hence, based on these three ownership structures, three hypotheses are developed.

Hypothesis 1: Positive relationship between ownership in management and the firm or no relation to the firm at all.

Hypothesis 2: Positive relationship between the higher holding of institutional players and the firm or no relation with firm risk at all.

Hypothesis 3: Positive relationship between the concentrated ownership and the firm or no relation with the company's risk at all.

The rationale for choosing a topic related to corporate ownership structure is that after reviewing several papers and past works of literature related to this, it can be said that this aspect still remains unexplored in the context of Australian firms. Moreover, the literature and studies found are before COVID 19 crisis so there's a need to conduct some latest investigation on the undertaken research. Hence, this research dissertation aims to put some light on this research gap identified and conduct an investigation in order to gather some empirical evidence for accepting or rejecting the formulated hypotheses of the study, that is the relationship between ownership structure and corporate risk-taking ability.

The structure of the dissertation starts with the introduction chapter which is the current chapter wherein the background and main context of the study have been explained. After this chapter follows the literature review chapter in which all the previous studies related to the topic have been reviewed in detail and with this the research gap has been identified. The next chapter presents the hypothesis formulated for the current research and the methodology of the study. The methodology section gives information relating to the collected sample and data used in the dissertation. The next chapter presents the discussion on the empirical results obtained and then the robustness test conducted. The last chapter of this dissertation is the conclusion part which finally summarizes the whole study.

2. Manuscript Preparation (Heading 2)

This chapter reviews multiple literatures related to ownership structure and risk in the firm to understand the background of this topic and find a research gap. The need for corporate governance becomes very important to overcome financial risk (Gai, et al., 2021). Historically during the global financial crisis, a large number of European, American, and Asian companies

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

failed because of governance failure and the crisis spread all over the world (Kumar, et al., 2013). However, in Australia, the global financial crisis did not have much impact and according to Smith (2019) from an international perspective, Australia is considered as a leading jurisdiction for corporate governance reforms. Researchers show a connection between corporate collapses and financial crises because of the ineffective adoption of corporate risk governance. Jensen (1976) direct that different structure of ownership has a different implication for resolving the agency conflict. After the crisis, UK has initiated a regulatory framework in response to improve its risk management and corporate governance role (FRC, 2011). Similarly, in the USA reforms take place in Sarbanes-Oxley Act (2002) provides specific guidelines on internal control mechanism and improve accountability and reduce the company's insolvency risk. Whereas, Australia's first corporate governance code predates the Cadbury report and Australia was not much affected during the financial crisis this ensures the country has considerable governance structure and reforms even in 2009. Investors are directly impacted by poor governance and it's evident that ownership structure has been identified as a vital factor in shaping corporate risk (Boubakri, et al., 2013).

2.1. Review of Literature

The relation between principal and agent is called agency theory and both principal and agent have contradicting interests, due to this agency costs arise in a company (Wolfgang, 2012). The theoretical base of ownership structure is agency theory because there is agency cost involved between principal and agent due to which it develops firms' risk (Poletti-Hughes, 2019). According to the agency cost, it is argued that principal and agent relation leads to a possibility of conflicting objectives that may arise. The owner takes a larger risk by investing capital in the company after evaluating company on a different aspect of risk and therefore seeks higher reward. Hence this leads the principal to favor riskier projects so that they can maximize their return. However, agent preference can vary from riskier and conservative projects and the motivation of agent depends on the incentives, therefore agent only prefers the project that keeps their interest first and than shareholders, so it often comes at shareholders' expense. According to Chun & Lee (2017), the managers could prefer the short run projects with high cash flow at initial years to maximize their nonsalary income or some time managers just focus on maximizing the company's size and growth apart from focusing on profitability. As per Fama & F (1980) managers mostly select less risky projects to protect their employability in the company. Therefore, managers could deploy nonvalue maximizing strategies until the managers face strong pressure from the board of directors or from the independent director. Hence, it can be stated that Agency theory clearly defines its involvement in ownership structure and the company's risk-taking behavior.

Various studies have studied the relationship between management ownership, institutional ownership, and concentrated ownership structure and risk of the company, and a few pieces of literature are outlined as follows. According to Gadhoum (2003), the researcher attempts to relate the ownership structure with corporate risk behavior for Canadian companies, it's evident that ownership structure could explain the cross-sectional variations in company risk level. Gadhoum's (2003) study also finds a non-leaner relation between managerial ownership and both systematic risk and total risk. Further, another study conducted on Indonesian listed companies by Langit & Adhariani (2017) and the study aims to determine the effect of ownership structure and risk-taking behavior among a sample of 390 companies from 2013 to 2015 using panel regression, the study evidence that the ownership structure (family and foreign) has a significant negative impact on firms risk-taking behavior. This implies that both families and foreign ownership can function successfully to mitigate the excessive risk from companies.

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

Research conducted on corporate governance and firms performance in the US market by Bhagata & Bolton, (2019) evident that directors ownership is positively related to corporate performance however, the researcher also tested the director's ownership on company's risk and found a negative relation with risk in both prior to GFC and after the financial crisis period. Moving further, a study conducted by Rossetto (2016) investigates the link between medium-sized companies and firm risk in the USA, and the researcher evidence that the presence of multiple blockholders positively affects the risk in companies, however, the stake by largest bolckholder alone reduces firms risk. However, researcher Rossetto (2015) argues that contradicts previous researchers view, here the researcher evident that large blockholder could increase the risk for minor shareholders whereas the multiple blockholder could reduce the risk of the entire firm.

Various studies are conducted on evaluating ownership structure impact on firms return but very few research fully comments to study the impact of ownership on a company's risk behavior. In this domain, one more researcher contributed their findings by analyzing ownership structure impact on systematic liquidity risk in emerging market companies (Sensoy, 2017). Research evidence that an increase in institutional ownership could lead to a rise in liquidity in mid and large companies, whereas only individual ownership could lead to a rise in liquidity in small firms. However, the overall SLR decreases with rising in the number of investors (both individual and institutional) in any firm size. A study by Barry and Amadou (2011) on ownership structure and banking industry indicate that there is a link between ownership and risk-taking behavior in publically held banks, and researcher evidence that a higher equity stake of an individual or any banking institution helps in decreasing the default probability and asset risk. Similarly, in a study by Sullivan (2007) researcher again tested for ownership structure impact on the bank by analyzing only insider ownership and it was evident that high insider ownership could lead to a decline in profitability and also makes the bank less risky. The reason for banks being less risky is because of a highly regulated industry and when management wealth is directly linked with a company's equity the risk in the firm falls. However, in a study by Paligorova (2010) on a cross-country sample, the paper investigates the risk-taking determinants with substantial equity ownership, and a positive relation was found between corporate risk-taking behavior and large equity ownership. Further, it was also reported that strong protection of shareholders' rights is related to higher risk-taking whereas strong legal protection of creditor rights is associated with reduction of risk-taking.

2.2. Hypothesis Development

2.2.1. Ownership of Management and Company Risk

The management ownership structure defines as the holding of equity by the company's executives and board members. The executive member's ownership is calculated by taking the percentage of all the management and board members holding in the corporation and the owner should also have a voting right. Holding equity in a corporation provides the management persons voting right to participate and influence the decision-making process. According to Conyon (2002), a board member with large ownership is hard to remove from duty because of the voting right that member holds to save up their job. The decisions in companies have to pass by directors but the CEO plays a critical role in the decision making process. Therefore, compensation to executives is in terms of equity and salary, could impact risk taking behaviour of companies. The reason why executive directors own equity is that shareholders want to align the interest of executive directors to maximize the return of the company, and reduce agency cost, especially in case of persons directly involved in decision making process. According to Miller (2006) and other agencies, theory beavers have an opinion that directors having ownership in the company can help in maximizing returns for shareholders and reduce agency costs. As per Jenkins (1990) executives are encouraged to

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

invest in value-enhancing projects and take more risky projects if more ownership is inclined with executives. Hui and Matsunaga (2015) also state that rewarding equity to managers can help them to invest in projects that increase long-term value for the company. Further, the CEO of a company with large shareholding and great equity incentives push them to take riskier projects, which shows that a positive relation between firm risk and CEO ownership (Chen, 2007). Wright (1996) also evident a positive relationship between management ownership and risk of the firm if the executive has low equity investment but, the similar retain turns negative when the investment of management is high in the firm. This explains that it depends on investors' behavior some desire high growth so willing to take more risk and some investors just want to protect their investments. The Board of directors links their decisions for investment with their ownership whether to go for risky projects or not. The majority of the literature linked with management ownership and risk in a firm indicates positive relation as many directors or board members link their ownership in a company with the decision to take or minimize risk by accepting projects.

According to Laeven & Levine (2009) conducted a study on banks' samples and research evident that the presence of powerful owners takes high risk additionally, it also found that executives with equity ownership also prefer high risk in comparison to executives without having shareholding. Another research by Sanders (2007) evidence that CEO of the company with huge investment in firms equity shows higher performance. Many times company links executive compensation with stocks this can be understood as stock options where if stock performance is above the threshold level the executive will be paid bonuses. Some research shows that if compensation is associated with stock it becomes volatile, due to this executives could tend to avoid taking a high risk. We found no study directly linked with board executive board ownership with firm risk on Australian companies. The majority of literature supports the view that ownership is positively correlated with a company's risk, hence the hypothesis is as follows:

H1: Ownership in management is positively related or has no relation to firm risk

2.2.2. Ownership of Institution and Firm Risk

The major problem associated with institutional ownership by analyzing the role played by institutional players during the global financial crisis and other crisis periods is negative. According to Callen (2013), institutional players provide a base for the crisis by creating pressure on the company's management to generate short-term profit by taking riskier projects, which generally increases the risk-taking behavior of the company. Institutional players refer to entities like investment banks, pension funds, mutual funds, hedge funds, insurance companies, banks, asset management companies, and any other corporation investing large amount, these players holds a huge pile of cash reserves for investment and take a significant position in a company. These companies hold a strong research team and are quite knowledgeable regarding the business of the company they select for investment because of this they hold a strong position backed by their proportion of holding that can influence the decision (Mathew, 2016). Institutional players fall under two categories firstly monitoring institutional investors and secondly short terms institutional players. Monitoring institutional players because of their large stake in corporation enjoys incentive to gather information and regularly watch management moves to get an edge over smaller investors by analyzing company's plan for R&D investment, disclosures, corporate governance, significant developments, earning forecast and any event that can benefit them (Callen, et al., 2013). Previous studies provide experimental signs for the short-termism view. Such a statement provides evidence that institutional players take positions heavily based on current period earnings, and provide more emphasis on short-term performance, and institutional investors failed to serve as a monitor in correcting CEO over compensation (Cheng, 2011).

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

According to the concept of agency theory, the institutional players having substantial equity holdings in a company are expected to monitor executives to safeguard their investment and ensure high returns (Monks, 1995). However, according to Cheng (2011), institutional players focus on short-term profits, and therefore they encourage management to take risks which eventually impacts the company's risk behavior. Further, research by Hutchinson (2015) evident that investors could encourage board members to take higher risks and generate a higher return. This view is also supported by Callen (2013) where research shows that temporary ownership of institutional players increases a company's risk. According to Manconi, (2012), the reason behind this behavior is related to cost monitoring management and because of this system institutional players could opt for selling stocks. Mostly the literature supports the positive view regarding institutional ownership and company's risk. After reviewing literature and support from the theoretical approach with empirical findings its is assumed that there is a positive relation with risk in the firm. Therefore, to test the above argument in Australia the hypothesis is developed as follows,

H2: The higher holding of institutional players is positively linked or has no relation with frim risk

2.2.3. Concentrated Ownership and Company's Risk

Share ownership impacts the firm's risk and return behaviors, and in regards to this context, a large concentrated structure of ownership can also impact firms' risk-taking behavior (Jensen, et al., 1976). La Porta (2000) evident that in emerging countries the concentrated ownership is the major reason behind the agency conflict in companies. However, Jensen (1976) argues that large shareholders influence the management for reporting better performance and due to this it minimizes the agency problem between principals and agents. Concentrated ownership is not much common in countries like USA and UK whereas in European, Asian, Latin American, and African countries the companies are controlled by a few powerful investors (Wei, 2008). Moving further, in developing countries the stakeholding is also very concentrated but in Australia, the results are different, in reads to Australia large corporations do not have concentrated ownership whereas small size companies have concentrated ownership Whiting (2011). Wright (1996) argues that because of managerial significant effect, the ownership concentration can protect private privileges by using the conventional approach in investing because the manager could indulge in making investments and this will make their replacement difficult for investors. Hu (2008) conducted research on Japanese companies that has a concentrated ownership structure and the researcher founds that these companies deliver higher operating returns. According to Attig (2008), large shareholders have an incentive for pushing companies' management to take higher by taking higher return projects.

Further, according to Nguyen (2011), large shareholders discourage the company's management to stay away from unrelated diversification strategies because of this, companies have concentrated ownership remains focused on core business and they were able to report higher performance. However, they also display higher idiosyncratic risk, this issue is less visible in Australia because of higher corporate governance regulations. In regards to concentrated ownership, most of the literature supports a positive view regarding the company's risk. Hence, the hypothesis is formed as follows,

H3: Concentrated ownership is positively associated or has no relation with the company's risk

The relationship between corporate risk and ownership structure remains unexplored in Australia. According to Whiting (2011) researchers have evidence that the smaller companies in Australia have concentrated ownership with the presence of controlling shareholders as compared to the large corporation while the mining sector shows concentrated ownership. According to the researcher, concentrated ownership, management or executive ownership, and institutional ownership are major components of Australian companies but the impact of

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

this ownership on corporate risk remains unexplored. Therefore, this research is intended to put some light on the gap and find empirical evidence to support or reject the relationship between ownership structure and a company's risk.

3. Methodology

3.1. Regression Model

The regression model is used to estimate the relationship between ownership structure and the company's risk this model is presented in the equation below.

$$\text{Risk} = B_1 + B_2 * (\text{institutional ownership}) + B_3(\text{Managerial ownership}) + B_4(\text{concentrated ownership}) + B_5(\text{ROA}) + B_6(\text{Size}) + B_7(\text{LEV}) + e$$

Where ROA for performance, FZ for size, and LEV for financial leverage. The data is used for the past five years from 2017 to 2021.

Descriptive Summary

Research studies the variables initially using descriptive statistics and correlation analysis between them. This provides a general idea to the audience regarding the sample data and its range. In descriptive summary research reports sample average, maximum and minimum values and standard deviation of a sample. Further, in correlation analysis, a correlation matrix is formed to understand each variable relation with other variables. This can provide a general idea of how variables are expected to impact like is there a positive or negative relationship between them.

3.2. Variables

In this section, the information of dependent, independent, and control variables is presented that will be used for econometric analysis.

3.2.1. Independent Variable

Ownership structure in companies is referred to the independent variables, in this study we use institutional ownership (IO), concentrated ownership (CO), and managerial ownership (MO). Firstly, institutional ownership is measured as a total proportion of institutional players who own equity in the company, these players are pension funds, mutual funds, companies, and investment banks (Callen, et al., 2013). Secondly, management ownership is measured by total holdings by all executive members of the company who take a decision and also hold the voting right because of ownership and this number is also reported in percentage form (Sanders, 2007). Finally, the concentrated ownership is measured by finding the largest shareholders in the company this ownership is also calculated in percentage form (Nguyen, 2011).

3.2.2. Dependent Variable

In this study, the corporate risk is determined by dependent variables, and these variables are measured by a mixture of accounting and market terms. For the purpose of this study, we use two folds of measurement that are accounting and market data so that robust results can be ensured. The company's risk measures used in this study are asset return risk, total risk, and financial risk. Where the total risk is measured by the standard deviation of stock return for each financial year on a daily return basis (Callen, 2013). The standard deviation captures the historical volatility in the stock price and this measure is used by investors to forecast the future volatility or expected volatility. Standard deviation consists of both unsystematic and systematic risk and therefore it measures the total risk in the company which can be expressed by this measure. Standard deviation is simply the deviation of returns from its mean value

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

higher the deviation higher the risk. This study will capture the daily standard deviation of the company for each year from 2017 to 2021.

Further, asset return risk is used as an alternative measure to capture the risk which shows the variance of asset return for each company (Flannery, 2008). The volatility of asset return risk is computed by using the ratio market value of equity to the market value of total asset times the standard deviation of daily stock return. The amount will then be annualized multiplying the calculated amount with the unit square root of expected trading days in a year. According to the rough estimate, there are 252 trading days in a year and the return of the company is calculated using (p_t/p_t-1)-1 formula, and annualized volatility can be done using the square root of expected trading days (252) for each company. Further, to find the ARR the standard deviation of daily return times ratio of the market value of equity to the market value of total asset times square root of 252 trading days.

Moving further, the financial risk in the firm can be measured by using the logarithm of the ratio of a total asset to total shareholders' equity (Mahrool, 2019). The total asset is defined as the sum of the current and non-current assets while the total shareholder's equity is the sum of common equity, preferred equity, and minority interest.

3.2.3. Control Variables

The study uses some of the control variables that can affect the firm's risk measurement or the firm's risk-taking, these variables are firm size, leverage, and firm performance. Firstly, firm size is used to control the different sizes of companies because there are large and small corporations and large companies have better access to the capital market and also borrow at better conditions, hence large companies can be able to diversify and invest more using leverage. Therefore, this variable predicts that large companies will be associated with less company's risk. Secondly, the performance of the company as a control variable is used because it is very much possible that the change in risk could be dependent on the performance of the firm. For instance, if the company in any quarter did not meet the expected target then in such a case manager will be pressurized to take more risks to report better results in the upcoming quarter. Finally, the debt to equity ratio is used to control the risk of taking leverage because higher debt could lead to a higher risk of default.

4. Data and Sample

The chapter shows the sample and data used for this dissertation, and how this data is collected by providing information on the source of data. The sample companies selected for this research are 100 randomly picked companies from ASX 200 index, however, after filtering data by discussing all banking and financial companies and those firms which have data less than five years the overall size of population was reduced to 160. Therefore, a sample of 100 randomly selected companies is from a population size of 160 companies. All the companies are listed on the Australian Stock Exchange (ASX) and represent a wide diversity of industries. However, companies related to banking and financial industries are omitted from the population data of 200 companies because of the fact that banking and financial industries are highly regulated and there are mandatory governance mechanisms whereas other companies from different industries are did not have such mandatory regulations. Additionally, in the literature review, many studies conducted on specifically banking and finance indicate a negative relation of ownership with corporate risk. There are some other companies that were excluded from the population due to data unavailability. The data of the sample is collected for the past five years from 2017 – 2021 financial years. The data is gathered from capital IQ database, wrds and also referred directly to the company's audited annual reports. This study uses secondary data for testing hypotheses and the data is gathered from authorized and relevant sources.

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

5. Empirical Results

5.1. Descriptive Summary

Table 1, shows the descriptive summary of this study. The average total risk of the sample is 0.0195 with a minimum value of 0.0073 and a maximum scale of 0.078. The average total risk of companies lies above 1% this means Australian companies witness a higher level of total risk. Further, the average value of ARR is 0.011, and a maximum value of 0.06 and the lowest value of 0.00. The standard deviation of ARR is 0.007 whereas the average shows 0.011 this result is more than one hence it validates the total risk through ARR, hence both risks depict a similar trend. The Financial Risk shows the accounting data and the average financial risk is 0.121 with a maximum value of 1.61 and a minimum of 0 and a standard deviation of 0.24. The FR average reported companies in Australia is also higher than 1% therefore it validates the point that there is risk present in Australian companies. FR is purely calculated from accounting data whereas total risk is on market data and ARR is a mixture of accounting and market data. The descriptive statistics show that all three risks TR, ARR, and FR are positive which means the risk is higher than one.

Moving further, the mean of management ownership is 5.66% in Australia which is similar to the UK results as reported by (Sudha, 2016). However, the management ownership is lower than Japan's perspective as reported by (Sun, 2017). The minimum management ownership in Australia is 0.00% while maximum management ownership is 71.55%. Institutional ownership shows the highest mean followed by concentrated ownership. The institutional ownership is 37.46% while compared to the UK it is slightly higher as the UK reports 34.14% reported by (Sudha, 2016), but these results are significantly higher than Japan's results that were around 27.5% reported by (Sun, 2017). The standard deviation of institutional ownership in Australia is 17.85% with a maximum of 80% and a minimum value of 0 percent. The mean value in concentrated ownership is 8.88% with a minimum value of 0.00% and a maximum value of 65.55%.

Table 1. Descriptive summary

	MGT Ownership	*Institutional Ownership*	*Concentrated Ownership*	*Total Risk*	*ARR*	*FR*	*Performance*	*Firm Size*	*Financial Leverage*
Mean	0.0566551	0.3746038	0.08802344	0.01947	0.010835	0.121293	0.054936	7.35882	0.228091
Standard Error	0.0044288	0.007984094	0.003282443	0.000399	0.000316	0.010654	0.003318	0.073305	0.007174
Median	0.007355	0.3818	0.07615	0.017	0.009107	0.019956	0.0492	7.512834	0.220773
Mode	0.00027	0.4195	0.02	0.017	0	0	0	0	0
Standard Deviation	0.0990313	0.178529768	0.073397657	0.00892	0.007075	0.238236	0.074196	1.639145	0.16042
Sample Variance	0.0098072	0.031872878	0.005387216	7.96E-05	5.01E-05	0.056757	0.005505	2.686795	0.025735
Kurtosis	7.8878435	-0.508195576	29.1494619	3.718573	5.538012	7.777522	15.30079	3.184508	0.49803
Skewness	2.5743833	0.154481607	4.644150681	1.424759	1.613672	2.748743	-1.1037	-1.01714	0.69387
Range	0.71538	0.8027	0.6554	0.070585	0.063488	1.614022	1.054	11.66998	0.797175
Minimum	0.00012	0.0001	0.0001	0.007315	-0.00206	0	-0.586	0	0
Maximum	0.7155	0.8028	0.6555	0.0779	0.061429	1.614022	0.468	11.66998	0.797175
Sum	28.32755	187.3019	44.01172	9.734892	5.417255	60.64632	27.4679	3679.41	114.0453
Count	500	500	500	500	500	500	500	500	500
Confidence Level(95.0%)	0.0087014	0.015686584	0.006449112	0.000784	0.000622	0.020933	0.006519	0.144024	0.014095

5.2. Correlation Analysis

Table 2, shows the Pearson correlation analysis for all the variables used in this research. It explains the connection between ownership and risk variables. There is a positive correlation between management ownership and total risk and ARR but at the same time management ownership shows negative relation with FR. Institutional ownership shows an opposite trend

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

with negative relation with total risk and ARR while positive relation with FR and concentrated ownership shows a similar pattern with negative relation with TR and ARR and positive with FR. This indicates that if ownership has positive relation that shows if ownership of that segment increases then it leads to risk in risk whereas if that ownership segment has negative relation that means company risk behavior improves if that ownership increases. Hence, the higher the brief idea on findings is that institutional ownership and concentrated ownership improve company's risk-taking behaviour while higher Management ownership increases the total risk and ARR.

Table 2. Correlation analysis

	MGT Ownership	*Institutional Ownership*	*Concentrated Ownership*	*Total Risk*	*ARR*	*FR*	*Performance*	*Firm Size*	*Financial Leverage*
MGT Ownership	1								
Institutional Ownership	-0.406689	1							
Concentrated Ownership	-0.185183	0.509078335	1						
Total Risk	0.1281426	-0.123614319	-0.122630395	1					
ARR	0.1687892	-0.134306162	-0.054221533	0.812434	1				
FR	-0.1766601	0.023703544	0.020747799	-0.08546	0.025925	1			
Performance	-0.0432828	0.00227369	-0.014026727	-0.01422	-0.05249	-0.10568	1		
Firm Size	-0.4020849	0.239614283	0.102969707	-0.31169	-0.26174	0.205922	0.044696	1	
Financial Leverage	-0.2600519	0.109801678	0.073191704	-0.29707	-0.48991	0.000308	0.006763	0.388031	1

5.3. Hausman Test

The data is in the form of a panel hence Hausman test is conducted, this test is for economic model misspecification as per the comparison between two different estimators of the model. This test is used in panel data to differentiate between random and fixed-effect models and the decision matrix states that random effect is preferred in the null hypothesis while alternative shows fixed effect is preferred. If the p-value is below 0.05 in the Hausman test then we reject the null hypothesis and this implies that fixed effect regression is preferred to interpret results. The results of three Hausman tests are conducted because in this study we are intended to conduct regression on three risk factors. The test results for ARR indicate a p-value below 0.05 as it was conducted at a confidence level of 95%, this shows for analyzing ARR fixed effect regression will be used as we reject the null hypothesis. Similarly, in the case of FR the Hausman test indicates a p-value below 0.05 so fixed effect regression will be used and finally, for Total Risk, the p-value is higher than 0.05 so the Null hypothesis is rejected, therefore in the case of TR random effect regression will be used.

5.4. Regression Analysis

The regression results show r square to be 13.5% that means only this portion of the dependent variable is explained by the independent variable which states low power of regression results. Asset return risk is the risk as per accounting and market terms and the results show that only management ownership shows significant relation with a p-value of 0.014 this is below 0.05 this means a null hypothesis is rejected. Management ownership has an inverse relationship that means the higher the management ownership in the company lower will be risk-taking behavior of the firm. However, these results contradict the study conducted by Sudha (2016) on the UK, US, and Japan where the researcher indicates that higher board members ownership is directly linked with the positive risk-taking behavior of companies. The institutional ownership and concentrated ownership did not have any significant impact on the risk-taking behavior of companies. This shows that institutional and concentrated investors have no incentive from the increasing risk of companies behavior or it can be these investors cannot influence the collective decision making of the board in the form hence results shows

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

insignificant relation. ARR is significantly impacted with firm size and leverage where larger the size of firm higher the risk taking behaviour however, leverage reduce the risk taking behaviour of company. The reason why leverage shows a negative constant is because equity has the highest cost compared

Table 3. Regression Results

Explanatory Variables	Pre-Sign	Total Risk (TR)	Asset Return Risk (AAR)	Financial Risk (FR)
Constant		0.0355	0.0092	0.00275
Management Ownership	+ or /=	-0.0090 (p-value = 0.126)	-.0179 (p-value =0.014)	-0.0292 (p-value = 0.865)
Institutional Ownership	+ or /=	-0.0011 (p value = 0.74)	-0.00192 (p-value = 0.560)	0.1524 (p-value = 0.050)
Concentrated Ownership	+ or /=	-0.0094 (p-value = 0.244)	-0.0098 (p-value = 0.317)	-0.1641 (p-value = 0.479)
ROA	or /=	0.006 (p-value = 0.29)	0.0070 (P-value = 0.144)	0.049 (p-value = 0.66)
Firm Size	or /=	-0.001 (p-value = 0.00)	0.00113 (p-value = 0.003)	-0.00 (p-value = 0.55)
Leverage	or /=	-0.010 (p-value =0.00)	-0.01977 (p-value = 0.00)	0.152 (p-value = 0.034)
R-square		0.066	0.135	0.0217
Corr		0 (assumed)	-0.3056	-0.1916
Group No.		100	100	100
No. of observation		500	500	500

Table 3, also shows the results of random regression of total risk in companies, and only 6.66% of dependent variable results are explained by the independent variables. All three ownership structure shows insignificant relation with total risk as the p-value is greater than 0.05 therefore we failed to reject the null hypothesis among all three ownership structures. These results clearly support that the Australian governance system is much better and this was the reason why during the global financial crisis Australia did not get impacted. While comparing with the USA where many researchers show a positive significant relation that means as ownership increases the risk behavior of company also increases. However, in Australia, this relation was negative which means an increase in ownership reduces risk behavior but these results become insignificant at a confidence interval of 95% and the clear reason is because of strong governance measures. Further, firm size and financial leverage bot indicate a negatively significant impact on total risk, this shows higher the firm size or higher the leverage lower will be the total risk. Ideally, an increase in leverage increase the total risk but leverage also in turn increases return on equity, if a company is not over leveraged then the risk is less compared to companies highly leveraged.

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

R-square in financial risk analysis is 2.17%, which is also very less. A similar pattern is witnessed while analyzing financial risk as all three ownership structures did not show any significant relation hence we failed to reject the null hypothesis. Only financial leverage indicates a positive significance level in analyzing financial risk. This indicates that companies with financial leverage take more financial risk because of positive relations.

The findings in this study evident that large shareholders were not able to influence the risk-taking behavior in Australia because of strong governance practice country follows and additionally, the size of companies is quite huge that a group of large shareholders may not agree on the same ground hence we witnessed insignificant results. Only in the case of Management ownership, the ARR shows significant negative results whereas the other two risk factors show insignificant results. Hence, the overall study fails to reject the null hypothesis, and it concluded that ownership structure did not have any impact on the risk taking behaviour of companies.

The research shows insignificant results and these results reject the argument made by multiple literatures, like La Porta (2000) Langit & Adhariani (2017) (Cheng, 2011) Barry and Amadou (2011) Hui and Matsunaga (2015), where researchers show evidence that ownership structure impacts risk-taking behavior of companies. However, according to the historic development in the improvement of corporate governance structure across the world this improvement has a huge impact on the Australian market. According to FRC (2011) and Sarbanes-Oxley Act (2002), these reforms in UK and USA has a huge impact on companies across the world many companies have accepted this governance structure to make slight changes and implemented these reforms in their countries. In Australia such reforms were implemented at an early stage due to this we witnessed the least impact of the global financial crisis on Australian companies and a similar trend was witnessed during the covid 19 crisis. Although the economy remained closed for a very long time still companies were able to pass through this recession. Additionally, there were no studies on Australian company's own impact on the risk-taking behavior of companies. It this evident that Australia follows strong governance practices and because of that there was no impact of ownership structure on the risk-taking behavior of companies. However, the study focuses on top companies in Australia but it's interesting to watch how medium and small-cap companies behave with changes in ownership structure.

6. Robustness Analysis

Robustness analysis is a method used to evaluate an initial decision that is a commitment under conditions of uncertainty where other decisions can be implemented over the course of time. This analysis shows the strength of the statistical model, tests, or procedures that a study under specific conditions of statistical analysis is set to achieve. Most models are based on ideal situations which did not exist while working in the real world data, thus based on that model the study could provide correct results even though the conditions were not met. This analysis only yields good results when the data is collected from a wide range of probability distribution, in this study, we gathered data from a sample of 20 companies leading to a distribution of 100 samples because of 5 years of data. When the data has a large number of samples this is mostly unaffected by outliers in simple terms robustness analysis is resistant to errors in the results. The robust analysis is known as good performance for data that is drawn from a wide range of probability distributions, mostly from that distribution that is not normal. The robust statistical method was developed with the motive that statistical methods are unduly affected by an outlier. This test aims to create approaches that closely resemble the current statistical method while being unaffected by outliers or any other minor deviations from the assumed model. The most important case is known as distributional robustness, this breaks through the

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

assumptions of the underlying distribution of data. This distribution shows that the results will be strongly affected by the presence of outliers in the sample. The estimates can be heavily distorted if there is extreme distortion in sample data. Whereas the robustness estimators are not sensitive to these outliers or distributional distortions. Further, under multiple additional and replacement methods, the extreme outlier is added and checked what happens to the data and compared with results when extreme outliers were removed from data.

In panel data there is less scope of conducting robust analysis, hence for fixed-effect model only robust standard error can be estimated because robust check fixed effect automatically takes into account heteroscedasticity and autocorrelation, whereas for random variable two robust analysis is shown in this section.

6.1. Robustness Tests

6.1.1. Heteroscedasticity

Total Risk

```
Breusch and Pagan Lagrangian multiplier test for random effects

        TotalRisk[ID,t] = Xb + u[ID] + e[ID,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+------------------------------
                TotalRisk|    .0000797        .0089249
                       e |    .0000457        .0067622
                       u |    .0000237        .0048696

        Test:   Var(u) = 0
                                  chibar2(01) =     99.69
                               Prob > chibar2 =    0.0000
```

Fig 1. Breusch and pagan lagrangian multiplier test for random effects

Since the p-value is less than 0.05, then the null hypothesis is rejected this shows there is heteroscedasticity within this model. The study estimates the effect of ownership structure on the risk behavior of companies on panel data of 100 companies from the period 2017 till 2021. The breach and pagan lagrangian multiplier test are applied for random variables in this research. In this test, if the p-value is above 0.05 then there is no heteroscedastic in this model.

6.1.2. Residuals and Normality

The graph indicates that the tail is relatively flat this shows that the data is not normally distributed. The jarque-bera test indicates that the p-value is less than 0.05 this implies that the null hypothesis of normality in data is rejected. If the variable fails the normality test then it is important to look at the histogram and the normal probability that is plotted because there can be chances of outlier that caused non-normality. However, the transformation of data has already been adopted like taking a log to make an equal base so there is a high probability there are some outliers in the dataset. These outlier has impacted results and this could be a reason.

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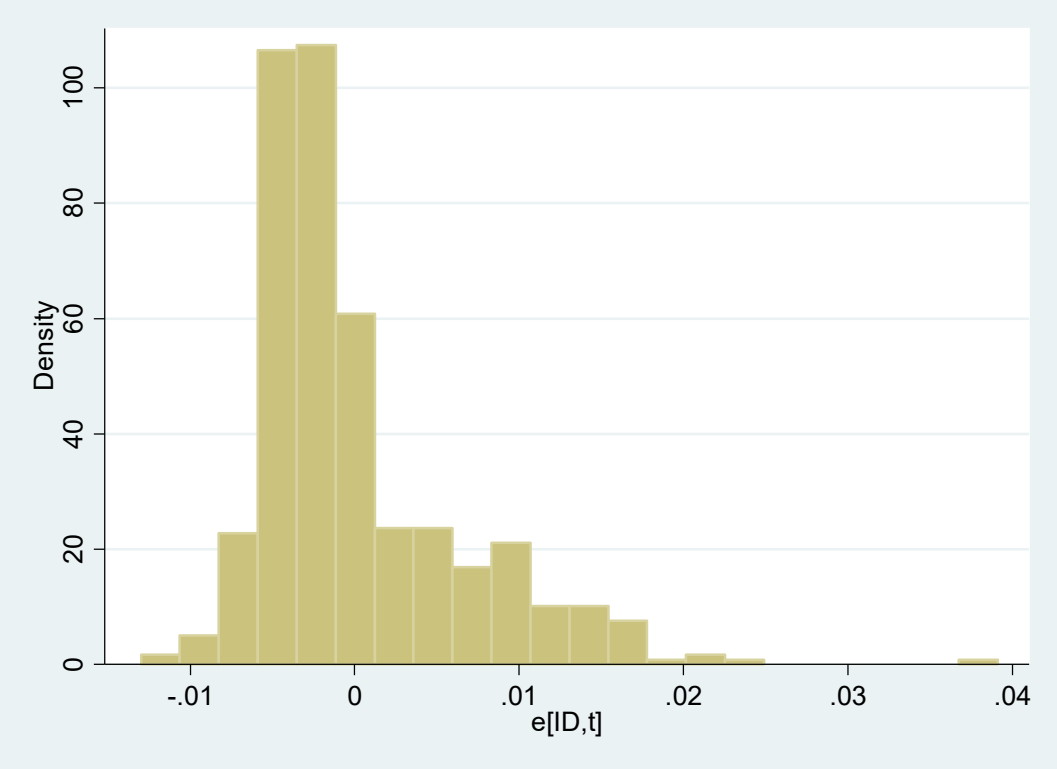


```
. jb residual
Jarque-Bera normality test:   499.9 Chi(2)   3.e-109
Jarque-Bera test for Ho: normality:
```

Fig 2. Residuals and Normality data

7. Conclusion

The objective of this study is to examine the relationship between the ownership structure of companies in Australia and the risk-taking behavior of companies listed on the Australian stock exchange. The study used panel data from the period 2017 till 2021 on a set of 100 sample companies that leads to 500 units of data. In this study, there are three different ownership structures that are institutional ownership, management ownership, concentrated ownership, and this ownership is common among Australian companies. The study failed to reject the hypothesis and findings state that there is no significant impact of ownership on the risk behavior of companies. The findings from this study are inconsistent with past research on other countries and this is proved because we witnessed that during the global financial crisis Australia was among the least affected countries and this was because of the strong governance system country follows. Such a governance system also reduces the companies risk and we witnessed that ownership structure did not affect the company's risk-taking ability. However, apart from insignificant results still management ownership influences the company's ARR, this shows the combination of market and accounting risk gets impacted negatively, which means if management ownership in the company increases then the risk-taking behavior of the company reduces. This gives rise to agency problems because shareholders expect to take high risks however, management becomes conservative if their stake increases. The finding emphasizes that there is no relation between ownership structure and risk-taking ability of firms in Australia. Further, these findings state that ownership structure in Australia did not gear up the corporate performance or did not affect risk in companies. These findings boost the

ISSN: 2692-7608 DOI: 10.6981/FEM.202302_4(2).0003

policymakers and regulators that can continue with their strong governance policies and even improve them to mitigate the impact of corporate risk of ARR. In this research, we also conducted descriptive and correlation analysis to understand the domain of sample data like mean, standard deviation, the maximum – minimum range of data, this analysis provides pre-level insight on sample variables. However, after performing regression analysis the impact of that relationship is very poor that it did not have any significant impact on the risk behavior of companies. The findings reject most of the researcher's claims for other countries but according to the past performance of Australia in times of crisis, such relation was expected.

The research is limited to only 100 companies and for only five years 2017 till 2021, however, the scope of this study can be expanded to more companies and more years. The study is also limited to only one country that is Australia. In this research we conducted only regression analysis however there are other approaches that can be used to study the relation like VAR analysis or other statistical tests that can provide more depth to this analysis. Apart from that the reliability of this study depends on the data used from Capital IQ. Additionally, the study did not take financial and banking companies into consideration but analyzing risk in these companies is important from an ownership perspective. As the ownership structure changes dynamically but for this study, we take ownership data from the annual report which remains consistent with a particular date. This acts as a limitation in our study to accurately evaluate the impact of change in ownership on a company's risk. Finally, we take only three control variables but these variables can be increased to control the effect of sectors impact using industry average data in our analysis.

The study can be expanded to more than 100 variables and to different countries to conduct a comparative analysis between countries. Additionally, the current study only takes five year period but the research can be expanded to more years. Further, the research can conduct a separate study on banking and financial companies by taking relevant risk analyzing ratios and analyzing the different corporate governance structures. Therefore, this study kept a huge scope of future research on more samples, additional years, and taking companies that were not considered before to explore the relationship.

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